

PROCEEDINGS

of the

**United Nations Scientific Conference
on the
Conservation and Utilization of Resources**

17 August—6 September 1949, Lake Success, New York



Volume VIII, Index

UNITED NATIONS

The Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources are issued in eight volumes as follows:

- Volume I: Plenary Meetings
- Volume II: Mineral Resources
- Volume III: Fuel and Energy Resources
- Volume IV: Water Resources
- Volume V: Forest Resources
- Volume VI: Land Resources
- Volume VII: Wildlife and Fish Resources
- Volume VIII: Index

Descriptive material on the background organization and participation in the Conference is to be found in Volume I, Plenary Meetings, as follows:

	Page
Background and Objectives of the Conference.....	vii
Preparatory Work.....	ix
Information Services.....	x
Programme of Meetings.....	x
Conference Method	xii
Hospitality and Field Trips.....	xii
Publication of the Proceedings.....	xv
Report on the Conference by the Secretary-General.....	xvi
Officers, Contributors, Participants and Secretariat	
Preparatory Committee and Secretariat.....	xxv
Presiding Officers	xxvii
Contributors and Participants.....	xxix
Organizations Nominating Participants.....	li
Organizations Nominating Observers.....	liii
Alphabetical Index of Contributors, Participants and Observers	lv

P R O C E E D I N G S
of the
United Nations Scientific Conference
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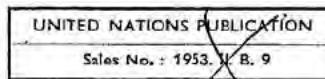


Volume VIII, Index

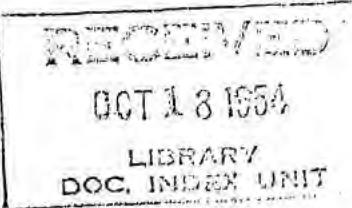
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Correction of Sales No.

Please note that the Sales No. of the above publication should read 1950.II.B.9. instead of 1953.II.B.9. Kindly correct your records accordingly and quote the corrected sales number when ordering additional copies.

Publishing Division

UNITED NATIONS

FOREWORD

With the publication of volume VIII, *Index*, the record of the Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources is concluded. This volume, the final one in the series, provides a comprehensive subject index of the papers presented and the discussions reported in the preceding seven volumes, a programme of the Conference, an alphabetical listing of Conference authors and participants and an alphabetical list of subjects of conferences and titles of contributed papers. In addition, this volume contains corrections of materials published in the previous volumes. These include revisions which were noted while the volumes were in preparation but were not received in time to be incorporated in the published material.

The alphabetical listing of Conference authors and participants contains names which were inadvertently omitted from volume I. In this listing, "A" in parenthesis following a name indicates an author of a Conference paper; "P" indicates a participant who was present at the Conference; and "AP", an author who was present at the Conference. A figure in italics refers to the opening page of an author's paper.

The alphabetical list of subjects of conferences and titles of contributed papers retains the titles as submitted, except that in some cases parts of a title have been inverted in order to bring the key word to the fore. The name of the author is shown in brackets following the title; the roman numeral indicates the volume and the arabic number, the page. The titles and connexions of authors and participants at the time of the Conference are given in the Programme of the Conference and in the appropriate volumes of the proceedings; in the *Index*, many of the titles and addresses have been corrected in accordance with information received during the preparation of the present volume.

In the subject index, figures in italics refer to scientific papers or to opening and closing remarks. As in the listing of authors, roman numerals indicate the volumes and arabic numbers the pages; the capital letters refer to the quarters of the page, that is, "A" indicates the upper left quadrant, "B" the lower left, "C" the upper right and "D" the lower right section. The small letter "n" refers to a footnote.

CONTENTS

PROCEEDINGS OF THE
UNITED NATIONS SCIENTIFIC CONFERENCE
ON THE CONSERVATION AND UTILIZATION OF RESOURCES

ir.	INDEX VOLUME	<i>Page</i>
Errata to volumes I to VII.....		1
Programme of the Conference.....		3
Conference authors and participants.....		27
Alphabetical list of subjects of conferences and titles of contributed papers.....		55
Subject index for volumes I to VII.....		65

ERRATA TO VOLUMES I TO VII

VOLUME I

- p. ix, col. 2, line 4 from end: *for "48" read "49"*
 p. x, col. 1, line 1, after Haiti: *insert "Honduras"*
 p. x, col. 1, line 8: *for "706" read "over 700"*
 p. x, col. 1, line 14: *insert "Honduras" after "Haiti"*
 p. xxxiv Add:

"HONDURAS

- "Ortega, Pompilio (AP), Director General of Agriculture, Tegucigalpa, D.C."
- p. xxxix, col. 2, line 1: *for "Rowatt" read "Rowett"*
 p. 51, col. 2, line 13: *for "unit cost will be higher. Thus value decreases; cost" read "acre as a rule is higher, the yield lower. When new"*
 p. 401, col. 1, line 11: *for "financed by investments from" read "financed by the investment fund of"*
 p. 401, col. 1, line 21: *for "Beline" read "Béline"*
 p. 401, col. 1, line 32: *for "Jotuba" read "Sotuba"*
 p. 409, col. 1, line 9: *for "beneficent. It is reared" read "beneficent. It is red"*
 p. 409, col. 1, line 11: *for "be achieved and the control" read "be achieved in the control"*
 p. 409, col. 1, line 43: *for "small proportions" read "small proportion"*
 p. 409, col. 2, line 2: *for "Before I left" read "Before he left"*
 p. 414, col. 1, line 8 from bottom, last word: *for "be" read "to"*

VOLUME II

- p. 84, legend to fig.: *for "Archaean areas shaded" read "Archaean areas in northern and central parts of Brazil shaded"*
 p. 147, col. 2, line 14: *for "Trit-State" read "Tri-State"*
 p. 148, col. 1, line 14: *for "This usually involves a simple washing operation and the grade of ore is improved from about 40 per cent to around 50 in the concentrates." read "This usually involves a simple washing operation and the grade is improved from 40 or 45 per cent to 55 and sometimes approaching 60 per cent."*
 p. 168, col. 2, line 2 from bottom: *for "from about 40 per cent to 50 per cent in the concentrates." read "from 40 or 45 per cent to 55 and sometimes approaching 60 per cent."*
 p. 228, col. 1, line 12 from bottom: *for "absorbed" read "adsorbed"*

- p. 230, col. 1, line 16 from bottom: *for "cadmium and lead" read "iron"*
 p. 239, figs. 2, 3 and 4: *for "E" read "E(volt)"*

VOLUME III

- p. 57, col. 2, line 18 from bottom: *for "100,000" read "100,000 million"*
 p. 223, bottom, under "Discussants": *for "Crary Hannum" read "Crary, Hannum"*
 p. 308, col. 2: *for line 14 insert line 13; for line 13 insert line 14*
 p. 309, col. 1, Table: *for "In non-electrified rural areas . . . 3, 9 × 10⁶" read "In non-electrified rural areas . . . 1,0 × 10⁶"*
 p. 332, col. 1, line 46: *for "Houston 2" read "Houston 1"*

VOLUME IV

- p. 92, col. 2, line 41: *for "Nevertheless, a recent sentence of" read "However, a recent decision of"*
 p. 93, col. 1, line 3: *for "Lastly, the National Resources Planning Board had been publishing since 1938 studies on the development and utilization of rivers;" read "The National Resources Planning Board and predecessor committee from 1936 to 1942 published studies on the development and utilization of rivers;"*
 p. 116, col. 2, last equation:

for

$$F_{Ca} = \frac{Y^2_H + Y_{CaR}}{Y_{Ca} + Y^2_{HR}},$$

read

$$F_{Ca} = \frac{Y^2_H + Y_{CaR}}{Y_{Ca} + Y^2_{HR}},$$

- p. 117, col. 1, line 5: *for "H⁺ Ha⁺" read "yH⁺ yNa⁺"*
 p. 117, col. 1, lines 11-12: *delete "while exchangers containing quaternary hydroxyde groups are strong bases"*
 p. 117, legend to Fig. 1: *for "Plot of 2_{Na} × R vs. 2_{Na} × S" read "Plot of 2_{Ca} × R vs. 2_{Ca} × S"*
 p. 119, col. 2, under *Bibliography*: 7. *for "pages 3, 295" read "page 3295"; 8. for "page 2, 818" read "page 2818"; 9. for "pages 2, 830" read "page 2830"; 10. for "pages 2, 836" read "page 2830"; 11. for "page 1, 380" read "page 1380"; 12. for "page 1, 664" read "page 1664"; 14. for "2, 849" read "page 2849"; 15. for "pages 2, 188" read "page 2188"*
 p. 278, col. 1, line 2 from bottom: *for "Tr" read "Tr"*
 p. 279, Table II: *under Accelerations,*

for "ap" read "ap"; under Stresses, for "Sp" read "Sm"

UNSCCUR PROCEEDINGS: INDEX

VOLUME V

- p. 10, col. 2, under *Bibliography* 3: *for "beräkning" read "beräkning"*
p. 11, col. 1, line 4: *for "page 36" read "no. 36"*
p. 38, line 3: *for "Transportation equipments" read "Transportation of equipment"*
p. 212, col. 2, line 4: *for "100,000" read "300,000"*

VOLUME VI

- p. 90, line 8 in *Abstract*: *for "NOGA" read "NDGA"*
p. 90, line 9 in *Abstract*: *for "anti-oxidents" read "anti-oxidants"*
p. 124, under *Bibliography*, line 1: *for "U. S. Gibbs" read "H. S. Gibbs"*
p. 209, line 7 in *Abstract*: *for "No suitable crop" read "Unsuitable crop"*
p. 210, col. 2, line 2: *for "reduced costs. Small-holders" read "reduced costs. A series of experiments in England comparing deep and shallow ploughing has shown that deep ploughing markedly reduces the number of weeds. Smallholders"*
p. 210, col. 2, line 6: *delete sentence "A series of experiments . . . the number of weeds."*
p. 213, under *Bibliography*, line 9: *for "vol. IX, 77 pages" read "vol. IX 77."; line 12: for "53 pages" read "p. 53"*
p. 239, under *The Soils of Western and Eastern Pakistan*, line 4: *for "plain" read "plains"*
p. 267, col. 2, line 50: *for "Bureau" read "Bureaux"*
p. 439, Table 2, line 3: *for "Cow: 61 lb." read "Cow: 60 lb."*

- p. 441, col. 1, line 6: *for "cool climate" read "cool climates"*
p. 451, line 3 in *Abstract*: *for "population and in increased" read "population and an increased"*
p. 451, line 3 from bottom of *Abstract*: *for "growing of species of higher nutritive value, as well as increasing total yield served and stepped up soil resources as well." read "making possible the growth of species of higher nutritive value, as well as increasing total yield."*
p. 528, col. 1, line 2 from bottom: *for "had been published in" read "had been published by"*
pp. 570-584: *for "green manure" read "manure crops"*
p. 575, col. 2, line 3: *for "1,5 to 2,5 hectares" read "1.5 to 2.5 hectares;"*
p. 575, col. 2, line 4: *for "the hoe is used," read "the hoe is used;"*
p. 576, col. 2, lines 9 and 10 from bottom: *for "in spite of efforts to improve agricultural methods; and of standing by while" read "(in spite of efforts to improve agricultural methods) of standing by while"*
p. 582, col. 1, line 27: *for "0,51 hectare" read "0.50 hectare"*
p. 584, col. 2, last line: *for "to the income it might be produce (1)" read "to the income it might be produce (8)"*

VOLUME VII

- Copyright page: *for "Sales No.: 1950.II.B.5" read "Sales No.: 1950.II.B.8"*
p. 199, col. 1, line 17: *for "state fish, and keep streams closed to the public" read "state fish, streams closed to the public."*

PROGRAMME OF THE CONFERENCE

PLENARY MEETINGS

(Volume I)

INTRODUCTORY AND WELCOMING ADDRESSES 17 August 1949

Chairmen:

Trygve Lie, Secretary-General of the United Nations ;
Antoine Goldet, Secretary-General of the Conference,
Principal Director of the Department of Economic
Affairs, United Nations

Addresses:

William O'Dwyer, Mayor of the City of New York
Detlev Bronk, Chairman, National Research Council,
U.S.A.

Julius A. Krug, United States Secretary of the Interior

THE WORLD RESOURCES SITUATION

17 August 1949

Chairman:

S. S. Bhatnagar, Secretary to the Government of India,
Department of Scientific Research

Papers:

World Resources Situation, by Fairfield Osborn, President,
Conservation Foundation, New York, N.Y.,
U.S.A.

World Resources and World Population, by Colin G.
Clark, Under-Secretary of State, Director, Bureau of
Industry, Department of Labour and Industry,
Brisbane, Queensland, Australia.

WORLD REVIEW OF CRITICAL SHORTAGES

18 August 1949

Chairman:

Edy Velander, Managing Director, Royal Academy of
Engineering Sciences, Stockholm, Sweden

Papers:

Critical Shortages of Food, by Herbert Broadley, Deputy
Director-General, Food and Agriculture Organization
of the United Nations

Critical Shortages: Forests, by Marcel Leloup, Director,
Forestry and Forest Products Division, Food and
Agriculture Organization of the United Nations

Critical Mineral Shortages, by H. L. Keenleyside, Deputy
Minister, Department of Mines and Resources, Canada

Critical Shortages: Fuels and Energy, by John C. Parker,
Vice-President, Consolidated Edison Company of
New York, N.Y., U.S.A.

THE INTERDEPENDENCE OF RESOURCES

18 August 1949

Chairman:

J. A. Krug, United States Secretary of the Interior

Papers:

Interdependence of Resources, by Emmanuel de Maronne,
Member, Académie des Sciences de l'Institut
de France, Honorary President of International Union,
Paris, France

Complementary Nature of European Resources—A Basis
for Developing Regional Economic Co-operation, by
Ernest Weissmann, Director, Industry and Materials
Division, United Nations Economic Commission for
Europe

Planning of Land-Use for Full Production with Special
Reference to European Conditions and National
Planning Undertaken in the United Kingdom, by
L. Dudley Stamp, Chief Adviser on Rural Land-Use,
Ministry of Agriculture, London, England

SOILS AND FORESTS

19 August 1949

Chairman:

Charles F. Brannan, United States Secretary of Agriculture

Papers:

Soil and Water Conservation, by Hugh H. Bennett,
Chief, Soil Conservation Service, United States Department
of Agriculture

Soil and Forest Conservation and Protection of Water
Supplies, by A. B. Lewis, Agriculture Division, and
J. D. B. Harrison, Forestry and Forest Products
Division, Food and Agriculture Organization of the
United Nations

Techniques for Increasing Agricultural Production, by
Robert M. Salter, Chief, Bureau of Plant Industry,
Soils and Agricultural Engineering, Agricultural Research
Administration, United States Department of Agriculture

FUELS AND ENERGY

22 August 1949

Chairman:

Harold Hartley, Chairman, British National Committee,
World Power Conference

Paper:

Estimates of Undiscovered Petroleum Reserves, by
A. I. Levorsen, Stanford University, California, U.S.A.

UNSCCUR PROCEEDINGS: INDEX

METALS AND MINERALS

23 August 1949

Chairman:

Fernand Blondel, Director, Bureau d'Études géologiques et minières coloniales, Paris, France

Papers:

Metals in Relation to Living Standards in Industrially Under-Developed Countries, by D. N. Wadia, Geological Adviser, Department of Scientific Research, Government of India

Metals and the Standard of Living, by Howard Meyerhoff, Administrative Secretary, American Association for the Advancement of Science, Washington, D.C., U.S.A.

Conservation of Mineral Resources, by Donald McLaughlin, San Francisco, California, U.S.A.

CREATABLE RESOURCES: DEVELOPMENT OF NEW RESOURCES BY APPLIED TECHNOLOGY

24 August 1949

Chairman:

S. Zuckerman, Professor, University of Birmingham Medical School, Deputy Chairman, Advisory Committee on Scientific Policy, United Kingdom

Papers:

Creatable Resources: Development of New Resources by Applied Technology, by F. Neville Woodward, Director, Institute of Seaweed Research, Inveresk Gate, Musselburgh, Midlothian, Scotland

Contribution of Chemurgy, by G. E. Hilbert, Chief, Bureau of Agricultural and Industrial Chemistry, United States Department of Agriculture

Wood Fibre: Creatable Resource of Wide Utility, by J. A. Hall, Director, Pacific Northwest Forest and Range Experiment Station, United States Forest Service, Portland, Oregon, U.S.A.

Fat Synthesis by Micro-organisms and its Possible Applications in the Food Industry, by Harry Lundin, Royal Institute of Technology, Stockholm, Sweden

Food Yeast in the British Empire, by A. C. Thaysen, Colonial Microbiological Research Institute, Trinidad, B.W.I.

Agricultural Products as Starting Materials for the Chemical Industry, by Ernst D. Bergmann, Weismann Institute of Science, Rehovoth, Israel

METHODS OF RESOURCE APPRAISAL

25 August 1949

Chairman:

Emmanuel de Martonne, Member, Académie des Sciences de l'Institut de France, Honorary President, International Geographic Union

Papers:

Mineral Discovery, by Fernand Blondel, Ingénieur en chef des mines, Paris, France

Resource Surveys, by Robert H. Randall, Bureau of the Budget, Executive Office of the President of the United States

Statistical Control in Conservation and Utilization of Resources, by W. A. Shewhart, Bell Telephone Laboratories, Murray Hill, N.J., U.S.A.

Place of Experimental Investigations in Planning of Resource Utilization, by F. Yates, Rothamsted Experimental Station, Harpenden, Hertfordshire, England

Statistical Tools in Resource Appraisal and Utilization, by P. C. Mahalanobis, Indian Statistical Institute, Calcutta, Statistical Adviser to the Cabinet, Government of India

ADAPTATION OF RESOURCE PROGRAMMES

26 August 1949

Chairman:

Egbert de Vries, Counsellor for Economic Affairs to Ministry of Overseas Territories, The Hague, Netherlands

Papers:

Economic Considerations in Conservation and Development, by Stephen Raushenbush, Washington, D.C., U.S.A.

Application of Simple Conservation and Utilization Practices, by B. A. Keen, Director, East African Agriculture and Forestry Research Organization, Nairobi, Kenya

Organizing Rural People for Proper Use and Conservation of Natural Resources, by M. M. Coady, Director, Extension Department, St. Francis Xavier University, Antigonish, Nova Scotia, Canada

Application of Simple Conservation and Land-Use Practices in China, by J. Lossing Buck, Chief, Land-Use Branch, Agriculture Division, Food and Agriculture Organization of the United Nations

ASSESSING RESOURCES IN RELATION TO INDUSTRIALIZATION PLANS

29 August 1949

Chairman:

Raymond Dreux, Commercial Counsellor, French Embassy, Washington, D.C., U.S.A.

Papers:

Special Problems in Industrialization, by John Abbink, Consultant on Foreign Technical Assistance Programme United States Mission to the United Nations

Special Problems in Assessing Resources in Relation to Industrialization Plans of Less Developed Countries, by Roberto Vergara, Corporación de Fomento de la Producción, Chile

Industrial Development in Venezuela, by Pedro Ignacio Aguerrevere, Consulting Geologist, Caracas, Venezuela

Special Problems in Assessing Philippine Resources in Relation to its Industrialization Plans, by Filemon C. Rodríguez, National Research Council of the Philippines

PROGRAMME OF THE CONFERENCE

EDUCATION FOR CONSERVATION

30 August 1949

Chairman:

M. A. Hamid, Chief Engineer, Irrigation Secretary, Government of West Punjab, Pakistan

Papers:

Education and Conservation, by Alain Gille, Fundamental Education Division, United Nations Educational, Scientific and Cultural Organization

Extension Methods in Conservation Education, by M. L. Wilson, Director of Extension Work, United States Department of Agriculture

Education and the Conservation of Natural Resources in French Black Africa, T. Monod, Director, Institut français d'Afrique noire, Dakar, French West Africa

Contribution of Cuban Schools to Conservation of Natural Resources, by Abelardo Moreno, Professor of Zoology, Museo Poey, University of Havana, Cuba; and Ramona Fernández, Professor of Scientific Methodology, Havana Teachers Training School; Assistant, Zoology Laboratory, Museo Poey, University of Havana, Cuba

Soil Conservation in Nyasaland, by W. J. Badcock, Chief Soil Conservation Officer, Department of Agriculture, Government of Nyasaland

Supplementary Education for Soil Conservation in New Zealand, by D. A. Campbell, Senior Soil Conservator, Soil Conservation and Rivers Control Council, Wellington, New Zealand

Protection of Natural Resources: Education and Propaganda, by Raymond Furon, Assistant Director (Geology), National Museum of Natural History, Paris, France

Methods of Teaching Conservation of Natural Resources in Jamaica, by W. C. Lester-Smith, London, England

Agricultural Education in Uganda, by R. K. Kerkham, Uganda Agricultural Service, Government of Uganda, Entebbe, Uganda

Educational Methods of Instructing Native Populations of Africa in Protection and More Efficient Use of Resources, by J. J. Deheyn, Senior Agronomist, Belgian Congo

Rural Education and its Influence on Conservation and Better Use of Natural Resources in Nigeria, by G. N. Herington, Rural Education Officer, Nigeria

Importance of Study of Agricultural Industries in an Instructional Programme Dealing with Conservation and More Efficient Use of Natural Resources, by Jean Keiling, Paris, France

RESOURCE TECHNIQUES FOR LESS DEVELOPED COUNTRIES: A SYMPOSIUM

1 September 1949

Chairman:

Hernán Santa Cruz, Permanent Representative of Chile to the United Nations

Discussion leader:

S. S. Bhatnager, Secretary to the Government of India, Department of Scientific Research

LABOUR AND PUBLIC HEALTH TECHNIQUES

2 September 1949

Chairman:

Enrique Rodríguez Fabregat, Permanent Representative of Uruguay to the United Nations

Papers:

Techniques in Recruitment and Training of Labour (for Less-Developed Countries), by Vincent C. Phelan, Director, Canadian Branch Office, International Labour Office, Montreal, Canada

Man as a Resource: A Problem in Conservation, by A. B. Wolman, Johns Hopkins University, Baltimore, Maryland, U.S.A.

Application of Principles of Nutrition in Use and Conservation of Natural Resources, by F. W. Clements, World Health Organization

Recruitment and Training of Labour for Resource Development, by International Labour Office, Geneva

Preparation of Scientific and Technical Personnel for American Tropics, by Ralph H. Allee, Director, Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica

Training of Technical and Scientific Staff for Conservation and Utilization of Resources in Haiti, by Pierre G. Sylvain, Port-au-Prince, Haiti

Memorandum by the Société haïtienne d'études scientifiques

INTEGRATED DEVELOPMENT OF RIVER BASINS: EXPERIENCE OF THE TENNESSEE VALLEY AUTHORITY

5 September 1949

Chairman:

H. L. Keenleyside, Deputy Minister, Department of Mines and Resources, Ottawa, Canada

Papers:

Experience of the Tennessee Valley Authority in Comprehensive Development of a River Basin, by Gordon R. Clapp, Chairman of the Board, Tennessee Valley Authority, Knoxville, Tennessee, U.S.A.

Decatur Story, by Barrett Shelton, Editor and Publisher, *Decatur Daily*, Decatur, Alabama, U.S.A.

Impact of T.V.A. upon the Tennessee Valley Region, by William E. Cole, Head, Department of Sociology, University of Tennessee, Knoxville, Tennessee, U.S.A.

INTEGRATED DEVELOPMENT OF RIVER BASINS: A SYMPOSIUM ON PUBLIC POLICY

5 September 1949

Chairman:

Abdel Amir Al-Uzri, Director-General of Irrigation, Baghdad, Iraq

UNSCCUR PROCEEDINGS: INDEX

Discussion leader:

Gilbert White, President, Haverford College, Haverford, Pennsylvania, U.S.A.

REVIEW OF THE CONFERENCE: A SYMPOSIUM ON FUTURE LINES OF STUDY AND DIRECTIONS FOR PROGRESS 6 September 1949

Chairman:

William Borberg, Permanent Representative of Denmark to the United Nations

Discussion leader:

Carter Goodrich, Chairman of Preparatory Committee, United Nations Scientific Conference on Conservation and Utilization of Resources

Statements:

S. S. Bhatnagar, Secretary to the Government of India, Department of Scientific Research

Isabella Leitch, Director, Commonwealth Bureau of Animal Nutrition, Rowett Research Institute, Bucksburn, Aberdeenshire, Scotland

René Jolain, Inspecteur général des eaux et forêts, Orléans, France

Michael Graham, Fisheries Laboratory, Ministry of Agriculture and Fisheries, Lowestoft, Suffolk, England

G. C. Monture, Chief, Mineral Resources Division, Department of Mines and Resources, Ottawa, Canada

Pedro I. Aguerrevere, Consulting Geologist, Caracas, Venezuela

Edy Velander, Director, Royal Academy of Engineering Sciences, Stockholm, Sweden

Arthur E. Goldschmidt, Special Assistant to the Secretary, United States Department of the Interior

Egbert de Vries, Professor, Agricultural University, Wageningen: Counsellor to Ministry of Overseas Affairs, The Hague, Netherlands

CONCLUDING ADDRESSES

6 September 1949

Chairman:

Trygve Lie, Secretary-General of the United Nations

Addresses:

Vijaya Lakshmi Pandit, Ambassador of the Government of India to the United States of America

James Thorn, President, Economic and Social Council of the United Nations

Carlos G. López, Ecuadorian Delegation to the United Nations Scientific Conference on Conservation and Utilization of Resources

Julius A. Krug, United States Secretary of the Interior

MINERAL RESOURCES (Volume II)

MINERAL SUPPLIES AND THEIR MEASUREMENT

23 August 1949

Chairman:

M. S. Krishnan, Director, Bureau of Mines, Government of India

Papers:

Estimates of Selected World Mineral Supplies by Cost Range, by Elmer W. Pehrson, Chief, Economics and Statistics Division, Bureau of Mines, United States Department of the Interior

Mineral Supplies and Their Measurement—Iron and Manganese, by André Legendre, Service des Mines, Metz, France

Geographical Factors in the Utilization of Mineral Deposits, by Alan M. Bateman, Silliman Professor of Economic Geology, Yale University, New Haven, Connecticut, U.S.A.; Editor, *Journal of Economic Geology*

Geographical Factors in the Utilization of the Mineral Resources of Brazil, by S. Fróes Abreu, Conselho Nacional Geografia, Rio de Janeiro, Brazil

Geographical Basis of the Cement Industry in India and Pakistan, by R. Rajagopalaswamy, Chief Geologist, Associated Cement Companies Ltd., Bombay, India

Supply and Industrial Applications of Scrap Metals, by H. J. Miller, British Insulated Callender's Cables Ltd., Prescot, Lancashire, England

Accumulation and Conservation of Metals-in-Use, by Charles White Merrill, Chief, Metal Economics Branch, Bureau of Mines, United States Department of the Interior

THE OUTLOOK FOR FUTURE DISCOVERY

31 August 1949

Chairman:

J. C. Ghosh, Director General of Industry and Supply, Government of India

Papers:

Mineral Resources: Outlook for Future Discovery, by F. Dixey, Director, Colonial Geological Surveys, Imperial Institute, London, England

Outlook for Mineral Discovery in Great Britain, by W. F. P. McLintock, Director, Geological Survey of Great Britain, London, England

Outlook for Future Mineral Discovery in North and South America, by W. E. Wrather, Director, United States Geological Survey, United States Department of the Interior

Outlook for Mineral Discovery in Australia, by H. G. Raggatt, Director, Australian Bureau of Mineral Resources, Geology and Geophysics, Melbourne, Australia

PROGRAMME OF THE CONFERENCE

INCREASING MINERAL RESOURCES BY DISCOVERY 24 August 1949

Chairman:

Paul D. Foote, Executive Vice-President, Gulf Research Development Company, Pittsburgh, Pennsylvania, U.S.A.

Papers:

Possibilities and Costs of Methods of Mineral Discovery, by Anton Gray, Chief Geologist, Kennecott Copper Corporation, New York, N.Y., U.S.A.

Methods in Prospecting for Sulphide Ores in Northern Sweden, by Per Geijer, Director, Geological Survey of Sweden, Stockholm, Sweden

Modern Geophysical Methods as Aid in Mineral Exploration, by Hans Lundberg, President, Lundberg Explorations Ltd., Toronto, Ontario, Canada

Mineral Resources of India, by M. S. Krishnan, Director, Bureau of Mines, Government of India, New Delhi, India

Lead and Zinc Resources in Sardinia, by Mario Carta, Chief Engineer, Iglesias Mining District (Sardinia), Italy

Possibilities and Costs of Methods of Mineral Discovery in Liberia, by Arthur Sherman, Director, Bureau of Mines and Geology, Treasury Department, Monrovia, Liberia

Increasing Mineral Resources by Discovery: Possibilities and Costs of Methods of Discovery, by Antonio Calvache, Director, Woods, Mines and Waters, Ministry of Agriculture, Havana, Cuba

Possibilities for Discovery of Mineral Deposits in Bolivia, by Federico Ahlfeld, Servicio Petrola y Minas, Ministerio de Fomento, La Paz, Bolivia

Best Methods of Accelerating Mineral Discoveries in Central and Northern Parts of Brazil, by S. Fróes Abreu, Conselho Nacional Geografia, Rio de Janeiro, Brazil

Origin of Italian Sulphur—New Lines of Research, by Roberto Gualtieri, Member, Mines Department, Ministry of Industry and Commerce, Rome, Italy

Development of Mineral Wealth in Yugoslavia, by Stojan Pavlović, Professor, University of Belgrade, Belgrade, Yugoslavia

CONSERVATION IN MINING AND MILLING 30 August 1949

Chairman:

G. C. Monture, Department of Mines and Resources, Ottawa, Canada

Papers:

Development, Mechanization and Equipment for Large-Scale Quarry Operations in Northampton Sand Ironstone, by Robert B. Beilby, Stewarts & Lloyds Ltd., Corby, Northamptonshire, England

Metallic Mine Mechanization to Increase Recovery: Mining and Concentrating in Sweden, by Sven Dalhammar, Mining Engineer, Ludvika, Sweden

Mine Mechanization to Increase Recovery, by Roberto Arce A., Ingeniero Civil y de Minas, La Paz, Bolivia

Metallic Mines in France, by Paul Audibert, Civil Mining Engineer, Carces (Var), France

Mechanization of Non-Metallic Mines, by L. Blum-Picard, Président du Conseil d'Administration, Mines domaniales de potasse d'Alsace, Paris, France

Influence of Technical Advances on Mining Costs in the Alsace Potash Mines from 1927 to 1948, by Les Mines domaniales de potasse d'Alsace, Paris, France

Mechanization of Non-Metallic Mines, by James A. Barr, Chief Engineer, International Minerals and Chemical Corporation, Chicago, Illinois, U.S.A. (Assisted by Mr. T. M. Ware, Industrial Engineer)

Mining and Processing Pittsburgh No. 8 Seam Coal in Greene County, Pennsylvania, U.S.A., by W. L. McMorris, Jr., Preparation and Research Engineer, H. C. Frick Coke Co. and Associated Companies, Pittsburgh, Pa., U.S.A.

New Processes for Utilization of Low-Grade Ores, by R. W. Diamond, Vice-President and General Manager, C. O. Swanson, Chief Geologist, B. P. Sutherland, Chairman, Research Board, Consolidated Mining and Smelting Company of Canada Ltd., Trail, B.C., Canada

New Processes for Utilization of Low-Grade Ores, by John D. Sullivan, Assistant Director, Battelle Memorial Institute, Columbus, Ohio, U.S.A.

Iron and Steel Making from Low-Grade Ores at Appleby-Frodingham Works of United Steel Companies Ltd., by A. Robinson, Appleby-Frodingham Steel Company, Scunthorpe, Lincolnshire, England

Blast Furnace Acid Burdening Practice, by the Staff of Stewarts & Lloyds Ltd., Corby, Northamptonshire, England

Economic Mineral Dressing as Preliminary Condition for Inexpensive Large-Scale Mining—Methods of Utilization of Low-Grade Iron Ores, by Ernst Bierbrauer, Montanistic University, Leoben, Austria

CONSERVATION IN MANUFACTURE

25 August 1949

Chairman:

Julian W. Feiss, Assistant to Director, Bureau of Mines, United States Department of the Interior

Papers:

Conservation in Production of Iron and Steel, by Clyde Williams, Director, Battelle Memorial Institute, Columbus, Ohio, U.S.A.

Note on Use of Gaseous Oxygen, by D. J. O. Brandt, British Iron and Steel Research Association, London, England

Ideas on Future Production of Iron and Steel, by Robert Durrer, Professor of Metallurgy, Federal Institute for Technology, Zurich, Switzerland; General Manager, Louis de Roll Iron Works Ltd., Gerlafingen, Switzerland

Treatment of Waste Gases, by Walter A. Schmidt, President, Western Precipitation Corporation, Los Angeles, California, U.S.A.

Electrolytic Tinplate—Its Production and Benefits, by Samuel S. Johnston, Technical Director, Electrolytical Department, Weirton Steel Co., Weirton, West Virginia, U.S.A.

Conservation of Lead, by J. Faye, Président du Groupe-ment d'Importation et de Répartition des Métaux, Paris, France

Conservation of Non-Ferrous Metals, by Jiří Sequens, Director of Kovohute, národní podnik, Metal Foundries National Corporation, Prague, Czechoslovakia

Design as a Factor in Conservation, by Georg Wästlund, Professor, Swedish Cement and Concrete Research Institution, Stockholm, Sweden

CONSERVATION BY CORROSION CONTROL

1 September 1949

Chairman:

Riad A. Higazy, Lecturer, Geology Department, Farouk I University, Alexandria, Egypt

Papers:

Report on the Conservation of Metals by Corrosion Control, by Georges Chaudron, Professor of Applied Chemistry, Sorbonne, Paris, France

Costs of Corrosion to the United States, by Herbert H. Uhlig, Associate Professor, Corrosion Laboratory, Department of Metallurgy, Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A.

Costs of Corrosion and its Control, by W. H. J. Vernon, Head of Corrosion Group, Department of Scientific and Industrial Research, Chemical Research Laboratory, Teddington, England

Role of Protective Coats in the Conservation of Metals, by U. R. Evans, Reader in the Science of Metallic Corrosion, University of Cambridge, England

Prevention of Corrosion by Means Other Than Protective Coatings, by F. L. LaQue, In Charge, Corrosion Engineering Section, Development and Research Division, International Nickel Company, Inc., New York, N.Y., U.S.A.

Costs and Benefits of Conservation of Cast Iron and Steel Pipelines by Control of Corrosion, by J. E. Carrière, Managing Director, Institute for the Testing of Water Supply Materials, The Hague, Netherlands, and C. A. Lobry de Bruyn, Managing Director, Central Institute for Research on Materials, Delft, Netherlands

Fundamental Research on Corrosion—Work of the Committee for Electro-chemical Thermodynamics and Kinetics, by Marcel Pourbaix, Agrégé de l'Université de Bruxelles, Belgium, in collaboration with P. van Rysselberghe, University of Oregon, Eugene, Oregon, U.S.A.

CONSERVATION BY SUBSTITUTION

2 September 1949

Chairman:

R. G. Lehmann, Adviser to the Commercial Counsellor, Embassy of France to the United States

Papers:

The Future of Light Metals, by H. Sutton, Deputy Director, Research and Development Materials, Ministry of Supply, London, England

The Future of Light Metals with Special Reference to Titanium, by Oliver C. Ralston, Bureau of Mines, United States Department of the Interior

Possibilities and Limitations in the Substitution of Light Metals for Steel and Copper, by Jean Matter, Director, Compagnie Alais, Forges et Camargue, Paris, France

Magnesia and Magnesium from Sea-water, by P. Litherland Teed, Deputy Chief of Aeronautical Research and Development, Vickers-Armstrong Ltd., Weybridge, Surrey, England

Use of Solar Energy in Evaporation of Dead Sea Brine, by M. R. Bloch, Palestine Potash Company, Jerusalem

INORGANIC FERTILIZERS IN CONSERVATION

26 August 1949

Chairman:

William G. Ogg, Director, Rothamsted Experimental Station, Harpenden, Hertfordshire, England

Papers:

Estimate of World Supplies of the Principal Plant Nutrients by Cost Range, by J. Le Cornec, Chairman and Managing Director, Comptoir des Phosphates de l'Afrique du Nord, Paris, France

World Resources of Principal Inorganic Plant Nutrients, by K. D. Jacob, Bureau of Plant Industry, Soils and Agricultural Engineering, United States Department of Agriculture

Resources of Minerals Containing Phosphorus and Potassium in Sweden and their Utilization in the Fertilizer Industry, by Sven Nordengren, United Swedish Superphosphate Factories, Landskrona, Sweden

Economics of World Supply of Fertilizer Materials and their Use, by H. A. Curtis, Director, Tennessee Valley Authority, U.S.A.

Economics of World Availability and Use of Fertilizer Materials, by R. E. R. Grimmett, Superintendent, and I. L. Elliott, Assistant Superintendent, Soil Fertility Station, Department of Agriculture, Hamilton, New Zealand

Economics of World Availability and Use of Fertilizer Materials, by J. N. Ray, Deputy Director-General (Development), Directorate-General of Industries and Supplies, Government of India, New Delhi, India

Economics of World Availability and Use of Fertilizer Materials, by Carlos Díaz Vial, Assistant Professor of Soils, Faculty of Agronomics, University of Chile; Soil Conservation Section, Department of Agricultural Research, Ministry of Agriculture, Santiago, Chile

PROGRAMME OF THE CONFERENCE

FUEL AND ENERGY RESOURCES (Volume III)

TECHNIQUES OF OIL AND GAS DISCOVERY AND PRODUCTION

25 August 1949

Chairman:

Léon Jacqué, President and Director-general, Institut français du pétrole, Paris, France

Papers:

Review of Techniques for Oil and Gas Discovery, by G. M. Lees, Chief Geologist, Anglo-Iranian Oil Company Ltd., London, England

Consideration of the Techniques of Oil and Natural Gas Prospecting, by L. Migaux, Director-General, Compagnie générale de géophysique, Paris, France

Techniques and Results of Aeromagnetic Surveying, by J. R. Balsley, Jr., Geological Survey, United States Department of the Interior

New Developments in Drilling Equipment and Techniques, by I. S. Salnikov, Chief Petroleum Engineer, Standard Oil Company (New Jersey), New York, N.Y., U.S.A.

New Methods, Instruments and Equipment in Oil and Gas Production in Venezuela, by the Ministerio de Fomento, Caracas, Venezuela

Petroleum Production from Continental Shelves, by Mercer H. Parks, Senior Supervising Engineer, Humble Oil and Refining Co., Houston, Texas

NEW TECHNIQUES FOR INCREASING PRODUCTION OF OIL AND GAS

26 August 1949

Chairman:

Francisco Medina-Olivieri, Head, Departamento Técnico de Concesiones y Conservación, Oficina Técnica de Hidrocarburos, Ministerio de Fomento, Caracas, Venezuela

Papers:

Conservation in Production, by D. Comins, Anglo-Iranian Oil Company Ltd., London, England

Conservation in Production of Petroleum, by William J. Murray, Jr., Chairman, Railroad Commission of Texas, Austin, Texas, U.S.A.

New Oil and Gas Production Techniques in Venezuela, by the Ministerio de Fomento, Venezuela

Advances in Efficiency of Oil Recovery, by Morris Muskat, Director, Physics Division, Gulf Research and Development Co., Pittsburgh, Pennsylvania, U.S.A.

Secondary Recovery of Petroleum, by Paul D. Torrey, President, Lynes, Inc., Houston, Texas, U.S.A.

The Swedish Shale Oil Industry, by E. Schjänberg, Research Director, Swedish Shale Oil Co. Ltd., Örebro, Sweden

Oil from Oil Shale—Experience in the United States, by R. A. Cattell, Chief, Petroleum and Natural Gas

Branch, Oil Shale Research and Demonstration Plant Branch, Bureau of Mines, United States Department of the Interior

Oil Shale in Brazil, by Aníbal A. Bastos, Geologist, National Department of Mineral Production, Brazil

OIL CHEMISTRY

29 August 1949

Chairman:

W. A. Macfarlane, Director, United Kingdom Scientific Mission, Washington, D.C., U.S.A.

Papers:

Review of Present Status and Trends of Oil Chemistry, by Gustav Egloff, Director of Research, Universal Oil Products Company, Chicago, Illinois, U.S.A.

Petroleum Refining in the United Kingdom, by F. Mackley, General Manager, Shell Refinery and Marketing Company Ltd., Stanlow Refinery, Cheshire, England

Some Aspects of the Development of the Petroleum Chemical Industry in the Netherlands, by J. W. H. Uytenbogaart, Chief, Chemical Industries Department, Bataafsche Petroleum Maatschappij, Carel Van Bylandtlaan 30, The Hague, Netherlands

Study of the Present Position and Trend of Oil Chemistry, by Léon Jacqué, Lecturer, Ecole Polytechnique; President and Director-General, French Petroleum Institute, Paris, France

Synthetic Fuel Production, by W. C. Schroeder, Chief, Office of Synthetic Liquid Fuels, Bureau of Mines, United States Department of the Interior

Synthetic Fuel Production, by S. Landa, Professor, Czech Institute of Advanced Learning, Prague, Czechoslovakia

Flexibility of the High Pressure Hydrogenation Process for Liquid Fuel Production, by R. Holroyd, Research Director, Imperial Chemical Industries Ltd., Birmingham, England

COAL MINING

19 August 1949

Chairman:

Arno C. Fieldner, Chief, Fuels and Explosives Division, United States Department of the Interior

Papers:

Underground Mining and the Problem of Coal Resources Conservation, by B. Krupinski, Chief Technical Director, Central Coal Board, Katowice, Poland

Longwall Mechanization in Britain and the Development of Machines for "Continuous Mining", by H. H. Wilson, National Coal Board, London, England

Strip Mining in India, by H. S. Frost, Resident Director, Lindsay Parkinson (India) Ltd., Calcutta, India

New Techniques for Increasing Coal Production, by Henry F. Hebley, Pittsburgh Consolidation Coal Company, Pittsburgh, Pennsylvania, U.S.A.

COAL PREPARATION

24 August 1949

Chairman:

P. E. Cavanagh, Assistant Director, Department of Metallurgy, Ontario Research Foundation, Toronto, Canada

Papers:

Preparation of Coal in America, by Thomas Fraser, Supervising Engineer, Coal Preparation Section, United States Bureau of Mines, and H. F. Yancey, Supervising Engineer, Northwest Experiment Station, United States Bureau of Mines, Seattle, Washington, U.S.A.

Studies on Coal-Washing in France, by R. Cheradame, Directeur adjoint, and R. Saint-Guilhem, Directeur technique, Centre de recherches des charbonnages de France, Paris, France

Conservation of Fuel in Britain by Improved Coal Preparation, by Arthur Grounds, Chief Coal Preparation Engineer, and L. W. Needham, Divisional Coal Preparation Engineer, National Coal Board, London, England

Mechanical Preparation of Coal and its Utilization, by Tadeusz Laskowski, General Director, Polish Institute of Fuel, Katowice, Poland

UNDERGROUND GASIFICATION OF COAL

22 August 1949

Chairman:

Raymond Cheradame, Directeur adjoint du Centre de recherches des charbonnages de France, Paris, France

Papers:

Laboratory and Field-Scale Experimentation on the Underground Gasification of Coal, by M. H. Fies, Consulting Engineer, and Manager, Coal Operations, Alabama Power Company, Birmingham, Alabama, U.S.A., and James L. Elder, Supervising Engineer, Gorgas Underground Gasification Project, Bureau of Mines, United States Department of the Interior, Gorgas, Alabama, U.S.A.

Utilization of Coal at the Mine: Underground Gasification, by M. Doumenc, Professor, School of Mining, St. Etienne, France

COAL CARBONIZATION

23 August 1949

Chairman:

Alexander King, Chief Scientific Adviser, Office of the Lord President of the Council, United Kingdom

Papers:

Coking Industry, with Special Reference to Great Britain, by D. Hicks, Director, Scientific Control, National Coal Board, London, England, and G. W. Lee, Director, British Coke Research Association, London, England

Overcoming Shortages of Metallurgical Coke, by A. C. Fieldner and L. L. Newman, Fuels and Explosives Division, Bureau of Mines, United States Department of the Interior

Production of High-Grade Metallurgical Cokes from Coals of Poor Coking Quality, by J. Sabatier, Directeur aux Charbonnages de France, Paris, France

New Electric Process for the Carbonization of Non-Coking Bituminous Coal, by Olaf Jensen, Norsk Hydro-Elektrisk Kvaestofaktieselskab, Oslo, Norway

Possibilities of Reducing Coke Consumption in the Production of Iron and Steel, by Magnus Tigerschiöld, Director of Research, Swedish Iron Master's Association, Stockholm, Sweden

Methods for Reducing the Amount and Quality of Coke Used in Smelting Iron Ore, by P. E. Cavanagh, Assistant Director, Department of Engineering and Metallurgy, Ontario Research Foundation, Toronto, Canada

CONSERVATION IN UTILIZATION OF FUEL FOR SPACE HEATING

1 September 1949

Chairman:

Liang-Fu Chen, Director, National Resources Commission of China

Papers:

Conservation in Utilization of Fuel for Space Heating, by Neil B. Hutcheon, Professor of Mechanical Engineering, University of Saskatchewan, Saskatoon, Canada, and Robert F. Legget, Director, Division of Building Research, National Research Council, Ottawa, Canada

Conservation of Fuel in Space Heating, with Special Reference to Insulation, by Richard S. Dill, Chief, Heating and Air Conditioning, National Bureau of Standards, United States Department of Commerce

Conservation in Utilization of Fuel for Space Heating, by R. H. Rowse, Fuel Research Station, London, England; J. C. Weston, Building Research Station, Garston, England; and F. C. Lant, Ministry of Fuel and Power, London, England

Use of Electricity as a Heating Agent in Norway, by J. Holmgren and Alf O. Hals, Norwegian Institute of Technology, Trondhjem, Norway, and H. J. Lindemann, Oslo Municipal Electric Supply System, Oslo, Norway

Heat Pump as a Conservation Device, by Emory N. Kemler, Associate Director, Southwest Research Institute, Houston, Texas, U.S.A.

Space Heating by Solar Energy, by Maria Telkes, Research Associate, Department of Metallurgy, Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A.

Economics in Heating, by O. Mastovsky, Professor, Technical University, Prague, Czechoslovakia

THE INTEGRATED POWER SYSTEM

30 August 1949

Chairman:

Einar Falkum, Norwegian Hydro-Electric Nitrogen Corporation, Oslo, Norway

PROGRAMME OF THE CONFERENCE

Papers:

Integrated Power System as the Basic Mechanism for Power Supply, by Philip Sporn, President, American Gas and Electric Company, New York, N.Y., U.S.A.

Some Experiences of the Operation of the Electricity Grid System in Great Britain, by John Hacking, British Electricity Authority, London, England

Total Joint Operation of Electrical Power Systems in Sweden, by Gosta Nilsson, Vice-President, State Power Board, Stockholm, Sweden

Utilization of Energy: The Integrated Power System and Possibilities for the Development of a European Power Grid, by P. Ailleret, Chairman, Committee on Electric Power, United Nations Economic Commission for Europe

French Mine-Mouth Power Stations (1952 Programme); Features Due to the High Ash Content of the Fuel Burned, by M. Georges, Ingénieur en chef des mines, Paris, and M. Gibrat, Professor, École nationale supérieure des mines, Paris, France

NEW DEVELOPMENTS IN PRODUCTION AND UTILIZATION OF ENERGY

31 August 1949

Chairman:

F. Picard, Director, Engineering Department, National Renault Works, Billancourt, France

Papers:

Future Trends in Fuel Utilization, by H. Roxbee Cox, Chief Scientist, and F. A. Williams, Fuels Technologist, Ministry of Fuel and Power, London, England

Future Outlook on Fuel Utilization, by J. J. Broeze, Koninklijke Shell Laboratorium, Delft, Netherlands

Future Trends in Fuel Utilization and Conservation, by John I. Yellott, Director of Research, Locomotive Development Committee, Bituminous Coal Research, Inc., Baltimore, Maryland, U.S.A.

Progress in Thermal Power Generation, by Andrew K. Bushman, Manager, Application and Service Engineering Division, General Electric Company, Schenectady, New York, U.S.A.

Future Outlook on Fuel Utilization, by F. Picard, Director, Engineering Department, National Renault Works, Billancourt, France

Utilization of By-Products Gases Produced in an Iron and Steel Works, by F. Kennedy, Chief Heat and Fuel Engineer, Dorman, Long and Co. Ltd., Middlesbrough, England

New Developments in Electric Energy Production, by R. Giguet, Directeur de l'Équipement de l'Électricité de France, Paris, France

Power for Industrial and Agricultural Development, by Paul J. Raver, Administrator, Bonneville Power Administration, United States Department of the Interior, Portland, Oregon, U.S.A.

Power for Industrial and Agricultural Development in Finland, by E. K. Saraoja, Head, Research Department, Finnish Association of Electricity Supply Enterprises, Helsinki, Finland

Harnessing the Wind for Electric Power, by Percy H. Thomas, Federal Power Commission, Washington, D.C., U.S.A.

Report on the Utilization of Windpower in the Netherlands, by De Hollandsche Molen (Society for the Preservation of Windmills in the Netherlands), Amsterdam, Netherlands

Windpower: Its Interest and Possibilities, by R. Fardin, Paris, France

WATER RESOURCES

(Volume IV)

THE APPRAISAL OF WATER RESOURCES

19 August 1949

Chairman:

Gail A. Hathaway, Special Assistant to Chief of Engineers, United States Department of the Army

Papers:

Economic Aspects of Experimental Meteorology, by Vincent J. Schaefer, General Electric Research Laboratory, Schenectady, New York, U.S.A.

Canadian Experiments on Induced Precipitation, by John L. Orr, Head, Low Temperature Laboratory, National Research Council of Canada, Ottawa; D. Fraser, Low Temperature Laboratory, National Research Council of Canada, Ottawa; and K. G. Pettit, Meteorological Service of Canada, Toronto

Current Concepts in Appraisal of Water Resources, by C. G. Paulsen, Chief Hydraulic Engineer, Water Resources Division, Geological Survey, United States Department of the Interior

Conservation of Ground-Water in Britain, by Stevenson Buchan, Geological Survey and Museum, London, England

Methodology of the Austrian Water-Power Register, Alfred Lernhardt, Vienna, Austria

Dew Observations and their Significance—New Methods in Dew Estimation, by S. Duvdevani, Director, Dew Research Station, Post Karkur, Israel

Estimation of Flood Run-Off, by D. B. Richards, Consulting Engineer, London, England

Analysis of Experimental Data on River Hydrology: Classification of Hydrological Studies and of the Estimates derived from them, by Aimé Coutagne, Consulting Engineer, Rhône, France

The Appraisal of Water Resources in the United States: Analysis and Utilization of Data; Water Supply and Flood Forecasting, by Merrill Bernard, Chief, Climatological and Hydrologic Services, United States Weather Bureau

Appraisal of Water Resources: Analysis and Utilization of Data (Forecasting Water Yield, Flood Run-Off, Flood Frequency, Power Potential), by A. N. Khosla, Chairman, Central Water-Power, Irrigation and Navigation Commission, Government of India, New Delhi

Water: Analysis and Utilization of Data, by Jan Smetana, Hydrological Institute, Prague, Czechoslovakia

UNSCCUR PROCEEDINGS: INDEX

Regime of the Nile and Use of Forecasts, by Y. M. Simaika, Deputy Inspector-General, Nile Control Department, In Charge of Hydraulic Researches, Egypt

Application of Probability Theory to the Solution of Hydrological Problems, by Victor Felber, Hydrologist, Vienna, Austria

WATER SUPPLY AND POLLUTION PROBLEMS

22 August 1949

Chairman:

Roberto Pacheco, Adviser, Permanent Delegation of Bolivia to the United Nations

Papers:

Utilization of Surface, Underground and Sea Water, by Abel Wolman, Johns Hopkins University, Baltimore, Maryland, U.S.A.

Artificial Ground Water Supplies in Sweden, by O. Victor E. Jansa, Consulting Engineer, Vattenbyggnadsbyrån, Stockholm, Sweden

Water Storage in the Negeb, by S. Irmay, Hydraulics Laboratory, Hebrew Institute of Technology, Haifa, Israel

Control and Utilization of Polluted Waters, by Ernest W. Steel, Consulting Engineer, Instituto Nacional de Obras Sanitarias, Caracas, Venezuela

Desalination of Brackish Water, by K. S. Spiegler, Research Chemist, Weismann Institute, Rehoboth, Israel

Control and Utilization of Polluted Waters, by Jan Zavadil, Professor of Advanced Technical Education, Brno, Czechoslovakia

Biological Purification of Settled Sewage in Shallow Ponds, by Magnus Wennström, Consulting Engineer, Vattenbyggnadsbyrån, Malmö, Sweden

COMPREHENSIVE RIVER BASIN DEVELOPMENT — A SYMPOSIUM

23 August 1949

Chairman:

Gilbert White, President, Haverford College, Haverford, Pennsylvania, U.S.A.

Papers:

Comprehensive Planning for River Basin Development, by H. Varlet, Ingénieur en Chef des Ponts et Chaussées, Directeur de l'Électricité et du Gaz au Ministère de l'Industrie et du Commerce, Paris, France, and J. Aubert, Professeur à l'École Nationale des Ponts et Chaussées; Président de la Compagnie Française de Navigation Rhénane, Paris, France

River Development in the Central Valley of California, by Richard L. Boke, Regional Director, United States Bureau of Reclamation, Sacramento, California, U.S.A.

The Snowy River Scheme in Relation to Utilization of Australia's Water Resources, by A. S. Brown, Director-General of Post-War Reconstruction, Canberra, Australia

Economic Utilization and Development of the Water Resources of the Euphrates and Tigris, by Vahé J. Sevian, Engineer-in-charge of Hydraulic Section, Directorate General of Irrigation, Baghdad, Iraq

Water Supply in the Agricultural Areas of Western Australia, by T. Langford-Smith, Regional Planning Division, Department of Post-War Reconstruction, Canberra, Australia

Experience in the Integrated Development of a River Basin—Excerpt from an Economic Report on the Conservation and Utilization of the Natural Resources of Iran, by H. Pirnia, Director-General, Ministry of Finance, Iran

DRAINAGE BASIN MANAGEMENT

24 August 1949

Chairman:

J. C. Dykes, Assistant Chief, Soil Conservation Service, United States Department of Agriculture

Papers:

Drainage Basin Management: Water Control through Watershed Management, by R. M. Gorrie, Conservator of Forests, Rawalpindi, West Punjab, Pakistan

Water Control through River Basin Conservancy, by Marco Visentini, President, Supreme Council, Ministry of Public Works, Rome, Italy

Water Control through Watershed Management, by Reed W. Bailey, Director, Intermountain Forest and Range Experiment Station, Forest Service, United States Department of Agriculture, Ogden, Utah, U.S.A.

Federal Supervision of Water Policy in the Interests of Soil Conservation in Switzerland, by Walter Schurter, Chief Federal Inspector of Public Works, Berne, Switzerland

Water Control through Watershed Management, by V. Frolov, Maître de recherches au Centre national de la recherche scientifique; Vice-Président de l'Association internationale d'hydrologie scientifique, Paris, France

Effects of Land Management upon Run-Off and Ground-water, by Howard L. Cook, Office of the Secretary, United States Department of Agriculture

Effects de Watershed Management on Water Yield, by V. Frolov, Maître de recherches au Centre national de la recherche scientifique; Vice-Président de l'Association internationale d'hydrologie scientifique, Paris, France

Effect of Stream Management on Water Yields, F. Kuntschen, Director, and J. Bircher, Chief of Section, Service Fédéral des eaux, Département des postes et des chemins de fer, Berne, Switzerland

WATER CONTROL STRUCTURES

26 August 1949

Chairman:

Andres García Quintero, Director de Hidrología en la Secretaría de Recursos Hídricos, Mexico, D.F.

PROGRAMME OF THE CONFERENCE

Papers:

Latest Developments in Design, Construction and Operation of Major Control Structures, including Dams, Canals, Locks and Desilting Works, by J. Aubert, Professor, École nationale des Ponts et Chaussées; President, Compagnie Française de Navigation Rhénane, Paris, France

Water Control Structures: Dams, by André Ceyne, Chairman, International Commission on Large Dams, Paris, France

Preliminary Comparison and Selection of Dam Sites, by Milton G. Speedie, Senior Designing Engineer for Dams, State Rivers, and Water Supply Commission, Melbourne, Victoria, Australia

Deterioration of Large Dam Structures, by L. N. McClellan, Chief Engineer, United States Bureau of Reclamation, Denver-Federal Center, Denver, Colorado, U.S.A.

Preservation of the Aswan Reservoir, by Y. M. Simaika, Deputy Inspector-General, Nile Control Department, in Charge of Hydraulic Researches, Ministry of Public Works, Cairo, Egypt

Modern Principles for the Construction of Hydro-Electric Stations and River Development Projects, by Anton Grzywienski, Professor, Technical University, Vienna, Austria

Construction of Jablanitza and Mavrovo Dams in Yugoslavia, by the Ministry of Water Economics, Federal People's Republic of Yugoslavia

Use of Models in Planning Structures for Measuring and Dividing Water, by F. J. Domínguez, Corporación de Fomento de la Producción, Santiago, Chile

Use of Scale Models in the Planning of River Engineering Works, by E. Meyer-Peter, Professor, École Polytechnique Fédérale, Zurich, Switzerland

Use of Models in Planning Water-Control Works, by Inayat Hussain and K. J. Kabraji, Government of Pakistan, Karachi, Pakistan

Use of Small-scale Models in River Research, by M. Danel, Ingénieur en Chef des Services d'Essais et Recherches, Etablissements Neyret Beylier Picard Pictet à Grenoble, France

Use of Models in Planning Water Control Works, by L. G. Straub, Director, St. Anthony Falls Hydraulic Laboratory, University of Minnesota, Minneapolis, Minnesota, U.S.A.

Measurement and Control of Silting, by A. N. Khosla, Chairman, Central Water Power, Irrigation and Navigation Commission, Government of India, New Delhi, India

Recent Experience in Lift Irrigation and Drainage in Egypt, by Abdel A. Ahmed Bey, Under-Secretary of State, Chairman, Hydro-Electric Power Development, Ministry of Public Works, Cairo, Egypt

Importance of Sediment Control in the Conservation and Utilization of Water Resources, by E. W. Lane, Consulting Hydraulic Engineer, United States Bureau of Reclamation, Denver, Colorado, U.S.A., and Owen G. Stanley, Chief, Engineering Division, South Pacific

Division, United States Corps of Engineers, Oakland Army Base, California, U.S.A.

Silt Problem in the Basin Development of the North China Plain, by C. T. Fong, China

Costs and Benefits of Canal Linings, by T. V. Woodford, United States Bureau of Reclamation, Denver, Colorado, U.S.A.

FLOOD CONTROL AND NAVIGATION

29 August 1949

Chairman:

Jean Aubert, Professor, École Nationale des Ponts et Chaussées; Président de la Compagnie Française de Navigation Rhénane, Paris, France

Papers:

Flood Control, by C. J. Witteveen, Former Chief Engineer-Director, Service of Rijkswaterstaat, Ministry of Transport, The Hague, Netherlands

Flood Control, by George L. Beard, Chief, Flood Control Division, Office of the Chief of Engineers, Department of the Army, Washington, D.C., U.S.A.

Development of the Rivers and other Waterways of the United States for Navigation, by Clarence C. Burger, Jr., Chief, River and Harbour Division, Office of the Chief of Engineers, Department of the Army, Washington, D.C., U.S.A.

Utility of Inland Waterways, by Jean Aubert, Professor, École Nationale des Ponts et Chaussées, Président de la Compagnie Française de Navigation Rhénane, Paris, France

IRRIGATION AND DRAINAGE

30 August 1949

Chairman:

S. Irmay, Hydraulics Laboratory, Hebrew Institute of Technology, Haifa, Israel

Papers:

Relationship of Soil Characteristics to Irrigation Programmes (Indonesia), by W. F. Eysvoogel, Professor, Graduate School of Agriculture, Wageningen, Netherlands

Soils and Water Control, by S. M. A. Butt and P. B. A. Salim, Central Engineering Authority, Government of Pakistan, Karachi, Pakistan

Soil Characteristics and Salinity in Relation to Irrigation and Drainage, by H. M. Stafford, Senior Hydraulic Engineer, Water Resources Division, Geological Survey, United States Department of the Interior, and M. R. Huberty, Professor of Irrigation, University of California, Los Angeles, California, U.S.A.

Soils and Water Control Programmes, by F. Hellinga, Professor, Graduate School of Agriculture, Wageningen, Netherlands

Soils and Water Control by Reclamation Management, by Karel Juva, Professor, Technical University, Brno, Czechoslovakia

UNSCCUR PROCEEDINGS: INDEX

Recent Developments in Irrigation, by Michael W. Straus, Commissioner, Bureau of Reclamation, United States Department of the Interior

Development of Irrigation in a Semi-Humid Climate: Ashburton-Lyndhurst Project, New Zealand, by J. O. Riddell, Irrigation Engineer, Ministry of Works, Christchurch, New Zealand

Some Aspects of Irrigation in Greece, by A. Kalinski, Director, Engineering Division, Ministry of Agriculture, Athens, Greece

Recent Developments in Irrigation in Indonesia, by W. F. Eysvoogel, Professor, Graduate School of Agriculture, Wageningen, Netherlands

Development of Irrigation Farms, with Special Reference to Irrigation and Crop Production under Desert Conditions as Observed in Saudi Arabia, by J. T. Smith, Superintendent, Hofuf Agriculture Project, Saudi Arabia

Recent Developments in Irrigation in Mexico, by Antonio Rodriguez, Director General de Aprov. Hidráulicos, Secretaría de Recursos Hidráulicos, Mexico, D.F.

Irrigation in Pakistan, by M. A. Hamid, Chief Engineer, Irrigation Secretary, Government of West Punjab, Lahore, Pakistan

Land Reclamation in the Federal People's Republic of Yugoslavia, by J. Filipovic, Engineer, Yugoslavia

Drainage of Land for Production, by the Technical Agricultural Service, Utrecht, Netherlands

Drainage of Land for Production, by Lewis A. Jones, Chief, Division of Drainage and Water Control Research, Soil Conservation Service, United States Department of Agriculture

Summary Report on Greece's Water Economy, by D. Papanicolaou, Director of Water Economy, Ministry of Public Works, Athens, Greece

The Enclosing of the Zuyder Zee and its Effects on Fisheries, by B. Havinga, Director, Government Institute for Fisheries Investigations, Amsterdam, Netherlands

HYDRO POWER AND OTHER WATER USES

1 September 1949

Chairman:

Thorndike Saville, Dean, College of Engineering, New York University, New York, N.Y., U.S.A.

Papers:

Hydro Power in Sweden, by Åke Rusck, President, Swedish State Power Board, Stockholm, Sweden

Hydro Power and Conservation—A New Engineering Technique, by Leland Olds, Federal Power Commission, Washington, D.C., U.S.A.

Hydro Power and Conservation of Power Resources, by P. Massé, Directeur Général Adjoint, and M. Rousseau, Chef du Service des Projets hydrauliques, Électricité de France, Paris, France

Considerations for General Planning of Water-Power Stations, by Georg Beurle, Construction Consultant, Linz, Austria

Recreational Use of Water, by C. L. Wirth, Assistant Director, National Park Service, United States Department of the Interior

Protection of Fish in Sweden, by Gunnar Alm, Chief, Freshwater Fisheries Bureau, Swedish Board of Fisheries; Chairman, Migratory Fish Committee, Stockholm

Protection of Wildlife in Sweden, by Harry Hamilton, National Consultant to the Swedish Hunter's Association, Stocksund, Sweden

Protection of Wildlife and Fish in India, by B. Prashad, Fishery Development Adviser to the Government of India, New Delhi, and T. J. Job, Chief Research Officer, Central Inland Fisheries, Barrackpore, via Calcutta, India

Protection of Fish and Wildlife in Water Use Projects, by J. D. Detwiler, Head, Department of Zoology and Applied Biology, University of Western Ontario, London, Ontario, Canada

Hydro Power and Other Water Uses: Protection of Fish and Wildlife, by Ira N. Gabrielson, President, Wildlife Management Institute, Washington, D.C., U.S.A.

FOREST RESOURCES

(Volume V)

FOREST INVENTORIES

19 August 1949

Chairman:

P. C. Mahalanobis, Statistical Adviser to the Cabinet, Government of India; Director, Indian Statistical Institute

Papers:

Sampling Techniques in Forest Inventories, by Yrjo Ilvessalo, Academy of Finland and Finnish Forest Research Institute, Helsinki, Finland

Adaptation of Modern Statistical Methods to Forest Inventories, by James G. Osborne, Biometrist, Forest Service, United States Department of Agriculture

Adaptation of Modern Statistical Methods to the Estimation of Forest Areas, Timber Volumes, Growth and Drain, by Bertil Matérn, Swedish Forest Research Institute, Stockholm, Sweden

Adaptation of Modern Statistical Methods to the Estimation of Forest Areas, Timber Volumes, Growth and Drain, by K. R. Nair, Statistician, Forest Research Institute, Dehra Dun, U. P., India (with additional material supplied by H. G. Champion and M. A. Kakazai)

Forest Inventory Methods in the Chaco Park, by J. J. I. Festenessi, Forest Map Section, National Forest Administration, Ministry of Agriculture, Argentina

Technical Development in Air Surveys and Interpretation of Forestry Data therefrom, by H. E. Seely, Dominion Forest Service, Ottawa, Canada

United States Experience in the Use of Air Surveys in Forest Inventory, by S. H. Spurr, Assistant Professor of Forestry, Harvard Forest, Petersham, Mass., U.S.A.

PROGRAMME OF THE CONFERENCE

(with additional material supplied by R. N. Colwell and R. C. Wilson)

Technical Developments in Air Survey and the Interpretation of Forestry Data therefrom—New Zealand Experience, by A. P. Thomson, State Forest Service, Rotorua, New Zealand

PROTECTION OF FORESTS

22 August 1949

Chairman:

R. L. Robinson, Chairman, Forestry Commission, United Kingdom

Papers:

Forest Fire Control, by A. A. Brown, Chief, Division of Fire Research, Forest Service, United States Department of Agriculture

Some Modern Aspects of Forest Fire Control in Canada, by H. W. Beall, Chief, Forest Protection Division, Dominion Forest Service, Ottawa, Canada

Forest Fire Control in Tropical Countries—Experience in Cambodia, by P. Allouard, Conservateur des Eaux et Forêts, Paris, France

Protection of Forests—Forest Fire Control, by R. Jolain, Inspecteur Général des Eaux et Forêts, Paris, France

Fire-Weather Forecasting in Australia, by D. A. N. Cromer, Officer in Charge, Division of Forest Resources, Forestry and Timber Bureau, Commonwealth of Australia

The Control of Insects and Diseases in North American Forests, by F. C. Craighead, Bureau of Entomology and Plant Quarantine, and L. M. Hutchins, Bureau of Plant Industry, Soils and Agricultural Engineering, United States Department of Agriculture

Control of Forest Insects in Canada, by J. J. de Gryse, Chief, Forest Insect Investigation, Ottawa, Canada

Control of Forest Diseases and Insect Pests in Great Britain, by T. R. Peace, Forestry Commission, Forest Research Station, Surrey, England

Control of Forest Diseases and Insect Pests, by A. Pieffer, Professor, Technical University, Prague, Czechoslovakia

Gypsy Moth Control by Means of Spraying from Aircraft, by Ivan Spaic, Institute of Forestry Research, People's Republic of Croatia, Zagreb, Yugoslavia

FOREST MANAGEMENT

23 August 1949

Chairman:

R. Jolain, Inspecteur Général des Eaux et Forêts, Paris, France

Papers:

Forest Management—Working Plans and their Adaptation to Changing Conditions, by Stefan Duschek, Chief, Provincial Timber Office for Upper Austria, Linz, Austria

Forest Management, by M. D. Chaturvedi, Chief Conservator of Forests, United Provinces, Naini Tal, U.P., India

Forest Management and Working Plans and their Adaptation to Changing Conditions, by Bo Eklund, Assistant Professor, Swedish Forest Research Institute, Stockholm, Sweden

Forest Resources of Mexico, by E. Dupré Ceniceros, Forestry Expert, Directorate General of Forests and Game, Department of Agriculture, Mexico, D.F.

Selection of Silvicultural Techniques, by Léon Schaeffer, Professor, École Nationale des Eaux et Forêts, Nancy, France

Selection of Silvicultural Techniques, by C. R. Ranganathan, President, Forest Research Institute and Colleges, Dehra Dun, India

Rehabilitation of Devastated and Derelict Woodlands, by R. F. Wood, Forestry Commission, Forest Research Station, Surrey, England

Practical Basis of Norwegian Forest Policy, by Erling Eide, Director of Forests, Department of Agriculture, Oslo, Norway

Forestry Technique in the Teak Forests of Java, by J. H. Becking, Graduate School of Agriculture, Wageningen, Netherlands

Silviculture of Mixed Tropical Rain Forests, by A. Aubréville, Inspecteur Général des Eaux et Forêts des Colonies, Paris, France

Selection of Silvicultural Techniques, by U Aung Din, Deputy Conservator of Forests, Silviculturist, Burma

Forests of Colombia and Some of their Industrial Possibilities, by A. Ranghel G., Field Director, Soil Conservation Service, Colombian Federation of Coffee Growers, Bogotá, Colombia

PROTECTIVE FUNCTIONS OF THE FORESTS

25 August 1949

Chairman:

Reed W. Bailey, Director, Intermountain Forest and Range Experiment Station, United States Forest Service

Papers:

Protective Functions of Forests, by C. R. Ranganathan, President, Forest Research Institute and Colleges, Dehra Dun, India

Protective Functions of the Forest, by R. R. Waterer, Conservator of Forests, Cyprus

Protection Forestry, by E. N. Munns, Chief, Division of Forest Influences, Forest Service, United States Department of Agriculture

Protective Functions of Forests, by N. Jovocic, Ministry of Forests, Belgrade, Yugoslavia

Protective Functions of Forests, by Sebastian Anibal Romero, H. A. Corothie, Esteban Delgado, Francisco Tamayo, Tobias Lasser, Directorate of Forests, Ministry of Agriculture and Stock Breeding, Caracas, Venezuela

UNSCCUR PROCEEDINGS: INDEX

Torrents and Avalanches, by Emil Hess, Chief, Federal Forest Service, Berne, Switzerland

Methods for Controlling Mountain Torrents Used by the Administration des Eaux et Forêts in the Alps, by J. Messines, Inspecteur Général des Eaux et Forêts, Paris, France

Work on Stabilizing the Landslide at Serrières-en-Chautagne (Savoie), by J. Messines Inspecteur Général des Eaux et Forêts, Paris, France,

Control of Mountain Torrents and Avalanches through Establishment and Maintenance of Forest Cover, by Aldo Pavari, Director, Sylvicultural Experimental Station, Florence, Italy

ADMINISTRATION OF FORESTS

26 August 1949

Chairman:

M. Philips Price, Chairman, Parliamentary and Scientific Committee, House of Commons, London, England

Papers:

Outline of Forestry Policy and Legislation, by M. J. E. Castagnou, Inspecteur Général des Eaux et Forêts, Paris, France

Forest Policy in the British Commonwealth of Nations, by H. R. Blanford, Editor-Secretary, Empire Forestry Association, London, England

Essential Features of Forest Policy and Forest Law, by Eugenio de la Cruz, Chief, Division of Forest Management, Bureau of Forestry; Professor of Forest Policy and History, University of the Philippines, Manila, P.I.

Essential Features of Forest Policy and Law, by R. E. Marsh, Assistant Chief, Forest Service, United States Department of Agriculture

Basic Principles of Forest Policy and Forest Legislation, by Karel Setínek, Head, Forestry Department, Ministry of Agriculture, Prague, Czechoslovakia

System of Forest Valuation in Argentina, by O. A. D'Adamo, Chief, Economic Section, National Forest Administration, Ministry of Agriculture, Buenos Aires, Argentina

Organization of Forest Services, by S. B. Show, Acting Director, Forestry and Forest Products Division, Food and Agriculture Organization of the United Nations

Organization of Forest Services, by Maung Hman, Chief Conservator of Forests, Burma

Administration of Forests: Organization of Forest Services, by E. W. Loveridge, Assistant Chief, Forest Service, United States Department of Agriculture

Forest Administration in Venezuela, by Sebastián Aníbal Romero, Harry Corothie, Ricardo Gondelles A., Forestry Department, Ministry of Agriculture, Caracas, Venezuela

LOGGING AND SAWMILL TECHNIQUES

29 August 1949

Chairman:

S. B. Show, Chief, Forestry Branch, Forestry and Forest Products Division, Food and Agriculture Organization of the United Nations

Papers:

Sawmill Techniques, by F. C. Simmons, Specialist in Logging and Primary Processing, Northeastern Forest Experiment Station, United States Forest Service, Upper Darby, Pennsylvania, U.S.A.

Sawmill Techniques in the Conservation of Forest Resources, by A. R. Entrican, Director of Forestry, New Zealand Forest Service, Wellington, New Zealand

Sawmill Techniques, by P. A. Wanarks, Technical Adviser to the Sawmill Association of Thailand, Bangkok, Thailand

Brief Account of the Progress of the Swedish Sawmill Industry, by C. F. Kastmark, Korsnasverken, Gävle, Sweden

Sawmill Techniques in Belgium, by Raymond Antoine, Ingénieur des Eaux et Forêts; assistant in the Forestry Laboratory, University of Louvain, Belgium

Improvements in Logging Techniques in the United States, by G. L. Drake, Manager, Logging Division, Simpson Logging Company, Shelton, Washington, U.S.A.; F. C. Simmons, Forester, U.S. Northeastern Forest Experiment Station, Upper Darby, Pennsylvania; M. H. Collet, Assistant to Vice-President, West Virginia Pulp and Paper Co., New York, N.Y.; E. E. Matson, Forester, U.S. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon, U.S.A.

Improvements in Logging Techniques, by F. Tamesis, Dean, School of Forestry, University of the Philippines; Director, Bureau of Forestry, Department of Agriculture and Natural Resources, Manila, Philippines

Treatment of Trees with Toxic Chemicals to Facilitate Removal of Bark and to Reduce Weight, by J. D. Hale and D. C. McIntosh, Department of Mines and Resources, Ottawa, Canada

Log Transportation, by Jean Collardet, Professor, Ecole Supérieure du Bois, Directeur du Centre Technique des Industries du Bois et de l'ameublement, Paris, France

Log Transportation in Tropical Forest Exploitation, by Pierre Gazonnaud, Conservateur des Eaux et Forêts, Paris, France

Harvesting the Forest Crop: Log Transportation, by Myron Krueger, Professor of Forestry and Associate Forester in the Experiment Station, University of California, Berkeley, California

Log Transportation Project in Eastern Canada, by J. A. McNally, Resident Manager, Brown Corporation, Quebec, Canada

PRESERVATION AND CHEMICAL UTILIZATION OF WOOD

31 August 1949

Chairman:

J. D. Hale, Head, Wood Technology Section, Forest Products Laboratory, Dominion Forest Service, Ottawa, Canada

PROGRAMME OF THE CONFERENCE

Papers:

Wood Preservation in Great Britain, by N. A. Richardson, Department of Scientific and Industrial Research, Forest Products Research Laboratory, Princes Risborough, Aylesbury, Buckinghamshire, England

Method of Wood Preservation and Their Uses, with Special Reference to Over-all Economies in Consumption, by S. Krishna and D. Narayanamurti, Forest Research Institute, Dehra Dun, U.P., India

Methods of Wood Preservation and their Uses, with Reference to Over-all Economies in Consumption, by J. N. Ray, Deputy Director-General (Development), Directorate General of Industries and Supplies, Government of India, New Delhi

Protection of Logs after Felling in Tropical Forests, by P. Sallenave, Conservateur des Eaux et Forêts, Chef du Laboratoire de Technologie forestière, Ministère de la France d'Outre-Mer, Paris, France

Main Problems of Timber Protection in France, by C. Jacquier, Inspecteur Principal des Eaux et Forêts, Chef de Service au Laboratoire Central d'essais du Bois, Paris, France

Preservation of Wood, by J. F. Harkom, Department of Mines and Resources, Ottawa, Canada

Preservation of Wood, by Erik Rennerfelt, Assistant Professor, Swedish Forest Research Institute, Stockholm, Sweden

Wood Preservation in the United States in its Relation to the Conservation of American Forests, by R. H. Mann, Service Bureau, American Wood-Preservers' Association, New York, N.Y., U.S.A.

Improved Pulping Processes—Utilization of Waste Liquors, by Erik Hägglund, Swedish Wood Pulp Research Institute, Stockholm, Sweden

Chemical Utilization of Wood in the United States, by W. F. Holzer, Central Research and Technical Department, Crown Zellerbach Corporation, Camas, Washington, U.S.A.

Utilization of Wood Waste and Bark, by A. J. Stamm, Subject Matter Specialist, Forest Products Laboratory, Forest Service, United States Department of Agriculture, Madison, Wisconsin, U.S.A.

Chemical Utilization of Wood, by O. Ant-Wuorinen, State Technical Research Institute, Helsinki, Finland

Utilization of Sawmill Refuse and Bark, by C. C. Heritage, Technical Director, Weyerhaeuser Timber Company, Longview, Washington, U.S.A. and E. G. Locke, Chief, Forest Utilization Service, Pacific Northwest Forest and Range Experiment Station, United States Forest Service, Portland, Oregon

Wood Waste and Bark Utilization in Australia, by R. F. Turnbull, Principal Research Officer-in-charge, Section of Utilization, Division of Forest Products, Commonwealth Scientific and Industrial Research Organization, Melbourne, Australia

Pereiro, Wild Plant of the Drought Region of Brazil, and its Wax, by Jayme Santa Rosa, Consulting Chemist Rio de Janeiro, Brazil

Rational Exploitation of Paraná Pine, by R. Descartes de Garcia Paula, Director of Division, Instituto Nacional de Tecnología, Rio de Janeiro, Brazil

LAND RESOURCES

(Volume VI)

METHODS OF SOIL CONSERVATION

19 August 1949

Chairman:

J. D. Raeside, Scientific Attaché, Embassy of New Zealand to the United States

Papers:

Physical Methods of Soil Conservation, by T. S. Buie, Past President, Soil Conservation Society of America, Spartanburg, South Carolina, U.S.A.

Physical Methods of Soil Conservation, by M. H. Khan and A. G. Riaz, Soil Conservation Officers, Ministry of Foreign Affairs and Commonwealth Relations, Karachi, Pakistan

Soil Conservation in Cyprus, by L. J. S. Littlejohn, Soil Conservation Officer, Department of Agriculture, Cyprus

Physical Methods of Soil Conservation, by Aung Myint, Senior Agricultural Assistant, Office of the Deputy Director of Agriculture, Rangoon, Burma

Physical Methods of Soil Conservation, by Manuel Chavez Viaud, Chief, Soil Conservation Section, National Agronomical Research Centre, Ministry of Agriculture and Industry, El Salvador

Agro-Technical Reorganization of the Wind-Eroded Pampa Area, by Antonio Arena and C. V. Quevedo, Soils and Agro-Technical Institute, General Directorate of Agricultural Research, Ministry of Agriculture, Buenos Aires, Argentina

Experiments with Methods for the Conservation of Soils and Moisture in the Semi-Arid Region of Argentina, by A. J. Prego and L. A. Tallarico, Conservation and Improvement Division, Soils and Agro-Technical Institute, General Directorate of Agricultural Research, Ministry of Agriculture, Buenos Aires, Argentina

Land Use Regulations as Aids to Soil Conservation, by Harold A. Tempany, Kensington, London, England

Soil Conservation Problems in Norway, by Aasolv Løddesøl, Director, Norwegian Bog Association, Oslo, Norway

ORGANIZATION AND EVALUATION OF SOIL CONSERVATION PROGRAMMES

22 August 1949

Chairman:

A. Kalinski, Director, Engineering Division, Ministry of Agriculture, Athens, Greece

Papers:

Soil Conservation: Methods of Organization, by J. C. Dykes, Assistant Chief, Soil Conservation Service, United States Department of Agriculture

- Soil Conservation in Switzerland, by N. Vital, Director, Association suisse de colonisation intérieure et d'agriculture industrielle, Zürich, Switzerland
- Methods of Organization in Soil Conservation Work, by Marcos Orozco M., Head, Department of Soil Conservation, Ministry of Agriculture, Guatemala
- Importance of Practical Demonstration in Teaching Soil Conservation Methods and their Application in Argentina, by C. V. Quevedo, Soils and Agro-Technical Institute, General Directorate of Agricultural Research, Ministry of Agriculture, Buenos Aires, Argentina
- Soil Utilization and Conservation—Method of Organization, by L. Rojas de la Torre, National University of Mexico
- Wild Plants of the Semi-Arid Region of Brazil and their Industrial Utilization, by J. Santa Rosa, Consulting Chemist, Rio de Janeiro, Brazil
- Economics of Soil Conservation, by V. Webster Johnson, Head, Division of Land Economics, Bureau of Agricultural Economics, United States Department of Agriculture
- Farming Systems in Relation to Soil Conservation, by Sherman E. Johnson, Assistant Chief, Bureau of Agricultural Economics, United States Department of Agriculture
- The United States Agricultural Conservation Program, by Alvin V. McCormack, Director, Agricultural Conservation Programs Branch, Production and Marketing Administration, United States Department of Agriculture
- Mlalo Rehabilitation Scheme, by J. B. Clegg, Agricultural Officer, Tanganyika, Africa
- Soil Conservation Service in Colombia, by Aparicio Ranghel G., Field Director, Soil Conservation Service of the Colombian Federation of Coffee Growers, Bogotá, Colombia
- Soil Conservation—An Economic Appraisal, by Michel Cépède, Administrateur chargé du Service d'Études et de Documentation, Ministère de l'Agriculture, Paris, France
- Co-ordination of the Best Soil Management Practices into Unified Farm Management Plans, by Professor John D. Black, Harvard University, Cambridge, Mass.
- Planned Group Farming in Nyanza Province, Kenya, by P. C. Chambers, Department of Agriculture, Government of Kenya, Nairobi
- Planning of Land Use Improvement in the Middle East, by V. K. Maitland, Forestry and Soil Conservation Adviser, British Middle East Office, Cairo, Egypt

SOIL SURVEY AND RESEARCH IN RELATION TO
SOIL CONSERVATION

23 August 1949

Chairman:

R. L. Ambroise, Assistant du Directeur du Service des Eaux et Forêts, Ministère de l'Agriculture, Port-au-Prince, Haiti

Papers:

- Soil Survey in Relation to Soil Conservation, by Charles E. Kellogg, Chief, Division of Soil Survey, United States Department of Agriculture
- Soil Survey in Relation to Land Use and Soil Conservation in Canada, by A. Leahey, Chief Soil Surveyor, Experimental Farms Service, Dominion Department of Agriculture, Ottawa, Canada
- Soil Survey in Relation to Soil Conservation, by L. I. Grange, Soil Bureau, Department of Scientific and Industrial Research, Wellington, New Zealand
- Soil Survey in Relation to Soil Productivity, by A. Muir, Head of the Soil Survey for England and Wales, Rothamsted Experimental Station, Harpenden, Hertfordshire, England
- Soil Survey in Relation to Soil Conservation, by S. P. Raychaudhuri and A. T. Sen, Soil Conservation Officers, Ministry of Agriculture, New Delhi, India
- Soil Research in Relation to Soil Conservation, by S. P. Raychaudhuri and A. T. Sen, Soil Conservation Officers, Ministry of Agriculture, New Delhi, India
- Soil Survey in Relation to Soil Conservation, by R. Köhler, Research Institute for Biotechnical Agriculture, Katzenberg, Austria
- General Soil Conditions of Southern Brazil, by José Setzer, Department of Geology, College of Natural Sciences, University of São Paulo, Brazil
- Calculations, Key and Notation Used in Surveys of Agro-Ecological Suitability Based on Index Plants, by A. L. De Fina and A. J. Garbosky, Soils and Agro-Technical Institute, General Directorate of Agricultural Research, Ministry of Agriculture, Buenos Aires, Argentina
- Erosion Survey in the Province of Bío Bío, Chile, by M. Rodríguez Z., Jefe de la Sección Conservación de Suelos, Departamento de Investigaciones Agrícolas, Santiago, Chile
- Natural Agricultural Resources of the Belgian Congo, by M. V. Homès, Professor, Université de Bruxelles, Belgium
- Surveys of Zones Affected by Soil Erosion (Type, Degree, Area, Causes) in the Argentine Republic, by C. V. Quevedo, Chief, Conservation and Improvement Division, Soils and Agro-Technical Institute, General Directorate of Agricultural Research, Ministry of Agriculture, Buenos Aires, Argentina
- Biological Soil Research in Relation to Soil Conservation, by Herbert Franz, Alpine Agriculture Institute, Admont, Austria
- Soil Research in Relation to Soil Conservation, by C. H. Edelman, Professor of Soils, Agricultural College, Wageningen, Netherlands
- Research and Soil Conservation, by F. L. Duley, Soil Conservation Service, Division of Research, United States Department of Agriculture, in co-operation with the University of Nebraska, Lincoln, Nebraska, U.S.A.

PROGRAMME OF THE CONFERENCE

AIDS TO FARMING

24 August 1949

Chairman:

Frederick Hardy, Professor, Imperial College of Tropical Agriculture, Trinidad, B.W.I.

Papers:

Simple Tools and Equipment for Small-Scale Farming, by Mason Vaugh, Agricultural Engineer, Allahabad Agricultural Institute, India

Implement Aids for Small-Scale Farming, by S. J. Wright, Ford Motor Company Ltd., Dagenham, England

Simple Tools and Equipment for Small-Scale Farming, by J. Bourdelle, Centre de Recherches et d'Expérimentation de Génie Rural, Paris, France

Small Farms Machinery Problems, in the Light of Swedish Experience, by Nils Berglund, Director, Swedish Institute of Agricultural Engineering, Uppsala, Sweden

Mechanization for Farming, by E. A. Hardy, University of Saskatchewan, Saskatoon, Canada

Effect of Mechanization on Soil Conservation and Farm Technique in Britain, by W. H. Cashmore, Director, National Institute of Agricultural Engineering, Bedfordshire, England

Mechanization of Tropical Farming in Hawaii, by René Guillou, Agricultural Engineering Department Head, University of Hawaii, Honolulu, Hawaii

Farming Systems in Relation to Soil Conservation and Use, by P. O. Ripley, Dominion Field Husbandman, Department of Agriculture, Ottawa, Canada

Guide Lines to Further Farm Mechanization, by A. W. Turner, Assistant Chief in Charge of Agricultural Engineering Research, Bureau of Plant Industry, United States Department of Agriculture

IMPROVING SOIL PRODUCTIVITY

25 August 1949

Chairman:

C. H. Edelman, Professor of Soils, Agricultural College, Wageningen; Director, Soil Survey of the Netherlands

Papers:

Improving Soil Productivity: Temperate Climates, by William G. Ogg, Director, Rothamsted Experimental Station, Harpenden, Hertfordshire, England

Calcium Adsorption and Lime Loss from Leaching in Soils, by S. Tovborg Jensen, Professor of Soils and Agricultural Chemistry, Royal Agricultural College, Copenhagen, Denmark

Possibilities of Improving the Fertility of the Soil in the Netherlands by More Rational Application of Lime, Inorganic and Organic Manures and by Improvement of its Texture, by P. Bruin, Deputy Managing Director, Agricultural Experiment Station and Institute for Soil Research, Groningen, Netherlands, with G. M. Castenmiller, E. G. Mulder, F. v. d. Paauw and M. L. 't Hart

Field Experiments as the Basis for Planning Fertilizer Practice, by E. M. Crowther, Head, Chemistry Department, Rothamsted Experimental Station, Harpenden, Hertfordshire, England

Cropping Systems as an Aid to Sustained Production, by E. S. Archibald, Director, Experimental Farms Service, Dominion Department of Agriculture, Ottawa, Canada

Influence of Cropping Systems on Sustained Production, Soil Management and Conservation, by R. D. Lewis, Director, Texas Agricultural Experiment Station, College Station, Texas, U.S.A.

Improving Soil Productivity: Tropical Climates, by J. N. Mukherjee, Director, Indian Agricultural Research Institute, New Delhi, India

Improving Soil Productivity: Tropical Climates, by Rafat Husain Siddiqui, Chief Chemist, Central Control Laboratory and Institute of Fruit Technology, Lyallpur, Pakistan, and K. S. Ch. Sardar Mohammad, Agricultural Chemist, Agricultural College, Lyallpur, Pakistan

Fertilizers in British Caribbean Agriculture, by F. Hardy, Chemistry Department, Imperial College of Tropical Agriculture, Trinidad, B.W.I.

Cropping Systems in the Equatorial Forest Region of the Belgian Congo, by F. Jurion, Director General in Africa, National Institute for Agricultural Studies of the Belgian Congo, and J. Henry, Chief, Agricultural Research Section, Research Centre of the National Institute for Agricultural Studies at Yangambi, Belgian Congo

Improving Soil Productivity in Southeastern Asia and the Indies, by Robert L. Pendleton, Professor of Tropical Soils and Agriculture, Isaiah Bowman School of Geography, Johns Hopkins University, Baltimore, Maryland, U.S.A.

Increasing the Productivity of the Soil, by Alfredo Papi Gil, Agricultural Section, National Bank of Nicaragua, Managua, Nicaragua

PLANT BREEDING

2 September 1949

Chairman:

J. N. Mukherjee, Director, Indian Agricultural Research Institute, New Delhi, India

Papers:

Development and Maintenance of Superior Genetic Stocks, by O. H. Frankel, Chief Executive Officer, Wheat Research Institute, Christchurch, New Zealand

Development and Maintenance of Superior Genetic Stocks, by W. Robb, Director, Scottish Society for Research in Plant-Breeding, Edinburgh, Scotland

Notes on Developing and Maintaining High-Yielding Crop Plants, by the Institute of Plant Breeding, Wageningen, Netherlands

Development and Maintenance of Superior Genetic Stocks at the Indian Agricultural Research Institute, New Delhi, by B. P. Pal, Assistant Director, Indian Agricultural Research Institute, New Delhi, India

UNSCCUR PROCEEDINGS: INDEX

The Canadian System of Collecting and Maintaining Genetic Stocks of Cereals, by C. H. Goulden, Dominion Cerealist, Central Experimental Farm, Ottawa, Canada
Plant Breeding — Development and Maintenance of Superior Genetic Stocks, by Henrik Bøgh, Pajbjerg-fondens Plant Breeding Station, Børkop, Denmark
Adaptation of Crops to New Environment, by P. V. Cardon, Administrator, Agricultural Research Administration, United States Department of Agriculture, and C. O. Erlanson, Principal Horticulturist in Charge, Division of Plant Exploration and Introduction, Plant Industry Station, Beltsville, Md., U.S.A.

Improvement of the Yield of Cereals in Sweden due to Plant Breeding, by Å. Åkerman, Director, Swedish Seed Association, Svalöf, Sweden

Crops Suitable for the Large Semi-Arid Areas in the State of Lara, by Ricardo Orellana A., Agricultural Engineer, Barquisimeto, Venezuela

PROTECTION OF CROPS AND GRASSLANDS

30 August 1949

Chairman:

Maurice Zouain, Directeur-Général, Ministère de l'Agriculture, Beirut, Lebanon

Papers:

Protection of Crops and Grasslands against Insets, by R. A. E. Galley, Agricultural Research Council, London, England

Protection of Crops and Grasslands against Insects, by P. N. Annand, Chief, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture

Control of Plant Diseases, by Elvin C. Stakman, Chief, Division of Plant Pathology and Botany, University of Minnesota, St. Paul, Minn., U.S.A.

Plant Diseases in the United Kingdom, by W. C. Moore, Director, Plant Pathology Laboratory, Ministry of Agriculture and Fisheries, Harpenden, Hertfordshire, England

Some Popular Methods of Plant Diseases Control in Pakistan, by Taskhir Ahmad, Director, Department of Plant Protection, Government of Pakistan, Karachi, Pakistan, with the assistance of S. Z. Hasanain, Assistant Plant Pathologist, Department of Plant Protection, Karachi, and A. Sattar, Plant Pathologist, Government of Punjab, Lyallpur, Pakistan

Disease Control of Agricultural Crops in Hawaii, by J. Walter Hendrix, Associate Plant Pathologist, Hawaii Agricultural Experiment Station, Honolulu, T.H.

Control of Plant Diseases in the French Overseas Territories, by G. Bouriquet, Director, Laboratoires des Services scientifiques de l'Agriculture aux Colonies, Ministère de la France d'Outre-mer, Paris, France

STORAGE AND PRESERVATION OF AGRICULTURAL PRODUCTS

19 August 1949

Chairman:

Mario de Diego, Permanent Representative of Panama to the United Nations

Papers:

Storage and Preservation of Agricultural Products, by W. V. Hukill, Bureau of Plant Industry, Soils and Agricultural Engineering, United States Department of Agriculture

The Storage of Some Agriculture Products in Australia, by A. B. Cashmore, Commonwealth Council for Scientific and Industrial Research, Melbourne, Australia

Conservation of Green Crops, by A. I. Virtanen, Director, Biochemical Institute, Helsinki, Finland

Storage of Agricultural Products, by L. Govin, Maître de projets, École Nationale du Génie Rural, Paris, France

Storage of Wheat in Underground Silos, by the Ministry of National Economy, National Commission for Cereals and Grain Elevators, Buenos Aires, Argentina

Preservation of Perishable Foods, by Louis B. Howard, Head, Department of Food Technology, College of Agriculture, University of Illinois, Urbana, Illinois, U.S.A.

Work of the Canadian Committee on Food Preservation, by M. W. Thistle and W. H. Cook, Division of Applied Biology, National Research Laboratories, Ottawa, Canada

Preservation of Meat, Eggs, Fruits and Vegetables, by E. C. Bate-Smith, University of Cambridge and Department of Scientific and Industrial Research, Low Temperature Station for Research in Biochemistry and Biophysics, Cambridge, England

Preservation of Perishable Foods, by Georg Borgström, Director of Research, Swedish Institute of Preservation Research, Kalleback, Göteborg, Sweden

Australian Problems in the Preservation of Perishable Foods, by J. F. Kefford and W. A. Empey, Commonwealth Scientific and Industrial Research Organization, Division of Food Preservation, Homebush, Australia

LIVESTOCK BREEDING

30 August 1949

Chairman:

Isabella Leitch, Director, Commonwealth Bureau of Animal Nutrition, Rowett Research Institute, Bucksburn, Scotland

Papers:

Livestock Improvement in the United Kingdom, by R. G. White, Animal Breeding and Genetics Research Organization, Edinburgh, Scotland

Poultry Breeding in the Netherlands, by J. G. Tukker, Director, Government Bureau for Poultry and Eggs, De Bilt, Netherlands

Progeny Testing Stations and Livestock Improvement, by Knud Rottensten, Land Economics Research Laboratory, Copenhagen, Denmark

Value of the Use of Artificial Insemination, by Ed. Sørensen, Royal Veterinary and Agriculture School, Copenhagen, Denmark

PROGRAMME OF THE CONFERENCE

Reasonably Possible Rates of Improving Livestock by Breeding, by Jay L. Lush, Professor of Animal Breeding, Iowa State College, Ames, Iowa, U.S.A.

Selection of Techniques for Improvement of Sheep, by R. B. Kelley, Commonwealth Scientific and Industrial Research Organization, Australia

Adaptation of Stock to Environment and Improvement of Breeds by Crossing, by C. A. Calvo, Ministry of Agriculture, Argentina

Improvement of Bovines in French West Africa, by J. R. Pagot, Office de la Recherche Scientifique Coloniale, Ségau, French West Africa

Livestock Improvement and Its Relation to the Conservation and Utilization of Resources, by R. W. Phillips, Chief, Animal Industry Branch, and Acting Director, Agriculture Division, Food and Agriculture Organization of the United Nations

Adaptation of Livestock to New Environments, by John Hammond, School of Agriculture, Cambridge University, England

Adaptation of Livestock to New Environments, by A. O. Rhoad, Chief, Animal Industry Department, Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica

Adaptation of Livestock to New Environments, by J. O. Grandstaff, Director, Southwestern Range and Sheep Breeding Laboratory, Fort Wingate, New Mexico, U.S.A.

Stock Raising, by the Ministry of Agriculture, Buenos Aires, Argentina

CROP POLICY AND THE FEEDING OF LIVESTOCK

31 August 1949

Chairman:

Albert Rhoad, Chief, Animal Industry Department, Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica

Papers:

Efficiency of Different Classes of Farm Animals in Converting Farm Crops to Food, by Isabella Leitch, Director, Commonwealth Bureau of Animal Nutrition, Rowett Research Institute, Bucksburn, Aberdeenshire, Scotland

Efficiency of Different Classes of Farm Animals in Converting Crops to Human Food, by Frank B. Morrison, Professor of Animal Husbandry and Animal Nutrition, Cornell University, Ithaca, New York, U.S.A.

Some Research Aspects of Soil Conservation and the Future of the Hills, by E. Bruce Levy, Director, and F. E. T. Suckling, Grasslands Division, Department of Scientific and Industrial Research, Palmerston North, New Zealand

Management of a Permanent Pastoral Industry in the Netherlands, by M. L. 't Hart, Central Institute for Agricultural Research, Wageningen, the Netherlands

Feeding of Livestock in Relation to Crop Policy: Nutritional Diseases of Livestock, by L. A. Maynard, Director, School of Nutrition, Cornell University, Ithaca, New York, U.S.A.

Minor Elements in Relation to Animal Health in Great Britain, by H. H. Green, Ministry of Agriculture and Fisheries, Veterinary Laboratory, Weybridge, Surrey, England

Feeding of Livestock and its Relation to Crop-Raising Practice, by the Ministry of Agriculture, Buenos Aires, Argentina

LIVESTOCK DISEASES AND PESTS

1 September 1949

Chairman:

Jacques Ratineau, Inspecteur Général, Ministère de l'Agriculture, Paris, France

Papers:

Prevention of Introduction, and Control of Spread, of Infectious Diseases in Great Britain, by A. W. Stableforth, Ministry of Agriculture and Fisheries, Veterinary Department, Weybridge, Surrey, England

Livestock Diseases and Pests, by F. C. Minett, Animal Husbandry Commissioner, Government of Pakistan, Karachi, Pakistan

Conservation of Livestock Resources by Control of Disease, by George H. Hart, Department of Veterinary Science, University of California, Davis, California, U.S.A.

Conservation of Livestock Resources by Control of Disease, by M. Christiansen, Director, State Veterinary Serum Laboratory, Copenhagen, Denmark

Measures to Protect the Health of Argentine Cattle, by the Ministry of Agriculture, Buenos Aires, Argentina

Internal Parasites of Livestock, by A. O. Foster, Parasitologist, Bureau of Animal Industry, United States Department of Agriculture

Internal and External Parasites of Livestock, by E. L. Taylor, Ministry of Agriculture and Fisheries, Veterinary Department, Weybridge, Surrey, England

External Parasites of Livestock, by E. F. Knipling, Division of Insects Affecting Man and Animals, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture

Livestock Diseases and Pests, by the Ministry of Agriculture, Buenos Aires, Argentina

CONDITION OF GRAZING LANDS

2 September 1949

Chairman:

John Hammond, Reader in Agricultural Physiology, University of Cambridge, Cambridge, England

Papers:

Relation of Sustained Livestock Production to Condition of Grazing Land, by Clarence L. Forsling, Member, Program Staff, United States Department of the Interior

Relation of Sustained Livestock Production to Condition of Grazing Land, by T. L. Bywater, Principal, North of Scotland College of Agriculture, Marischal College, Aberdeen, Scotland

UNSCCUR PROCEEDINGS: INDEX

Application of Ecological Principles in Determining Condition of Grazing Lands, by Arthur W. Sampson, Professor of Forestry (Range Management), University of California, Berkeley, California, U.S.A.

British Grassland Problems and Some Results, by William Davies, Director, Grassland Improvement Station, Stratford-on-Avon, Warwickshire, England

Soil Fertility and Pasture Production — Legumes, Fertilizers and the Grazing Animal, by P. D. Sears, Grasslands Division, Department of Scientific and Industrial Research, Palmerston North, New Zealand

Evaluation of Grassland by Botanical Research in the Netherlands, by D. M. de Vries, Th. A. de Boer and J. G. P. Dirven, Central Institute for Agricultural Research, Wageningen, the Netherlands

SEEDING AND RESTORATION OF NATURAL GRAZING LANDS 29 August 1949

Chairman:

Carlos Madrid S., Dean and Professor of Soils, Facultad Nacional de Agronomía, Medellín, Colombia

Papers:

Testing New Plant Materials for Re-vegetation of Grazing Lands, by G. Nilsson-Leissner, Director, Government Central Seed Control Laboratory, Bergshamra, Stockholm, Sweden

Breeding of Pasture Plants in New Zealand, by L. Corkill, Senior Plant Breeder, Grasslands Division, Department of Scientific and Industrial Research, Palmerston North, New Zealand

Testing New Plant Materials for Re-vegetation of Grazing lands, by Wesley Keller, Geneticist, Division of Forage Crops and Diseases, Bureau of Plant Industry, Soils and Agricultural Engineering, United States Department of Agriculture, Logan, Utah, in co-operation with the Utah Agricultural Experiment Station, and the Intermountain Forest and Range Experiment Station, United States Forest Service, Logan, Utah

Recent Advances in Methods for Restoring Deteriorated Grazing Land, by F. G. Renner, Chief, Range Division, Soil Conservation Service, United States Department of Agriculture

Role of Grassland in Soil Conservation—Aerial Top-dressing and Seeding Trials, by D. A. Campbell, Senior Soil Conservator, Soil Conservation and Rivers Control Council, Ministry of Works, Wellington, New Zealand

Management of a Permanent Pastoral Industry to Guard against Grazing Land Deterioration, by E. Bruce Levy, Director, Grasslands Division, Department of Scientific and Industrial Research, Palmerston North, New Zealand

OPPORTUNITIES FOR THE MORE EFFECTIVE USE OF NEW AGRICULTURAL LANDS

31 August 1949

Chairman:

Maurice Guillaume, Directeur de l'Agriculture, de l'Élevage, Forêts et Chasse au Ministère de la France d'Outre-Mer, Paris, France

Papers:

Reclamation of New Lands for Agriculture—Potentials and Problems, by E. de Vries, Professor, Agricultural University, Wageningen; Counsellor to Ministry of Overseas Affairs, The Hague, Netherlands, and J. A. van Beukering, Director, Department of Agriculture, Livestock and Fisheries, Ministry for Overseas Territories, The Hague, Netherlands

Land Reclamation, by D. R. Sethi, Agricultural Development Commissioner, Government of India, New Delhi

Reclamation of New Lands for Agriculture—Potentials and Problems in Tropical Regions, by Maurice Guillaume, Directeur de l'Agriculture, de l'Élevage, Forêts et Chasse, au Ministère de la France d'Outre-Mer, Paris, France

Agricultural Development in Relation to Land Use in Sukumaland, by N. V. Rounce, Senior Agricultural Officer, Tanganyika

Development of New Rice Lands in Malaya, by F. H. Allan, Drainage and Irrigation Department, Federation of Malaya, and E. J. H. Berwick, Acting Chief Field Officer, Agricultural Department, Federation of Malaya

Reclamation of New Lands for Agriculture—Utilization of Eroded Lands, by Pompilio Ortega, Director General of Agriculture, Tegucigalpa, Honduras

Possibilities for Creating New Grazing Lands in Ituri (Belgian Congo), by A. Taton, Assistant, Division de botanique de l'Institut national pour l'étude agronomique du Congo belge, Yangambi, Belgian Congo

Reclamation of Flood-lands for Production, by J. E. Opsomer, Professor, Université de Louvain, Belgium

Reclamation of the Amazonian Floods-lands near Belém, by Felisberto C. de Camargo, Director, Instituto Agronomico do Norte, Ministerio da Agricultura, Belém, Pará, Brazil

Reclamation of New Lands for Agriculture—Potentials and Problems in Development by Irrigation and Drainage, by H. H. Wooten, Agricultural Economist, Bureau of Agricultural Economics, United States Department of Agriculture, and Ervin J. Utz, Division of Land Use and Settlement, Bureau of Reclamation, United States Department of the Interior

Reclamation of New Lands for Agriculture, by René Dumont, Maître de conférences d'agriculture à l'Institut national agronomique; Professeur d'économie agraire à l'Institut des études politiques de l'Université de Paris, Paris, France

Possibilities and Problems in the Reclamation of Land in Central and Southern Tunisia for Rational Agricultural Use, by G. Valdeyron, Director, Service botanique de Tunisie, Tunis

Opportunities for the More Effective Agricultural Use of New Lands, by F. Hellinga, Graduate School of Agriculture, Wageningen, the Netherlands

Investigational Technique in Land Settlement, with Particular Reference to the Commonwealth (Australia) War Service Land Settlement Scheme, by T. H. Strong, Bureau of Agricultural Economics, Department of

PROGRAMME OF THE CONFERENCE

Commerce and Agriculture, Sydney, Australia, with A. J. Campbell, also of the Bureau of Agricultural Economics

Reclamation and Utilization of New Lands in Morocco, by E. Miège, Director, Centre de recherches agronomiques du Maroc, French Morocco

WILDLIFE AND FISH RESOURCES (Volume VII)

CHANGES IN ABUNDANCE OF FISH POPULATION 22 August 1949

Chairman:

C. J. Bottemanne, Former Head of Institute of Sea Fisheries of the Indies, Batavia; Voorburg, the Netherlands

Papers:

Changes in the Abundance of Fish Populations, by Gunnar Rollesen, Directorate of Fisheries, Institute of Marine Research, Bergen, Norway

Fluctuations in the Abundance of Herring on the West Coast of Vancouver Island, British Columbia, by A. L. Tester, Fisheries Research Board of Canada; Professor of Zoology, University of Hawaii, Honolulu, T.H.

Fluctuations in Fish Populations owing to Climatic Changes, by A. Vedel Taning, Director, Marinbioligisk Laboratorium, Charlottenlund Slot, Charlottenlund, Denmark

Enclosing of the Zuyder Zee and its Effect on Fisheries, by B. Havinga, Director, Government Institute for Fisheries Investigations, Amsterdam, the Netherlands

The Present World Problem of Sea Fisheries, by Jean Le Gall, Director, Office scientifique et technique des Pêches maritimes, Paris, France

Effects of Fishing on Norwegian Freshwater and Anadromous Fishes, by Sven Sømme, Government Inspector of Salmon and Freshwater Fisheries, Oslo, Norway

Effect of Fishing upon the Stocks of Pacific Halibut, by H. A. Dunlop, International Fisheries Commission, Seattle, Washington, U.S.A.

Overfishing, by Michael Graham, Lowestoft Research Laboratory, Ministry of Agriculture and Fisheries, Suffolk, England

DEVELOPING FISHERY RESOURCES 28 August 1949

Chairman:

Michael Graham, Lowestoft Research Laboratory, Ministry of Agriculture and Fisheries, Suffolk, England

Papers:

Latent Fishery Resources and Means for their Development, by Harold Thompson, Chief, Division of Fisheries, Council for Scientific and Industrial Research Marine Biological Laboratory, Cronulla, New South Wales, Australia

Latent Fishery Resources and Means for their Development, by Cecil von Bonde, Director of Fisheries for the Government of the Union of South Africa and Member, Standing Advisory Committee on Fisheries, Food and Agriculture Organization of the United Nations, Capetown, Union of South Africa

Latent Fishery Resources and Means for their Development, by E. de Vries, Professor, Agricultural University, Wageningen; Counsellor to Ministry of Overseas Affairs, The Hague, Netherlands, and C. J. Bottemanne, Former Head of Institute of Sea Fisheries of the Indies, Batavia; Voorburg, the Netherlands

Development of the Fishery Resources in Chile, by M. J. Lobell, Fisheries Consultant, Santiago, Chile

Exploitation of the Egyptian Elasmobranchii, by Ibrahim Abou Samra, Director, Fouad I Institute of Hydrobiology and Fisheries, Alexandria, Egypt

Shellfish Industry in Holland, by P. Korringa, Government Institute for Fishery Investigations, Bergen op Zoom, Netherlands

Propagation and Transplantation of Marine Fish, by H. Blegvad, Director, Danish Biological Station; Secretary-General, International Council for the Exploration of the Sea, Charlottenlund, Denmark

Propagation and Transplantation of Marine Fish in Europe, by Alf Dannevig, Director, Flødevig Sea-Fish Hatchery, Flødevigen, Arendal, Norway

FISHERIES STATISTICS AND TECHNOLOGICAL DEVELOPMENT

2 September 1949

Chairman:

Nazir Ahmad, Deputy Director of Fisheries, Comilla, East Bengal, Pakistan

Papers:

Statistics on Economic Features of the Fisheries, by Stewart Bates, Deputy Minister of Fisheries, Ottawa, Canada

Economic Statistics on Marine Fisheries, by P. F. Louis, Administrateur principal de l'Inscription maritime, Direction des pêches maritimes, Ministère de la Marine Marchande, Paris, France

Fisheries Statistics, by the Netherlands Government, The Hague, Netherlands

Statistics on Economic Features of the Fisheries, by G. M. Gerhardsen, Chief Economist, Fisheries Division, Food and Agriculture Organization of the United Nations

Statistics on Economic Features of the Fisheries of the United States, by Edward A. Power, Chief, Statistical Section, Branch of Commercial Fisheries, Fish and Wildlife Service, United States Department of the Interior

Recent Advances in Methods of Handling, Preservation, Processing and Distribution of Fish; Developments in Utilization, New Products and By-Products, by Olav Notevarp, Director, Norwegian Fisheries Official Research Laboratory, Bergen, Norway

Recent Advances in Methods of Handling, Preservation, Processing, and Distribution of Fish; Developments in Utilization, New Products and By-Products, by Frode Bramsnaes, Director, Technological Laboratory, Ministry of Fisheries, Copenhagen, Denmark

Recent Advances in the Handling and Processing of Fish, by G. A. Reay, Department of Scientific and Industrial Research, Torry Research Station, Aberdeen, Scotland

Methods of Detecting Fish by Echo Ranging and Echo Sounding, by J. Renou, Chef du Service presse-information de la Marine nationale, Paris, France

Recent Advances in Various Technological Aspects of Handling Fish and Fish Products, by H. L. A. Tarr, Acting Director, Fisheries Research Board of Canada, Fisheries Experimental Station, Vancouver, B.C., Canada

Technological Advances in Fishing Methods, by J. L. Hart, Pacific Biological Station, Nanaimo, B.C., Canada

Saury Lift-Net Fishing with Light, by Shigeno Takayama, Central Fisheries Station of Japan, Tokyo, Japan

Technological Development in Fisheries with Special Reference to the Factory Ship in the United States, by A. W. Anderson, Chief, Branch of Commercial Fisheries, Fish and Wildlife Service, United States Department of the Interior

French Sea Fish By-Products Industry, by J. Pérard, President, Syndicat Général des Industries de Traitement des Sous-Produits de la Pêche Maritime, Paris, France

MANAGEMENT AND CULTIVATION OF FRESH-WATER FISH 24 August 1949

Chairman:

A. L. Pritchard, Director, Fish Culture Development, Department of Fisheries, Ottawa, Canada

Papers:

Pond Culture of Warm-Water Fishes, by S. L. Hora, Director, Zoological Survey of India, Indian Museum, Calcutta, India

Rice-Paddy Carp Culture in Japan, by Yoshio Hiyama, Fisheries Institute, Faculty of Agriculture, Tokyo University, Japan

Lake Fisheries of Egypt, by Mohamed Kamel El Saby, Controller of Fisheries Department, Ministry of Commerce and Industry, Cairo, Egypt

Pond Culture of Warm-Water Fishes, by S. Y. Lin, Superintendent of Fisheries Research, Northcote Science Building, University, Hong Kong

Pond Culture of Warm-Water Fishes in Indonesia, by A. E. Hofstede, Head of the Sub-section Inland Fisheries, Department of Agriculture and Fisheries, Batavia, Indonesia

Pond Culture of Warm-Water Fishes as Related to Soil Conservation, by O. Lloyd Meehan, Chief, Branch of Game Fish and Hatcheries, Fish and Wildlife Service, United States Department of the Interior

Pond Culture of Warm-Water Fishes, with Special Reference to Baños or Milk Fish Cultivation under Philippine Conditions, by Herminio R. Rabanal, Bureau of Fisheries, Department of Agriculture and Natural Resources, Manila, Philippines

Stocking and Rearing for River and Inland Fisheries, by G. C. D. Hos, Acting Inspector of River and Inland Fisheries, Utrecht, Netherlands

Review of Fish-Farming in Israel, by M. Shelubsky, Ministry of Agriculture, Department of Fisheries, Israel

Management and Cultivation of Fresh Water Fish: Principles and Practices with Special Reference to Conditions in New Zealand, by A. E. Hefford, Formerly Chief Inspector of Fisheries and Director of Fishery Research, Marine Department, St. Clair, Dunedin, New Zealand

Management of Cold-Water Fish Resources in South Africa, by D. Hey, Department of Inland Fisheries, Cape Provincial Administration, Stellenbosch, Union of South Africa

Fresh-Water Fishery: Artificial Insemination of Carps, by Ivan Jelacin, University of Ljubljana, Ljubljana, Yugoslavia

RESEARCH IN THE CONSERVATION AND UTILIZATION OF MARINE RESOURCES

1 September 1949

Chairman:

S. L. Hora, Director, Zoological Survey of India, Calcutta, India

Papers:

Changes in the North Sea Stocks of Fish, by Michael Graham, Lowestoft Research Laboratory, Ministry of Agriculture and Fisheries, Suffolk, England

Research on Use and Increase of Fish Stocks, by A. G. Huntsman, Consulting Director, Fisheries Research Board of Canada, and Professor of Marine Biology, University of Toronto, Ontario, Canada

Research in Fishery Conservation (Techniques used in Studying Fisheries; and the Integration of Hydrological, Biological and Other Studies in a Well-Rounded Marine Fisheries Research Programme in India), by H. Srinivasa Rao, Chief Research Officer, Central Marine Fisheries Research Station, Madras, India

Utilization of Marine Algae, by Philip Jackson, Deputy Director, Scottish Seaweed Research Association, Musselburgh, Scotland

Utilization of Algae, by Emil Öy, Chemical Engineer, Stavanger, Norway Marine Algae, by P. Schang, Vice-President, Syndicat national des producteurs d'iode, Paris, France

GAME AND FUR CONSERVATION

26 August 1949

Chairman:

Abelardo Moreno, Professor of Zoology and Director, Museo Poey, University of Havana, Havana, Cuba

PROGRAMME OF THE CONFERENCE

Papers:

Wild-life on Croplands, by Edward H. Graham, Chief, Biology Division, Soil Conservation Service, United States Department of Agriculture

Game Conservation on Croplands in Great Britain, by A. D. Middleton, Biologist, Imperial Chemical Industries, Game Services, Fordingbridge, Hampshire, England

Recreation and Wildlife Problems Peculiar to Rangelands of Western United States, by J. V. K. Wagar, Head, Department of Forest Recreation and Game Management, Colorado A. & M. College, Fort Collins, Colorado, U.S.A.

Game and Fur Conservation on Rangelands in the Western United States, by D. I. Rasmussen, In Charge of Wildlife Management, Intermountain Region, United States Forest Service, Ogden, Utah

Ecological Aspects of Deer Production on Forest Lands, by A. Starker Leopold, Assistant Professor of Zoology, Museum of Vertebrate Zoology, University of California, Berkeley, California, U.S.A.

MANAGEMENT OF WILDLIFE RESOURCES

29 August 1949

Chairman:

Nils Dahlbeck, Honorary Secretary and Executive Member of the Swedish Society for the Protection of Nature, Stockholm, Sweden

Papers:

Management of Wildlife Resources, by E. B. Worthington, Scientific Secretary, Office of the East Africa High Commission, Nairobi, Kenya, East Africa

Game Control in Kenya Colony, by A. T. A. Ritchie, Game Warden, Nairobi, Kenya, East Africa

The "Controlled Area" System in Relation to Game Management on Rangelands in Northern Rhodesia, by T. G. C. Vaughan-Jones, Director of Game and Tsetse Control, Lusaka, Northern Rhodesia

Scientific Work of the National Parks Institute of the Belgian Congo, by V. Van Straelen, Director, Institut royal des sciences naturelles de Belgique, Brussels, Belgium

Management of Wildlife Resources, by Jean-Paul Harroy, Secretary-General, Institut pour la recherche scientifique en Afrique centrale and Secretary-General, Union internationale pour la protection de la nature, Brussels, Belgium

On the Conservation of Bird Resources, by Jean Delacour, President, International Committee for Bird Preservation; Research Associate, American Museum of Natural History, New York City, U.S.A.

Management of Bird Resources, by J. Dewey Soper, Dominion Wildlife Officer, Alberta and the Territories, Dominion Wildlife Service, Lands and Development Services Branch, Department of Mines and Resources, Ottawa, Canada

Peruvian Management of Bird Resources, by Enrique Avila, Ornithologist, Compañía Administradora de Guano, Lima, Peru

Management of Bird Resources, by R. A. Falla, Director, Dominion Museum, Wellington, New Zealand

Management of Bird Resources, by Gustav A. Swanson, Head, Department of Conservation, Cornell University, Ithaca, N.Y., U.S.A.

Administration of Big Game Resources in the United States, by Albert M. Day, Director, United States Fish and Wildlife Service

Administration of Game Resources, by M. Gouilly-Frossard, Directeur général honoraire des eaux et forêts, Président honoraire du Conseil supérieur de la chasse, Paris, France

Management of Wildlife Resources, by A. Urbain, Director, Muséum nationale d'histoire naturelle, Paris, France

Problems of Conservation in Great Britain as Illustrated by the Status of the Red Deer and the Atlantic Seal, by F. Fraser Darling, Director, West Highland Survey, Scotland, The Old Rectory, Lilley, near Newbury, Berkshire, England

Problems in Connexion with Imported Species of Animals, by the Ministry of Agriculture, Buenos Aires, Argentina

CONFERENCE AUTHORS AND PARTICIPANTS

An italicized number refers to the opening page of an author's paper.

A

- ABBINK, JOHN (AP), Formerly Consultant on the Foreign Technical Assistance Programme, United States Mission to the United Nations, now with Abbink and Drumm, 17 East 42nd Street, New York, N.Y., U.S.A. I: 232
- ABOU SAMRA, IBRAHIM (A), Director of Fouad I Institute of Hydrobiology and Fisheries, Alexandria, Egypt ... VII: 44
- AEREU, S. FRÓES (AP), Director, Mineral and Chemical Industries, Instituto Nacional de Tecnología, Rio de Janeiro, Brazil..... I: 99; II: 17, 37, 38, 83, 101; III: 67
- ACKERMAN, EDWARD A. (P), Assistant General Manager, Tennessee Valley Authority, 452 New Sprinkle Building, Knoxville, Tenn., U.S.A I: xi, lv
- AFSHAR, FREYDOUN A. (P), Technical Adviser, Tehran, Geology Department, Johns Hopkins University, Baltimore 18, Md., U.S.A..... I: xxxv, lv
- AGUERREVERE, PEDRO I. (AP), Consulting Geologist, Apartado 1253, Caracas, Venezuela..... I: 239, 254, 413
- AHLFELD, FEDERICO E. (A), Consulting Mining Engineer and Geologist, Cochabamba, Bolivia..... II: 82
- AHMAD, NAZIR (P), Deputy Director of Fisheries, Comilla, East Bengal, Pakistan..... VII: 111, 117, 118, 163, 184
- AHMAD, TASIKIR (A), Director, Department of Plant Protection, Ministry of Food, Agriculture and Health, Government of Pakistan, Karachi, Pakistan VI: 327
- AHMED BEY, ABDEL A. (AP), Under-Secretary of State, Chairman, Hydro Electric Power Department, Ministry of Public Works, Cairo, Egypt IV: 297
- AILLERET, P. (A), Director, études et recherches, Électricité de France; Chairman, Committee on Electric Power, United Nations Economic Commission for Europe, 12 Place des États-Unis, Paris 16, France III: 250
- ÅKERMAN, Å. (A), Director, Swedish Seed Association, Svalöf, Sweden VI: 297
- ALBALA, AMÉRICO (P), Chemical Engineer, cia. de Acero del Pacífico, casilla 1-c, Talcahuano, Chile..... I: xxxi, Iv
- ALLAN, F. H. (A), Drainage and Irrigation Department, Maalya; c/o Mr. G. A. McMillan, D.S.I.R., Africa House, Kingsway, London, W.C. 2, U.K. VI: 588
- ALLEE, RALPH H. (A), Director, Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica..... I: 353
- ALLEN, RUSSELL (P), Education Director, International Brotherhood of Paper Makers, Wolfert Avenue and North Pearl Street, Albany 1, N.Y., U.S.A..... I: xl, lv
- ALLOUARD, PIERRE (A), Conservateur des eaux et forêts des colonies, Comité national des bois tropicaux, 16, Rue de la Paix, Paris 2, France V: 43
- ALLSOOP, W. H. (P), Fisheries Officer, Department of Agriculture, Georgetown, British Guiana..... I: xl, lv
- ALM, GUNNAR (A), President, State Institute of Fresh-Water Fisheries, Drottninghol, Stockholm, Sweden... IV: 439
- ALSPAUGH, PAUL S. (P), Superintendent of Research, Development and Engineering Projects, Carbide and Carbon Chemicals Corporation, South Charleston, W. Va., U.S.A. III: 155
- AL-UZRI, ABDEL AMIR (P), Director-General of Irrigation, Baghdad, Iraq I: 388, 391, 392, 393, 395, 398, 399, 400, 401, 403
- AMBROISE, RENÉ (P), Directeur du service des eaux et forêts, Service de l'administration générale, Département de l'agriculture, Port-au-Prince, Haiti..... VI: 50, 108, 168, 169, 170, 270, 557, 558
- ANDERSON, ANDREW W. (A), Chief, Branch of Commercial Fisheries, Wildlife Service, Department of the Interior, Washington 25, D.C., U.S.A. VII: 103
- ANDERSON, F. A. (P), Director of Agricultural Extension Service, Colorado Agricultural and Mechanical Engineering College, Fort Collins, Colo., U.S.A..... I: xl, lv
- ANDRADE, GONZALO (P), Assistant Agricultural Attaché, Mexican Embassy, Washington, D.C., U.S.A..... VI: 172
- ANGUS, JAMES HOUSTON (P), Chairman, Electricity Authority of Nigeria, Lagos, Nigeria I: XXV, 398; III: 261; IV: 458
- *ANNAND, P. N. (A), Chief, Bureau of Entomology and Plant Quarantine, Department of Agriculture, Washington 25, D.C. U.S.A. VI: 315
- ANTOINE RAYMOND (A), Ingénieur des eaux et forêts, Institut Agronomique de Louvain, 16, Avenue Cardinal Mercier, Héverlé, Louvain, Belgium V: 231
- ANTUÑA SANTIAGO (P), Chief of Agriculture Services, Department of Agriculture, Montevideo, Uruguay I: 332
- ANT-WUORINEN, OLLI (AP), Director, Chemical Laboratory, The State Institute for Technical Research, Lonnrotinkatu 37, Helsinki, Finland V: 303, 321
- ARCE A., ROBERTO (A), Civil and Mining Engineer, La Paz, Bolivia..... II: 113
- ARCHIBALD, E. S. (AP), Director, Central Experimental Farms Service, Department of Agriculture Ottawa, Canada VI: 225, 267
- ARENA, A. (A), Soils and Agro-Technical Institute, General Directorate of Agricultural Research, Ministry of Agriculture, Buenos Aires, Argentina..... VI: 21
- ARIES, ROBERT S. (P), Consulting Chemical Engineer, 400 Madison Avenue, New York 17, N.Y., U.S.A. III: 99; V: 320, 321
- ARNALDO, SOLOMON V. (P), Acting Director of the New York Office, UNESCO, 405 East 42nd Street, New York 17, N.Y. U.S.A..... I: 1, lv
- ASHLEY, GEORGE H. (P), Consulting Mining Engineer, 3037 North Front Street, Harrisburg, Pa., U.S.A. III: 124
- ATKINSON, J. R. (P), Office Engineer, Kennecott Copper Corporation, 120 Broadway, New York, N.Y., U.S.A.... II: 97
- ATTWOOD, FREDERIC (P), Vice President, Ohio Brass Company, 50 Church Street, New York, N.Y., U.S.A. I: xl, lv

* Deceased.

UNSCCUR PROCEEDINGS: INDEX

- AUBERT, JEAN (AP), Professeur à l'École Nationale des Ponts et Chaussées; Président de la Cie Française de Navigation Khénane, Paris, France I: 389, 394; III: 260, 261, 262, 327, 330; IV: 94, 132, 166, 169, 171, 219, 318, 320, 321, 338, 345, 346, 347, 348, 458
- AUBRÉVILLE, ANDRÉ (A), Inspecteur général des eaux et forêts de la France d'Outre-Mer, Chef du service central des eaux et forêts, Ministère de la France d'Outre-Mer, 27 rue Oudinot, Paris 7, France..... V: 114
- AUDIBERT, J. (P), Ingénieur au corps des mines domaniales de potasse d'Alsace, Mulhouse, France..... II: 166, 168
- AUDIBERT, PAUL F. (A), Ingénieur conseil, Carcès (Var), France..... II: 116
- AUDIGOU, L. J. (P), French Supply Office, 1800 Massachusetts Avenue, N.W., Washington, D.C., U.S.A. VII: 62, 64
- AULL, GEORGE H. (P), Head, Department of Agricultural Economics and Rural Sociology, Clemson Agricultural College, South Carolina Experiment Station, Clemson, S.C., U.S.A. IV: 417; VI: 50, 109, 203, 268, 525, 620, 622
- AVILA, ENRIQUE (A), Ornithologist, Compañía Administradora del Guano, Casilla 2147, Lima, Peru VII: 231

B

- BADCOCK, W. J. (A), Reader in Agriculture, Imperial College of Tropical Engineering, Trinidad, British West Indies I: 283
- BADRAN, OSMAN ADLEY (P), Farouk I University, Alexandria, Egypt..... I: xxxii, lv
- BAILEY, ERVIN G. (P), Vice President, Babcock & Wilcox Company, 85 Liberty Street, New York 6, N.Y. U.S.A. III: 155
- BAILEY, REED W. (AP), Director, Intermountain Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Ogden, Utah, U.S.A. IV: 180, 210, 212, 213; V: 170, 171, 172
- BALSLEY, JAMES R., JR. (AP), Chief, Aeromagnetic Section, United States Geological Survey, Department of the Interior, Washington 25, D.C., U.S.A. II: 99; III: 8, 24
- BARBAGELATA, R. (P), Agricultural Counsellor, Argentine Embassy, Washington, D.C., U.S.A. I: xxix, lv
- BARLOW, HENRY (P), Alder Creek Farm, Califon, N.J., U.S.A..... I: xl, lv
- BARLOW, WALLACE DUDLEY (P), Engineer, 1111 17th Street, N.W., Washington 6, D.C., U.S.A..... I: xl, lv
- BARR, JAMES A. (AP), Consulting Engineer, International Minerals and Chemical Corporation, 20 North Wacker Drive, Chicago 6, Ill., U.S.A..... II: 128, 167
- BARRACLOUGH, L. J. (P), President, Mining, Geological and Metallurgical Institute of India, Calcutta, India III: 123, 124
- BARREDA R., CARLOS A. (P), President, Peruvian Committee for the Protection of Nature, Lima, Peru I: xxxvii, lv
- BARTLETT, FORD (P), President, Lockwood, Kessler & Bartlett, Inc., 32 Court Street, Brooklyn 2, N.Y., U.S.A. I: xli, lv
- BARTON, G. S. H. (P), Special Assistant to the Minister of Agriculture, Department of Agriculture, Ottawa, Ont., Canada VI: 204, 433, 434
- BASS, C. NEIL (P), Chief Conservation Engineer, Tennessee Valley Authority, Knoxville, Tenn., U.S.A.; Room 322, International Bank for Reconstruction and Development, 1818 H Street, N.W., Washington, D.C., U.S.A. I: xli, lv
- BASTOS, ANIBAL A. (A), Geologist, National Department of Mineral Production, Ave. Pasteur 404, Rio de Janeiro, Brazil III: 62

- BATEMAN, ALAN M. (AP), Professor, Yale University, New Haven, Conn., U.S.A..... II: 13, 37, 57, 97
- BATES, STEWART (A), Deputy Minister of Fisheries, Ottawa, Ont., Canada..... VII: 68
- BATE-SMITH, E. C. (A), Superintendent, Low Temperature Research Station, Department of Scientific and Industrial Research, Downing Street, Cambridge, England VI: 366
- BATTLES, RALPH U. (P), Assistant Chief, Economic and Credit Research Division, Farm Credit Administration, Department of Agriculture, Washington, D.C., U.S.A. I: xli, lv
- BAYLESS, NEWTON I. (P), President, Union Pacific Coal Company, 1416 Dodge Street, Omaha 2, Nebr., U.S.A. III: 124
- BEALL, H. W. (AP), Chief, Forestry Operations Division, Forestry Branch, Department of Resources and Development, Ottawa, Ont., Canada..... V: 40
- BEARD, GEORGE L. (A), Flood Control Division, Office of the Chief of Engineers, Department of the Army, Washington 25, D.C., U.S.A IV: 331
- BECK, WALTER (P), Director of Corrosion Research, Associate Professor of Metallurgy, Lehigh University, Bethlehem, Pa., U.S.A..... II: 241, 242, 243, 244
- BECKING, J. H. (A), Professor, Graduate School of Agriculture, Wageningen, The Netherlands..... V: 106
- BEILBY, ROBERT B. (A), Stewarts and Lloyds Minerals Ltd., Brigstock, Northamptonshire, England..... II: 106
- BELL, T. C. (P), Scientific Attaché, Australian Embassy, Washington, D.C., U.S.A..... VI: 337, 497
- BELTRÁN, E. (P), University of Mexico, Mexico, D.F., Mexico I: 270
- BENNETT, CLAUDIOUS (P), Chief, Division of Electric Resources and Requirements, Bureau of Power, Federal Power Commission, Washington, D.C., U.S.A..... I: xli, lv
- BENNETT, HUGH H. (AP), Chief, Soil Conservation Service, Department of Agriculture, Washington 25, D.C., U.S.A. I: 73
- BENNETT, JOHN (P), Director of Land Classification, Department of the Interior, Washington 25, D.C., U.S.A. I: xli, lv
- BERGLUND, NILS (A), Director, Swedish Institute of Agricultural Engineering, Uppsala 7, Sweden VI: 182
- BERGMAN, URI (P), Assistant to the Economic Adviser, Government of Israel, Tel Aviv, Israel..... I: xxxv, lv
- BERGMANN, D. E. D. (A), Weizmann Institute, Rehovoth, Israel I: 157, 322
- BERNARD, CHARLES JEAN (P), Bureau International Permanent de Chimie Analytique, 51 Route de Frontenex, Geneva, Switzerland I: 1, lv
- *BERNARD, MERRILL (AP), Chief, Climatological and Hydrologic services, United States Weather Bureau, Washington, D.C., U.S.A..... IV: 56, 90, 93, 94, 95, 170
- BERWICK, E. J. H. (A), Acting Chief Field Officer, Department of Agriculture, Malaya; c/o Mr. G. A. McMillan, D.S.I.R., Africa House, Kingsway, London, W.C. 2, England VI: 588
- BEURLE, GEORG (A), Construction Consultant, Walterstrasse 15, Linz/Donau, Austria..... IV: 432
- BHATNAGAR, S. S. (P), Secretary to the Government of India, Ministry of Natural Resources and Scientific Research, New Delhi, India I: 12, 15, 27, 28, 310, 317, 323, 406
- BIERBRAUER, ERNST (A), Montanistic University, Leoben, Austria II: 163

* Deceased.

CONFERENCE AUTHORS AND PARTICIPANTS

- BIRCHER, J. (A), Chef de Section, Service Fédéral des Eaux, Département des Postes et de Chemins de Fer, Berne, Switzerland IV: 205
- BIRD, BYRON M. (P), Technical Consultant, Jeffrey Manufacturing Company, Columbus, Ohio, U.S.A. III: 141
- BISHOP, FRED C. (P), Assistant Chief, Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, Department of Agriculture, Washington 25, D.C., U.S.A. VI: 336, 337, 460
- BLACK, JOHN D. (AP), Professor, Harvard University, 205 Littauer Center, Cambridge 38, Mass., U.S.A. I: 105, 211; VI: 97, 110, 169, 172
- BLANFORD, H. R. (A), Editor-Secretary, Empire Forestry Association, The Royal Empire Society, Northumberland Avenue, London, W.C. 2, England V: 178
- BLAUSTEIN, JACOB (P), President, American Trading and Production Corporation, American Building, Baltimore 3, Md., U.S.A. I: xli, lv
- BLEE, C. E. (P), Chief Engineer, Tennessee Valley Authority, Knoxville, Tenn., U.S.A. IV: 320
- *BLEGVAD, H. (A), Director, Danish Biological Station, Secretary-General, International Council for the Exploration of the Sea, P.O. Box 20, Charlottenlund Slot, Charlottenlund, Denmark VII: 51
- BLOCH, M. R. (AP), Consulting Chemist, Palestine Potash Company, 7 Ben Yehuda Street, Jerusalem, Israel I: 253, 392, 398; II: 57, 170, 261, 266; III: 221
- BLONDEL, FERNAND (AP), Directeur du Bureau d'études géologiques et minières coloniales, 12 rue de Bourgogne, Paris 7, France I: 112, 117, 121, 125, 126, 127, 128, 168, 344, 419; II: 36, 56, 102, 168, 209, 266, 267, 268, 295; III: 24
- BLUM, ROBERT (P), Economist, Office of Energy and Utilization, National Security Resources Board, Washington, D.C., U.S.A. I: xli, lv
- BLUM-PICARD, LAMBERT (A), Président du Conseil d'administration des mines domaniales de potasse d'Alsace, 93 Quai d'Orsay, Paris 7, France II: 119
- BOGH, HENRIK (A), Director of Experiments, Pajbjerg-fondens Plant Breeding Station, Borkop, Denmark VI: 289
- BOKE, RICHARD L. (AP), Regional Director, Bureau of Reclamation, U.S. Department of Interior, P.O. Box 2511, Sacramento 10, Calif., U.S.A. IV: 137, 166, 167, 169, 170
- BONNEFIL FILS, LÉONCE (P), Chef de la section d'entomologie, Ministère de l'Agriculture, Port-au-Prince, Haiti VII: 186
- BORBERG, WILLIAM (P), Permanent Representative of Denmark to the United Nations, Empire State Building, New York 1, N.Y., U.S.A. I: 406, 419, 420, 421
- BORGSTRÖM, GEORG (AP), Director of Research, Swedish Institute for Food Preservation Research, Kallebäck 1, Göteborg, Sweden VI: 370, 378, 379, 380, 381
- BOTTEMANNE, C. J. (AP), Former Head of Institute of Sea Fisheries of the Indies, Batavia, Indonesia; c/o Dr. E. de Vries, Ministry of Overseas Territories, The Hague, The Netherlands VII: 24, 25, 26, 39, 63, 65, 66, 112, 114, 118, 163, 164, 184, 185
- BOURDELLE, J. (A), Centre de Recherches et d'expérimentation de Génie Rural, Ministère de l'Agriculture, Paris, France VI: 180
- BOURQUET, G. (A), Direction de l'Agriculture, de l'Élevage et des Forêts, Ministère de la France d'Outre-Mer, Section Technique d'Agriculture Tropicale, 1 Villa Mariotte, La Varenne Saint-Hilaire (Seine), France.... VI: 333
- BOWDEN, WITT (P), Economic Adviser, Bureau of Labor Statistics, Department of Labor, Washington, D.C., U.S.A. I: xli, lv
- BOWMAN, WALDO G. (P), Chief Editor, *Engineering News-Record*, 330 West 42d Street, New York, N.Y., U.S.A. IV: 461
- BOYD, JAMES (P), Director Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A. II: 57
- BRADFIELD, RICHARD (P), Head, Department of Agronomy, Cornell University, Ithaca, N.Y., U.S.A. II: 298; VI: 172, 205
- BRADLEY, WORTHEN (P), President, Bradley Mining Company, 425 Crocker Building, San Francisco 4, Calif., U.S.A. II: 209, 210
- BRAMSNAES, FRODE (A), Director of Research, Technological Laboratories, Ministry of Fisheries, Copenhagen, Denmark VII: 90
- BRANDT, J. D. O. (A), British Iron and Steel Research Association, 11 Park Lane, London, W.2, England II: 176
- BRANNAN, CHARLES F. (P), Secretary of Agriculture, Department of Agriculture, Washington 25, D.C., U.S.A. I: 72, 77, 83, 89, 90, 91
- BRAVO, H. (P), Industrial Research Office, Banco de Mexico, Mexico City, Mexico I: xxxvi, iv
- GRAY, R. H. (P), Professor of Soil Fertility, Department of Agronomy, University of Illinois, Urbana, Ill., U.S.A. I: xli, iv
- BREITENSTEIN, AUGUST JAMES (P), Assistant to President in charge of Engineering, H. C. Frick Coke Company and Associated Companies, P.O. Box 326, Pittsburgh, Pa., U.S.A. I: xli, lv
- BREMER-REINDERS, D. E. (A), Institute of Plant Breeding, Wageningen, The Netherlands VI: 281
- BRENNAN, JOSEPH R. (P), Chief, Project Development Branch, Civil Works, Office of the Chief of Engineers, Department of the Army, Washington 25 D.C., U.S.A. IV: 92
- BREWER, GEORGE E., JR. (P), Vice President, Conservation Foundation, 30 East 40th Street, New York, N.Y., U.S.A. I: xxv; VII: 209, 211
- BRICHANT, ANDRÉ L. (P), Mining Engineer, c/o Kennecott Copper Corp., 161 E. 42nd Street, New York, N.Y., U.S.A. I: xxx, lv
- BRIDGFORTH, R. B. (P), Production and Marketing Administration, Department of Agriculture, 609 East Main Street, Richmond 19, Va., U.S.A. I: xli, lv
- BRIGGS, GLEN (P), Special Assistant to Research Administration, Department of Agriculture, Washington 25, D.C., U.S.A. I: xli, lv
- BROADLEY, HERBERT (AP), Deputy Director-General, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy... I: 30
- BROEZE, J. J. (A), Professor, Proefstation "Delft," Broekmolenweg 20, Delft, The Netherlands III: 268
- BRONK, D. (P), Chairman, National Research Council, Washington, D.C., U.S.A. I: 3
- BROWN, A. A. (AP), Chief, Division of Forest Fire Research, Forest Service, U.S. Department of Agriculture, Washington 25, D.C., U.S.A. V: 34, 70, 72
- BROWN, A. S. (A), Secretary to Cabinet and Secretary, Prime Minister's Department, Canberra, A.C.T., Australia IV: 141
- BROWN, RAYMOND C. (P), Entomologist in charge, Forest Insect Investigation, 335 Prospect Street, New Haven 11, Conn., U.S.A. V: 72

* Deceased.

UNSCCUR PROCEEDINGS: INDEX

- BROWN, RUSSELL B. (P), General Counsel, Independent Petroleum Association of America, 1110 Ring Building, Washington 6, D.C., U.S.A. III: 100
- BRUIN, P. (A), Director in Chief, Agricultural Experimental Station and Institute for Soil Research, TNO, Groningen, The Netherlands VI: 217
- BRUNDRETT, L. L. (P), Vice President, Brundrett Oil Corporation, Kansas City 2, Mo., U.S.A. III: 65
- BUCHAN, FREDERICK E. (P), Refinery Engineer, Oil Shale Research and Demonstration Plant Branch, Bureau of Mines, Department of the Interior, Washington 25, D.C. U.S.A. I: xli, Iv
- BUCHAN, STEVENSON (AP), Chief Geologist, Water Division, Geological Survey and Museum, Exhibition Road, South Kensington, London, S.W. 7, England IV: 40, 91, 92, 128, 129, 214
- BUCK, JOHN LOSSING (AP), Chief, Land and Water Use Branch, Agriculture Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy I: 226
- BUIE, T. S. (AP), Regional Director, Soil Conservation Service, U.S. Department of Agriculture, P.O. Box 612, Spartanburg, S.C., U.S.A. VI: 2, 50, 53
- BURGER, CLARENCE, C., JR. (AP), Chief, River and Harbor Division, Office of the Chief of Engineers, Department of the Army, Washington, D.C., U.S.A.... IV: 335, 347, 349
- BURNS, R. M. (P), Chemical Director, Bell Telephone Laboratories, Murray Hill, N.J., U.S.A. II: 241
- BUSHMAN, A. K. (A), Manager, Application and Service Engineering Division, General Electric Company, Schenectady, N.Y., U.S.A. III: 278, 327
- BUTT, S. M. A. (A), Central Engineering Authority, Government of Pakistan, Karachi I, Pakistan IV: 355
- BYWATER, T. L. (A), Principal, North of Scotland College of Agriculture, Marischal College, Aberdeen, Scotland, U.K. VI: 506
- C**
- CAHALANE, VICTOR H. (P), Chief, Biology Branch, National Park Service, Washington 25, D.C., U.S.A. I: xli, Iv
- CALVACHE, A. (A), Director of Woods, Mines and Water, Ministry of Agriculture, Havana, Cuba..... II: 79
- CALVO, CESAR AUGUSTO (A), Asesor Técnico, Chile 478, Departamento de Estaciones Zootécnicas, Buenos Aires, Argentina VI: 399
- CAMEJO OCTAVIO, DANIEL (P), Edificio "Essex", Avenida Bolivia, Urbanización Los Caobos, Caracas, Venezuela I: xxv, xlvi, lv
- CAMPBELL, A. J. (A), Supervising Research Officer, Bureau of Agricultural Economics, Department of Commerce and Agriculture, Canberra, Australia..... VI: 613
- CAMPBELL, D. A. (A), Senior Soil Conservator, Soil Conservation and Rivers Control Council, Ministry of Works, Wellington, New Zealand I: 226; VI: 548
- CAPELLA, BASIL (P), Foreign Specialist, Department of State, Washington, D.C., U.S.A. I: xli, lvi
- CARABAÑO, H. HERNÁNDEZ (P), Director, School of Agricultural Engineering, Caracas, Venezuela I: 318; VI: 54, 271, 431, 434, 558
- CARDON, P. V. (A), Research Administrator, Agricultural Research Administration, Department of Agriculture, Washington 25, D.C., U.S.A. VI: 292
- CARRIÈRE, J. E. (A), Managing Director, Institute for the Testing of Water Supply Materials, The Hague, The Netherlands II: 234
- CARTA, MARIO (A), Professore di Arte Mineraria, Università degli studi, Cagliari (Sardinia) Italy..... II: 70
- CASHMORE, A. J. (A), Commonwealth Council for Scientific and Industrial Research, Melbourne, Australia VI: 344
- CASHMORE, W. H. (A), Director, National Institute of Agriculture Engineering, Wrest Park, Silsoe, Bedfordshire, England VI: 189
- CASTAGNOU, M. J. E. (A), Inspecteur général des eaux et forêts, Ministère de l'agriculture, Paris, France... V: 176
- CASTENMILLER, G. M. (A), c/o Dr. P. Bruin, Acting Director-in-chief, Landbouwproefstation en Bodemkundig Instituut T.N.O., Groningen, The Netherlands VI: 217
- CATTELL, R. A. (AP), Chief, Petroleum and Natural Gas Branch, Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A. III: 57, 66
- CAVANAGH, P. E. (AP), Assistant Director, Department of Engineering and Metallurgy, Ontario Research Foundation, 43 Queens Park, Toronto 5, Ont., Canada II: 206, 207, 210; III: 140, 141, 142, 183, 197, 198
- CÉPÈDE, MICHEL (A), Civil Administrator, Chief, Service d'études du ministère de l'agriculture, Professor à l'Institut national agronomique, 135 rue Falguierre, Paris 15, France..... VI: 95
- CHAMBERS, P. C. (A), Senior Agricultural Officer, Department of Agriculture, Government of Kenya, Nairobi, Kenya c/o Mr. G. A. McMillan, D.S.I.R., Africa House, Kingsway, London W.C. 2, England VI: 102
- CHAMPION, H. G. (A), Silviculturist, Forest Research Institute, P.O. New Forest, Dehra Dun, U.P., India V: 14
- CHANCO, ANTONIO P. (P), Military Attaché, Permanent Delegation of the Philippines to the United Nations, 350 Fifth Avenue, New York, N.Y., U.S.A.... I: xxxvii, lvi
- CHAPLINE, W. R. (P), Chief, Division of Range Research, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A. I: xli, lvi
- CHASE, HOWARD W. (P), Director, Public Relations, General Foods Corporation, 250 Park Avenue, New York, N.Y., U.S.A. I: xli, lvi
- CHATURVEDI, M. D. (A), Chief Conservator of Forests, Ministry of Food and Agriculture, Government of India, New Delhi, India..... V: 82
- CHAUDRON, GEORGES (A), Professeur de chimie appliquée à la Sorbonne, 1 rue Victor-Cousin, Paris, France..... II: 212
- CHEN, LIANG-FU (P), Director, National Resources Commission of China, 111 Broadway, Room 515, New York 6, N.Y., U.S.A. III: 219, 221, 222
- CHÉRADAME, RAYMOND (AP), Ingénieur en chef des mines, Directeur adjoint du Centre d'études de recherches des charbonnages de France, 35 rue Saint-Dominique, Paris 7, France III: 123, 130, 140, 142, 153, 154, 155, 156, 196, 198, 220
- CHESTER, K. S. (P), Supervisor, Agriculture Division, Battelle Memorial Institute, Columbus, Ohio, U.S.A. I: xli, lvi
- CHRISTIANSEN, M. (A), Director, State Veterinary Serum Laboratory, Copenhagen, Denmark VI: 473
- CIRIGLIANO A., José (P), Inspector de Campo de Hidrocarburos, Ministerio de Fomento, Caracas, Venezuela III: 26, 65
- CLAPP, GORDON R. (AP), Chairman of the Board, Tennessee Valley Authority, New Sprinkle Building, Knoxville, Tenn., U.S.A. I: 369, 383, 384, 385
- CLARK, ANDREW A. (P), Professor of Geography, University of Wisconsin, Madison, Wis., U.S.A. I: 385

CONFERENCE AUTHORS AND PARTICIPANTS

- CLARK, COLIN G. (AP), Under-Secretary of State, Director, Bureau of Industry, Department of Labour and Industry, Brisbane, Queensland I: 15, 27
- CLARKE, GEORGE L. (P), Marine Biologist, Woods Hole Oceanographic Institute, Woods Hole, Mass., U.S.A. VII: 162
- CLAY, G. F. (P), Agricultural Adviser to the Secretary of State for the Colonies, Colonial Office, London, England I: 90, 216, 273, 314; VI: 50, 53, 108, 109, 110, 111, 172, 203, 267, 270, 271, 432, 433, 497, 525, 526, 528, 558, 620, 621, 623
- CLEGG, J. B. (A), Provincial Agricultural Officer, Department of Agriculture, Tanganyika Territory, P.O. Box 72, Tabora, Tanganyika. Permanent Address: c/o The Standard Bank of South Africa, Ltd., Dar es Salaam, Tanganyika Territory VI: 88
- CLEMENTS, F. W. (AP), Chief, Nutrition Section, World Health Organization, Geneva, Switzerland I: 334, 338
- CLEPPER, HENRY E. (P), Managing Editor, *Journal of Forestry*, 825 Mills Building, 17th Street at Pennsylvania Avenue, N.W., Washington 6, D.C., U.S.A. V: 72
- COADY, M. M. (AP), Director, Extension Department, St. Francis Xavier University, Antigonish, Nova Scotia, Canada I: 219
- COCHRAN, H. D. (P), Chief, Division of Personnel Management, United States Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lvi
- COLE, WILLIAM E. (AP), Head, Department of Sociology, University of Tennessee, Knoxville, Tenn., U.S.A. I: 379, 385
- COLLARDÉT, JEAN (A), Directeur du Centre technique du bois, 36 avenue Hoche, Paris 8, France V: 249
- COLLIET, M. H. (AP), Assistant to Vice President, West Virginia Pulp and Paper Company, 230 Park Avenue, New York, N.Y., U.S.A. V: 237, 264
- COLLINGWOOD, G. H. (P), Forestry Consultant, Chamber of Commerce, Washington, D.C., U.S.A. I: xlvi, lvi
- COLWELL, ROBERT N. (A), Assistant Professor of Forestry, School of Forestry, University of California, Berkeley 4, Calif., U.S.A. V: 24
- COMINS, D. (A), Chief Petroleum Engineer, Anglo-Iranian Oil Company Ltd., Britannic House, Finsbury Circus, London, E.C. 2, England III: 30
- COMPTON, WILSON M. (P), Seneca Farms, Herndon, Virginia I: 271; IV: 212; V: 173, 320
- CONDON, E. U. (P), Director, National Bureau of Standards, Department of Commerce, Washington 25, D.C., U.S.A. I: xlvi, lvi
- COOK, HOWARD L. (A), Office of the Secretary, Department of Agriculture, Washington 25, D.C., U.S.A. I: 193, 213, 214
- COOK, W. H. (AP), Director, Division of Applied Biology, National Research Council, Ottawa, Ont., Canada VI: 363, 378, 379, 380
- COOKE, MORRIS L. (P), Consulting Engineer, Hay Adams House, Washington, D.C., U.S.A. IV: 214
- COOLIDGE, HAROLD J. (P), Executive Director, Pacific Science Board, National Research Council, 2101 Constitution Avenue, Washington 25, D.C., U.S.A. I: xlvi, lvi
- COOPER, R. H. (P), Commercial Attaché, Embassy of Liberia to the U.S., Washington, D.C., U.S.A. I: xlvi, lvi
- COPPOCK, JOSEPH D. (P), Economic Adviser, Department of State, Washington, D.C., U.S.A. I: xxv, 214
- CORKILL, L. (A), Senior Plant Breeder, Grasslands Division, Department of Scientific and Industrial Research, Palmerston North, New Zealand VI: 534
- COROTHE, HARRY A. (AP), Forestry Engineer, Jefe de la División de Montes, Ministerio de Agricultura, Caracas, Venezuela V: 32, 130, 148, 171, 208
- CORRIGAN, FRANK K. P. (P), Adviser on Latin America, United States Mission to the United Nations, 2 Park Avenue, New York, N.Y., U.S.A. I: xlvi, lvi
- COUTAGNE, ALMÉ (A), Ingénieur Conseil, 3 avenue Georges Clémenceau, Saint-Genis-Laval, Rhône, France IV: 52
- COX, HAROLD ROXBEE (A), Chief Scientist, Ministry of Fuel and Power, 7 Millbank, London, S.W. 1, England III: 264
- COYNE, ANDRÉ (A), 19 rue Alphonse de Neuville, Paris 17, France IV: 224
- CRAFTS, EDWARD C. (P), Chief, Division of Forest Economics, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A. V: 265
- CRAIGHEAD, FRANK C. (A), Forest Insect Investigations, Division of Forest Insects, U.S. Department of Agriculture, Beltsville, Md., U.S.A. V: 55
- CRAM, IRA H. (P), Vice President, Continental Oil Company, Ponca City, Okla., U.S.A. I: xlvi, lvi
- CRARY, S. B. (P), Manager, Analytical Engineering Department, General Electric Company, 1 River Road, Schenectady, N.Y., U.S.A. III: 260
- CRESSEY, GEORGE B. (P), Maxwell Professor of Geography, Department of Geography, Syracuse University, Syracuse 10, N.Y., U.S.A. I: xlvi, lvi
- *CRICHTON, ANDREW B. (P), President, Johnstown Coal and Coke Company, 1006 United States National Bank Building, Johnstown, Pa., U.S.A. I: 107; III: 197, 198
- CROMER, D'ARCY ANANDA NEIL (AP), Officer-in-Charge, Division of Forest Resources, Forestry and Timber Bureau, Sydney, Australia V: 32, 53, 71
- CROSTON, JOHN (P), Director, Non-Ferrous Metals Division, National Security Resources Board, Washington 25, D.C., U.S.A. I: xlvi, lvi
- CROWTHER, E. M. (A), Head of Chemistry Department, Rothamsted Experimental Station, Harpenden, Hertfordshire, England VI: 221
- CURTIS, HARRY A. (A), Board of Directors, Tennessee Valley Authority, New Sprinkle Building, Knoxville, Tenn., U.S.A. II: 281

D

- D'ADAMO, O. A. (A), Chief, Economic Section, National Forest Administration, Ministry of Agriculture, Buenos Aires, Argentina V: 189
- DAHLBECK, NILS E. (P), Honorary Secretary and Executive Member of the Swedish Society for the Protection of Nature, Mastersamuelsgatan 3, Stockholm, Sweden IV: 213, 459; VII: 208, 210, 252, 254, 255
- DAHLGREN, FREDERIK A. (P), Royal Institute of Technology, Stockholm 26, Sweden III: 328; IV: 457
- DALHAMMAR, SVEN (A), Mining Engineer, Ludvika, Sweden II: 110
- DANA, S. T. (P), Dean, School of Forestry and Conservation, University of Michigan, Ann Arbor, Mich., U.S.A. I: xlvi, lvi
- DANEL, M. (A), Directeur du laboratoire, Dauphinois d'hydraulique, Boite Postale 52, Grenoble (Isère), France IV: 275
- DANNEVIG, ALF (A), Director, Flodevig Sea-Fish Hatchery, Flodevigen, Arendal, Norway VII: 57

* Deceased.

UNSCUR PROCEEDINGS: INDEX

- DARLING, FRANK F. (AP), Director, West Highland Survey, Scotland; Old Rectory, Lilley, near Newbury, Berkshire, England VII: 208, 209, 210, 250, 256
- DARLING, H. VELPEAU (P), Chief Engineer, Office of the Chief of Engineers, Department of the Army, Washington 25, D.C., U.S.A. IV: 347
- DAVIES, WILLIAM (A), Director, Grassland Research Institute, Stratford-on-Avon, Warwickshire, England VI: 514
- DAWSON, ALBERT J. (P), Chief Engineer, Marine Department, Dravo Corporation, Neville Island, Pittsburgh, Pa., U.S.A. IV: 348
- DAY, ALBERT M. (AP), Director, U.S. Fish and Wildlife Service, Washington, D.C., U.S.A. VII: 239, 254, 255
- DAYTON, WILLIAM A. (P), Chief, Division of Dendrology and Range Forage Investigations, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lvi
- DEAN, HAROLD C. (P), World Power Conference; 4 Irving Place, New York 3, N.Y., U.S.A. I: xlvi, lvi
- DE BOER, THEODORE A. (A), Agricultural Engineer, Central Institute for Agricultural Research, Wageningen, The Netherlands VI: 522
- DE BRUYN, *see* Lobry de Bruyn.
- DE CAMARGO, FELISBERTO C. (A), Director, Instituto Agronomico do Norte, Ministerio da Agricultura, Belém, Pará, Brazil VI: 598
- DE DIEGO, MARIO (P), Formerly Representative of Panama to the United Nations; Apartado 1610, Panama City, Panama VI: 377, 378
- DE FINA, A. L. (A), Sub-Director, Soils and Agro-Technical Institute, General Directorate of Agricultural Research, Ministry of Agriculture, Buenos Aires, Argentina VI: 139
- DE GARCIA PAULA, R. DESCARTES (A), Director of Division, Instituto Nacional de Tecnologia, Rio de Janeiro, Brazil V: 315
- DE GRYSE, J. J. (AP), Chief, Forest Insect Investigations, Division of Entomology, Department of Agriculture, Ottawa, Ont., Canada V: 32, 57, 73
- DE HAAN, J. H. (P), Director, Lelydorp Project of Surinam, Post box 601, Paramaribo, Surinam, Dutch Guiana II: 299, IV: 21; V: 174; VI: 51, 108, 170, 171, 620
- DEHEYN, J. J. (A), Agronomie principal au Congo belge, Kalina, Belgian Congo I: 298
- DEKKAN, ABDUL HUSSAIN (P), 263 West End Avenue, New York, N.Y., U.S.A. I: xxxv, lvi
- DELACOUR, JEAN (AP), President, International Commission for Bird Preservation; Research Associate, American Museum of Natural History, New York, N.Y., U.S.A. VII: 228, 254
- DE LA CRUZ, EUGENIO (A), Chief, Division of Forest Management, Bureau of Forestry, Manila, Philippines V: 181
- DE LA TORRE, *see* Rojas de la Torre
- DELGADO A., HENRIQUE (P), Ingeniero al Servicio de la Dirección de Obras de Riego del Ministerio de Obras Públicas, Caracas, Venezuela IV: 212, 213; VI: 171
- DELGADO, ESTEBAN (A), Jefe de la División de Repoblación Forestal, Ministerio de Agricultura, Caracas, Venezuela V: 148
- DELGADO F., JOSÉ ANTONIO (P), Civil and Petroleum Engineer in charge of Petroleum Cartography, Ministerio de Fomento, Caracas, Venezuela I: 1, lvi
- DELO, DAVID M. (P), Executive Director, American Geological Institute and Executive Secretary, Division of Geology and Geography, National Research Council, Washington 25, D.C., U.S.A. I: xlvi, lvi
- DE LUCCIA, E. ROBERT (P), Federal Power Commission Washington, D.C., U.S.A. III: 330; IV: 458
- DE MARTONNE, EMMANUEL (AP), Membre de la section de géographie et de la navigation de l'Académie des sciences, Institut de France, 10 avenue Charles-Floquet, Paris 7, France I: 55, 168, 172, 187, 192, 196, 200
- DE MATROS, LUIZ ALVES (P), Director do Instituto Brasiliero de Administração, Fundação Getúlio Vargas, Praia de Botafogo 186, Rio de Janeiro, Brazil I: xxx, lvi
- DE MERIT, MERRILL (P), Chief Power Engineer, Tennessee Valley Authority, Chattanooga, Tenn., U.S.A. III: 261
- DEMONT, EUGÈNE (P), Director, French Supply Office, 1800 Massachusetts Avenue N.W., Washington, D.C., U.S.A. I: xxxiii, lvi
- DENISON, I. A. (P), Chief, Underground Corrosion Section, National Bureau of Standards, Department of Commerce, Washington 25, D.C., U.S.A. I: xlvi, lvi
- DENGLER DE LA TOUR, G. (P), Seaver 1656, Buenos Aires, Argentina I: xxix, lvi
- DE SOUZA DA CAMARA, A. P. (P), Director, Estação Agronómica Nacional, Quinta da Aldeia, Sacavem, Portugal V: 72, 74; VI: 54, 306, 307, 338
- DETWILER, JOHN D. (AP), Head, Department of Zoology and Applied Biology, University of Western-Ontario; Box 134, Paris, Ont., Canada IV: 449, 460
- DEVADANAM, K. J. (P), Assistant Director, Animal Husbandry Section, Veterinary Department, Hyderabad State Government, Deccan, India VI: 498, 526, 528
- DE VOS, A. (P), Department of Entomology and Zoology, Ontario Agricultural College, Guelph, Ont., Canada VII: 254, 255, 256
- DE VRIES, D. M. (A), Head, Laboratory for Botanical Grassland Research, Central Institute for Agricultural Research, Duivendaal 10, Wageningen, The Netherlands VI: 522
- DE VRIES, EGBERT (AP), Formerly Professor of Tropical Rural Economics, Agricultural University, Wageningen; Counsellor to Ministry of Overseas Affairs, The Hague, The Netherlands; International Bank for Reconstruction and Development, 1818 H Street, N.W., Washington 6, D.C., U.S.A. I: 103, 200, 202, 211, 214, 215, 219, 226, 229, 321, 333, 391, 417; IV: 171; VI: 52, 53, 109, 111, 432, 434, 526, 527, 528, 563, 619, 620, 621, 623; VII: 39, 64, 66
- DHAR, SUBHAS K. (P), United Nations Department of Economic Affairs I: lvi
- DIAMOND, R. W. (A), Executive Vice President, Consolidated Mining and Smelting Company of Canada, Ltd., Trail, B.C., Canada II: 140
- DÍAZ VIAL, CARLOS (A), Soil Conservation Section, Ministry of Agriculture, Santiago, Chile II: 291
- DICKINSON, FRED E. (P), Chairman, Department of Wood Technology, School of Natural Resources, University of Michigan, Ann Arbor, Mich., U.S.A. I: xlvi, lvi
- DILL, R. S. (AP), Chief, Heating and Air Conditioning, National Bureau of Standards, Department of Commerce, Washington 25, D.C., U.S.A. III: 204, 219
- DIN, U AUNG (A), Deputy Conservator of Forests, Silviculturist, 526 Merchant Street, Rangoon, Burma V: 117
- DIRVEN, J. G. (A), Scientific Assistant, Central Institute for Agricultural Research, Wageningen, The Netherlands VI: 522

CONFERENCE AUTHORS AND PARTICIPANTS

- DIXBY, FRANK (AP), Director of Colonial Geological Surveys, Imperial Institute, S. Kensington, London S.W. 7, England II: 39, 42, 54, 57, 97, 99, 102; III: 122, 124
- DIXON, J. W., (P), Director, Branch of Project Planning, Bureau of Reclamation, Department of the Interior, Washington 25, D.C., U.S.A. I: xlvi, lvi
- DOAK, B. W. (P), Chief Chemist, Grasslands Division, Department of Scientific and Industrial Research, Palmerston North, New Zealand VI: 460, 526, 556, 557, 558
- DOMÍNGUEZ, F. J. (A), Corporación de Fomento de la Producción, Santiago, Chile..... IV: 263
- DONNELL, JAMES C. II (P), President, Ohio Oil Company, Findlay, Ohio, U.S.A..... I: xlvi, lvi
- DOOLITTLE, CHARLES E. (P), Gage County Nebraska P.M.A. Committeeman, Cortland, Nebr., U.S.A.... I: xlvi, lvi
- DORMAN, ADOLEFO (P), Chief, Economic Development Section, Division of Economic Stability and Development, United Nations Department of Economic Affairs I: lvi
- DORST, J. C. (A), Institute of Plant Breeding, Wageningen, The Netherlands..... VI: 281
- DOUGLAS, E. (P), Vice President, International Business Machines Corp., New York, N.Y., U.S.A..... I: xlvi, lvi
- DOUMENC, M. (A), Ingénieur des mines, Professeur à l'École des mines de St. Étienne, St. Étienne France.... III: 151
- DOVE, W. E. (P), Director, Entomological Research, U.S. Industrial Chemicals Inc., Research and Development Laboratories, P.O. Box 1956, Baltimore 3, Md., U.S.A. VI: 496
- DRAKE, GEORGE L. (A), General Manager, Simpson Logging Company, Shelton, Wash., U.S.A..... V: 234
- DREUX, RAYMOND (P), Conseiller commercial, French Embassy, Washington, D.C., U.S.A. I: 125, 232, 234, 239, 240, 243, 246, 247, 249, 250, 253, 254
- *DRIESSSEN, MAXIMILIAN G. (P), Consulting Engineer, c/o Heyl and Patterson, Inc., 56 Water Street, Pittsburgh, Pa., U.S.A. III: 141, 142
- DUCKHAM, A. N. (P), Agricultural Attaché, British Embassy, Washington, D.C., U.S.A..... I: xxxix, lvi
- DULEY, FRANK L. (AP), Project Supervisor, Soil Conservation Research, U.S. Department of Agriculture, Soil Conservation Service, College of Agriculture, Lincoln, Nebr., U.S.A. II: 295, 296; IV: 213; VI: 51, 164, 170, 171, 557
- DUMONT, RENÉ (A), Maître de conférences d'agriculture à l'Institut national agronomique, Professeur d'économie agraire à l'Institut des études politiques de l'Université de Paris, Paris, France..... VI: 605
- DUNLOP, HARRY A. (A), Director of Investigations, International Fisheries Commission of the United States and Canada, Fisheries Hall, No. 2, University of Washington, Seattle 5, Wash., U.S.A..... VII: 16
- DUPRÉ CENICEROS, ENRIQUE (A), Forestry Expert, Directorate General of Forests and Game, Department of Agriculture, Mexico, D.F., Mexico..... V: 88
- DURKE, RALPH C. (P), Staff Civil Engineer, Department of Water and Power, City of Los Angeles, Los Angeles, Calif., U.S.A..... I: xlvi, lvi
- DURRER, ROBERT (A), Gesellschaft der Ludw. Von Roll-schen Eisenwerke A.G., Gerlafingen, Switzerland..... II: 180
- DUSCHEK, STEFAN (A), Forest Director, Promenade 27, Linz, Austria..... V: 76
- DUTTON, WALTER L. (P), Chief, Division of Range Management, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A..... I: xlvi, lvi
- DUVDEVANI, S. (A), Director, Dew Research Station, Post Karkur, Israel..... IV: 45
- DWORSKY, LEONARD B. (P), Chief, Reports and Education Branch, Division of Water Pollution Control, U.S. Public Health Service, Washington 25, D.C., U.S.A. IV: 128, 129, 130, 170
- DYKES, J. C. (AP), Assistant Chief, Soil Conservation Service, Department of Agriculture, Washington 25, D.C., U.S.A. IV: 170, 209, 212, 213, 214, 215; VI: 56, 103, 109
- E**
- EASTER, S. S. (P), Agricultural Officer (Entomology), Plant Production Branch, Agriculture Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy..... VI: 377, 380
- EDELMAN, C. H. (AP), Director of Soil Survey of The Netherlands, Professor of Soils, Agricultural College, Wageningen, The Netherlands I: 89; VI: 51, 53, 108, 163, 168, 169, 170, 266, 267, 268, 269, 270, 271, 272
- EDELMAN, JOHN (P), Legislative Representative for Textile Workers Union of America, Secretary, CIO Legislative Subcommittee on Conservation, 1034 Warner Building, Washington, D.C., U.S.A..... I: 420
- EDGE, MRS. C. N. (P), Chairman, Emergency Conservation Committee, 767 Lexington Avenue, New York 21, N.Y., U.S.A..... I: xlvi, lvi
- EDWARDS, J. D. (P), Assistant Director of Research, Aluminum Research Laboratories, Aluminum Company of America, P.O. Box 772, New Kensington, Pa., U.S.A. II: 241, 244, 267
- EDWARDS, K. J. (P), Director, Al Kharj Agricultural Project, c/o Arabian-American Oil Company, Dharan, Saudi Arabia..... I: 272
- EGLOFF, GUSTAV (AP), Director of Research, Universal Oil Products Company, 30 Algonquin Road, Des Plaines, Ill., U.S.A. III: 70, 99, 100
- EICHELBERGER, C. (P), Director, American Association for the United Nations, Inc., 45 E. 65 Street, New York, N.Y., U.S.A..... I: xlvi, lvi
- EIDE, ERLING (A), Director, Norwegian Forest Research Institute, Vollebekk, Norway..... V: 103
- EKLUND, BO (A), Assistant Professor, Swedish Forest Research Institute, Experimentalafslaget, Stockholm, Sweden..... V: 85
- EL BANNA, AHMED MOHAMED (P), Faculty of Commerce, University of Fouad I, 33 Rouda Street, Cairo, Egypt I: 243
- ELDER, JAMES L. (AP), Supervising Engineer, Gorgas Underground Gasification Project, U.S. Department of Interior, Bureau of Mines, Gorgas, Ala., U.S.A. III: 144, 153, 156
- ELIASSEN, ARNT (P), Institute for Weather and Climate Research, Oslo, Blindern, Norway..... I: xxxvii, lvi
- ELLINGER, GEORGE A. (P), Chief, Optical Metallurgy Section, National Bureau of Standards, Washington, D.C., U.S.A. I: xlvi, lvi
- ELLIOTT, I. L. (AP), Assistant Superintendent, Soil Fertility Research Station, Department of Agriculture, Hamilton, New Zealand II: 285, 295, 296; VI: 459, 460, 525, 527, 559, 560
- ELLSWORTH, RODNEY S. (P), Chairman, Committee on Conservation of Natural Resources, California Schools and Federal Agencies, Pasadena, Calif., U.S.A..... I: xlvi, lvi

* Deceased.

UNSCCUR PROCEEDINGS: INDEX

- EL SABY, MOHAMED KAMEL (A), Controller, Fisheries Department, Ministry of Commerce and Industry, Cairo, Egypt VII: 126
- EL SAMNY, EL SAYED A. (P), Lecturer, Fouad I University, Cairo, Egypt I: 390; IV: 128, 166, 168, 319
- EMPEY, W. A. (A), Senior Research Officer, Commonwealth Scientific and Industrial Research Organization, Division of Food Preservation, Homebush, N.S.W., Australia VI: 374
- ENGLE, JAMES B. (P), Vice President, National Shell Fisheries Assoc., R.F.D. 1, Annapolis, Md., U.S.A.... VII: 184
- ENTRICAN, ALEX R. (A), Director of Forestry, New Zealand Forest Service, Wellington C.I., New Zealand..... V: 225
- EOYANG, THOMAS T. (P), Chief, Training Department, National Resources Commission of China, 111 Broadway, Room 515, New York 6, N.Y., U.S.A..... I: xxxi, lvi
- EREN, FUAT (P), Formerly Director-General of Agriculture, Ankara, Turkey; Turkish Embassy, 1606-23rd Street, N.W., Washington, D.C., U.S.A..... I: xxxviii, lvi
- ERLANSON, CARL O. (AP), Principal Horticulturist in charge, Division of Plant Exploration and Introduction, Agricultural Research Administration, Bureau of Plant Industry, Soils and Agricultural Engineering, U.S. Department of Agriculture, Plant Industry Station, Beltsville, Md., U.S.A..... VI: 292, 306, 307, 308
- ERRERA, JACQUES (P), Adviser (Atomic Energy Affairs), Permanent Delegation of Belgium to the United Nations, 630 Fifth Ave., New York 20, N.Y., U.S.A. II: 207; III: 99
- ERSELCUK, M. (P), Associate Professor of Resources and Industries, Purdue University, Lafayette, Ind., U.S.A. I: 100, 126, 162, 384; II: 37, 298, 299; III: 222
- EVANS, U. R. (A), Reader in the Science of Metallic Corrosion, Department of Metallurgy, Cambridge University, Fembroke Street, Cambridge, England..... II: 223
- EYSVOOGEL, W. F. (AP), Professor, Graduate School of Agriculture, Heerenstraat 18, Wageningen, The Netherlands... IV: 169, 171, 353, 382, 412, 413, 414, 415, 418; VI: 622
- F**
- FABREGAT, *see* Rodríguez Fabregat
- FALKUM, EINAR (P), Engineer, Norwegian Hydro-Electric Nitrogen Corporation, Herøya Per Porsgrunn, Norway III: 197, 198, 259
- FALLA, R. A. (A), Director, Dominion Museum, Wellington, New Zealand..... VII: 233
- FARAGHER, WARREN F. (P), Technical Adviser, Houdry Process Corporation, Box 427, Marcus Hook, Pa., U.S.A. I: xlivi, lvi
- FARDIN, ROBERT (A), 104 rue Vieille-du-Temple, Paris 3, France III: 323
- FATHY, ABDEL AZIZ (P), Biochemistry Department, University of Minnesota, St. Paul 1, Minn., U.S.A. II: 298, 299; VI: 171, 497
- FAYE, J. (A), Président du Groupement d'importation et de répartition des métaux, 30 avenue de Messine, Paris 8, France..... II: 194
- FEARNLEY, J. T. (P), Second Secretary, United Kingdom Delegation to the United Nations, Empire State Building, New York 1, N.Y., U.S.A..... I: xxxix, lvi
- FEISS, JULIAN (P), Assistant to the Director, Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A. II: 38, 99, 168, 204, 205, 206, 208, 209, 242, 268
- FELBER, VIKTOR (A), Hydrologist, Lerchengasse 25, Vienna 8, Austria..... 1V: 85
- FELICISSIMO, JESUINO, JR. (P), Chief, Economic Geology Service, São Paulo State, São Paulo, Brazil..... I: xxx, lvi
- FELL, GEORGE B. (P), Secretary, Nature Conservancy, 1840 Mintwood Place, N.W., Washington 9, D.C., U.S.A. I: xlivi, lvi
- FENTRESS, CARROLL (P), Acting Director, Oil and Gas Division, Department of the Interior, Washington 25, D.C., U.S.A. I: xlivi, lvi
- FERNÁNDEZ, RAMONA (AP), Professor of Scientific Methods, Teachers' College, Havana, Cuba..... I: 279
- FESTENESSI, J. J. I. (A), Agricultural Engineer, Forest Map Section, National Forest Administration, Ministry of Agriculture, Buenos Aires, Argentina I: xxix, lvi; V: 16
- FICK, NATHANIEL C. (P), Director, Panel on Metals and Minerals, Committee on Materials, Research and Development Board, Room 3E-120, Pentagon, Washington 25, D.C., U.S.A..... II: 210
- FIELDNER, ARNO C. (AP), Chief Fuels Technologist, Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A..... III: 122, 123, 125, 164, 327
- FIES, MILTON H. (A), Consulting Engineer and Manager Coal Operations, Alabama Power Company, 1201 Alabama Power Building, Birmingham, Ala., U.S.A.... III: 144
- FILIPOVIC, J. (A), Engineer, c/o Ministry of Foreign Affairs, Belgrade, Yugoslavia IV: 395
- FINK, OLLIE E. (P), Executive Secretary, Friends of the Land, 1368 North High Street, Columbus, Ohio, U.S.A. IV: 170
- FINNEY, R. J. (P), Refining Specialist, Oil and Gas Division, Department of the Interior, Washington 25, D.C., U.S.A. I: xlivi, lvi
- FISHER, H. D. (P), Associate Biologist, Fisheries Research Board, Department of Fisheries, Ottawa, Ont., Canada VII: 210
- FISHER, JOSEPH L. (P), Economist, Council of Economic Advisers, Washington, D.C., U.S.A..... I: xlivi, lvi
- FLON, HENRY (P), Directeur de la Station agronomique de Seine-et-Marne, Secrétaire du Conseil national de protection de la nature en France, 3 rue Barthel, Melun, France IV: 213, 214
- FONG, C. T. (A), c/o Dr. P. C. Chang, Permanent Delegation of China to the United Nations, United Nations, N.Y., U.S.A. IV: 309
- FOOTE, PAUL D. (P), Executive Vice-President, Gulf Research and Development Company, and Vice President, Gulf Oil Corporation, P.O. Drawer 2038, Pittsburgh 30, Pa., U.S.A..... II: 39, 58, 97, 98, 99, 100, 101
- FORNEROD, M. F. (P), Chief Engineer, Preload Corporation, 211 East 37th Street, New York, N.Y., U.S.A. IV: 211, 213, 214, 320
- FORSLING, CLARENCE L. (AP), Member, Program Staff, Department of the Interior, Southwest Field Committee, P.O. Box 737, Albuquerque, N.M., U.S.A. VI: 500, 524, 525
- FORTUNESCU, R. C. (P), Chief of Secretariat, Division of Forestry and Forest Products, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy..... I: 34
- FOSBERG, F. R. (P), Research Associate (directing Pacific Vegetation Project), Catholic University of America, 217 Haven Avenue, New York, N.Y., U.S.A..... I: xlivi, lvi
- FOSTER, AUREL O. (AP), Parasitologist, Bureau of Animal Industry, Department of Agriculture, Washington 25, D.C., U.S.A. VI: 481, 495

CONFERENCE AUTHORS AND PARTICIPANTS

- FOURNIER, OVILA (P), Professor of Entomology, Faculty of Sciences, University of Montreal, Montreal, Quebec, Canada I: xxx, lvii
- FRACKER, S. B. (P), Research Coordinator, Department of Agriculture, Washington, D.C., U.S.A. I: xlivi, lvii
- FRANCIS, CLARENCE (P), Chairman, General Foods Corporation, 250 Park Avenue, New York, N.Y., U.S.A. I: xlvi, lvii
- FRANKEL, O. H. (A), Chief, Division of Plant Industry, Commonwealth Scientific and Industrial Research Organization, Canberra, A.C.T., Australia VI: 274
- FRANZ, HERBERT (A), Professor, Institut für Geologie und Bodenkurie der Hochschule für Bodenkultur, Gregor Mendelstrasse 33, Vienna 18, Austria VI: 160
- FRASER, D. (A), Associate Research Officer, Low Temperature Laboratory, National Research Council of Canada, Ottawa, Ont., Canada IV: 27
- FRASER, THOMAS (A), Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A. III: 128
- FREUDENTHAL, ALFRED M. (P), Professor Civil Engineering, Columbia University, New York 27, N.Y., U.S.A. I: xxxv, lvii
- FRIEDRICH, W. G. (P), Consultant, Executive Office of the President, National Security Resources Board, Old State Building, Washington 25, D.C., U.S.A. I: xlivi, lvii
- FRIGON, RAYMOND A. (P), Liaison Officer, National Research Council of Canada, Washington, D.C., U.S.A. I: xxx, lvii
- FRIRY, PIERRE (P), Ingénieur en chef du fond des mines de potasse d'Alsace, Mulhouse, France I: xxxiv, vlii
- FROLOW, V. (A), Maître de recherches au Centre national de la recherche scientifique, 63 rue Claude Bernard, Paris 5, France IV: 186, 203
- FROST, H. S. (A), Resident Director, Lindsay Parkinson, Ltd., Calcutta, India III: 117
- FROST, SHERMAN L. (P), Executive Director, American Forestry Association, 919 17th Street, N.W., Washington, D.C., U.S.A. I: xlivi, lvii
- FUCHSS, WERNER (P), Chargé d'Affairs, Swiss Legation, Caracas, Venezuela I: xxxviii, lvii
- FURON, RAYMOND (A), Sous-Directeur du Département géologique de Muséum national d'histoire naturelle, Paris 5, France I: 289

G

- GABBARD, L. P. (P), Head, Department of Agricultural Economics and Sociology, Agricultural and Mechanical College of Texas, College Station, Tex., U.S.A. VI: 205, 268, 525, 527
- GABRIELSON, IRA N. (AP), President, Wildlife Management Institute, 709 Wire Building, Washington, D.C., U.S.A. IV: 452, 462
- GALAVIS S., FELIX A. (P), Geologist, Instituto Nacional de Minería y Geología, Ministerio de Fomento, Caracas, Venezuela I: 1, lvii
- GALICHON, JEAN (P), Special Assistant to the Director of the French Supply Mission, 1800 Massachusetts Avenue, Washington, D.C., U.S.A. I: xxxiv, lvii
- GALLEY, R. A. E. (AP), Secretary, Interdepartmental Insecticide Committee, Agricultural Research Council, 43 Draycott Place, Westminster, London, S.W.3, England VI: 310, 336, 337, 339, 496, 497, 557, 621
- GALTSEFF, PAUL S. (P), Research Biologist, Fish and Wildlife Service, Department of the Interior, Woods Hole, Mass., U.S.A. I: xlivi, lvii

- GARBOVSKY, A. J. (A), Agronomist, Institute of Soils and Agronomy, Ministry of Agriculture, Cerviño 3101, Buenos Aires, Argentina VI: 139
- GARCÍA QUINTERO, ANDRÉS (P), Director de Hidrología en la Secretaría de Recursos Hídricos, Lago Onega 424—Anahuac, Mexico, D.F. Mexico IV: 167, 318, 319, 322, 323, 415
- GARNSEY, MORRIS E. (P), Professor of Economics, University of Colorado, Boulder, Colo., U.S.A. I: xlivi, lvii
- GARRETT, GEORGE A. (P), Dean, Yale School of Forestry, Yale University, New Haven, Conn., U.S.A. I: xlivi, lvii
- GATES, R. M. (P), President, Air Pre-Heater Corporation, 60 East 42nd Street, New York, N.Y., U.S.A. I: xlvi, lvii
- GAZONNAUD, PIERRE (A), Conservateur des Eaux et Forêts des Colonies, B.P. 98, Brazzaville, French Equatorial Africa V: 253
- GEIJER, PER (A), Director, Geological Survey of Sweden, Stockholm, Sweden II: 62
- GEORGES, M. (A), Ingénieur en chef des mines, 1 rue du Capitaine-Olchanski, Paris, France III: 256
- GERHARDSEN, G. M. (A), Chief Economist, Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy VII: 79
- GESTER, CLARK G. (P), Geologist and Mining Engineer, 2725 Claremont Boulevard, Berkeley 5, Calif., U.S.A. II: 98; III: 25
- GHOSH, JNAN CHANDRA (P), Director, Indian Institute of Technology, 5 Esplanade East, Calcutta 1, India. II: 56, 58
- GIBBONEY, CARL N. (P), Adviser, Office of International Trade, Department of Commerce, Washington 25, D.C., U.S.A. I: xlivi, lvii
- GIBRAT, M. (A), Professeur d'électricité industrielle à l'École nationale supérieure des mines de Paris, Ingénieur en chef des mines, 44 rue de Lisbonne, Paris 8, France III: 256
- GIGUET, RAYMOND (A), Ingénieur en chef des ponts et chaussées, Directeur de l'équipement de l'électricité de France, 3 rue de Messine, Paris, France III: 296
- GILLE, ALAIN (AP), Ingénieur agronome, in charge of the teaching of science and the organization of scientific exhibitions, Department of Natural Sciences, UNESCO, 19 Avenue Kléber, Paris 16, France I: 256, 269
- GIROUX, CARL H. (P), Special Assistant, Chief of Engineers, Office, Chief of Engineers, Department of the Army, Washington 25, D.C., U.S.A. I: xlivi, lvii
- GOLDET, ANTOINE (P), Secretary-General of the Conference, Principal Director of United Nations Department of Economic Affairs I: xxv, 8
- GOLDSCHMIDT, ARTHUR E. (P), Formerly Assistant to Secretary, Department of the Interior; Technical Assistance Administration, United Nations I: xxv, 54, 383, 391, 402, 415; III: 221; IV: 91, 93, 95, 129, 345, 348
- GONDELLES A., RICARDO (AP), Jefe de la División de Conservación de Suelos, Dirección Forestal, Ministerio de Agricultura y Cría, Caracas, Venezuela V: 208; VI: 527, 558
- GONZÁLEZ MOLINA, MARCELO (P), Dean of the Faculty of Engineering and Teacher of Hydraulics, Universidad de los Andes, Merida, Venezuela IV: 349, 459
- GOODRICH, CARTER (P), Chairman of the Preparatory Committee, Programme Director of the Conference; Professor of Economics, Columbia University, New York 27, N.Y., U.S.A. I: xxv, 69, 162, 406, 408, 409, 410, 411, 413, 414, 415, 416, 418

UNSCCUR PROCEEDINGS: INDEX

- GORMAN, WILLIAM A. (P), Public Health Engineer, North Atlantic Drainage Basin, Public Health Service, 42 Broadway, New York, N.Y., U.S.A. IV: 129
- GORRIE, R. M. (A), Soil Conservation Officer, Department of Agriculture, Peradeniya, Ceylon; Balnagowan, Murrayfield Drive, Edinburgh, Scotland. I: xxxvii; IV: 174
- GOUILLY-FROSSARD, M. (A), Directeur Général Honoraire des Eaux et Forêts, Président Honoraire du Conseil Supérieur de la Chasse, Quai d'Orsay, Paris, France VII: 242
- GOULDEN, C. H. (AP), Chief, Cereal Division, Central Experimental Farm, Ottawa, Ont., Canada VI: 286, 304, 305, 307, 338
- GOVIN, L. (A), Maître de projets, École nationale du génie rural, 19 avenue du Maine, Paris 15, France. VI: 354
- GRAHAM, EDWARD H. (AP), Chief, Biology Division, Soil Conservation Service, Department of Agriculture, Washington 25, D.C., U.S.A. VII: 188, 208
- GRAHAM, MICHAEL (AP), Gunton Dell, Lowestoft, Suffolk, England I: 410; VII: 20, 24, 25, 26, 60, 62, 63, 64, 65, 113, 162, 166, 183, 184, 208, 209, 210
- GRANDSTAFF, JAMES O. (AP), Experiment Station Administrator, Agricultural Research Administration, Department of Agriculture, Washington 25, D.C. VI: 424, 431
- GRANGE, L. I. (A), Director, Geological Survey, 156, The Terrace, Wellington, New Zealand. VI: 123
- GRAY, ANTON (A), Vice President and Director, Kennecott Copper Corporation, 161 East 42nd Street, New York 17, N.Y., U.S.A. II: 60
- GRAY, GORDON J. (P), Administrative Officer, Forest Service Department of Agriculture, South Building, Washington 25, D.C., U.S.A. I: xlivi, lvii
- GREAVES, CLIFFORD (P), Chief of Division of Chemistry, Forest Products Laboratory, Dominion Forest Service, Ottawa, Ont., Canada. V: 318
- GREEN, H. H. (A), Ministry of Agriculture and Fisheries, Veterinary Laboratory, New Haw, Weybridge, Surrey, England. VI: 454
- GREENE, HERBERT (P), Adviser on Tropical Soils, Rothamsted Experimental Station, Harpenden, Herts, England. I: xxv, I, lvii
- GRIMMETT, R. E. R. (A), Superintendent, Soil Fertility Research Station, Department of Agriculture, Hamilton, New Zealand. II: 285
- GROSS, FRANKLIN JORGE (P), Chief of the Chemistry Section of the Institute of Technology of Rio Grande do Sul, Porto Alegre, Brazil. I: xxx, lvii
- GROUNDS, ARTHUR (A), Chief Coal Preparation Engineer, National Coal Board, Hobart House, Grosvenor Place, London, S.W.1, England. III: 133
- GRZYWIENSKI, ANTON (A), Professor of Hydraulic Engineering and Head of the Laboratory for Applied Hydraulics, Institute of Technology, Vienna, Austria. IV: 256
- GUALTIERI, ROBERTO (A), Department of Mines, Ministry of Industry and Commerce, Rome, Italy. II: 85
- GUILLAUME, MAURICE (AP), Directeur de l'Agriculture, de l'Elevage, Forêts et chasse au ministère de la France d'Outre-mer, 52 rue des Dames, Paris 17, France I: 90, 400; II: 297; VI: 51, 52, 108, 205, 269, 270, 272, 307, 337, 496, 560, 570, 619, 623
- GUILLOU, RENÉ (A), Formerly Head, Agricultural Engineering Department, University of Hawaii, Honolulu, U.S. State Department, Washington 25, D.C., U.S.A. VI: 191
- GUNNESS, ROBERT C. (P), Manager of Research, Standard Oil Company (Indiana), 910 S. Michigan Avenue, Chicago 80, Ill., U.S.A. I: xlivi, lvii
- GUTHRIE, BOYD (P), Chief, Oil Shale Demonstration Plant, U.S. Department of the Interior, Rifle, Colo., U.S.A. I: xlivi, lvii
- H**
- HAAN, H. DE (A), Institute of Plant Breeding, Wageningen The Netherlands. VI: 281
- HACKING, JOHN (A), Deputy Chairman (Operations), British Electricity Authority, Winsley Street, London, W.1, England. III: 244
- HÄGLUND, ERIK (A), Forest Products Research Institute, Stockholm, Sweden. V: 289
- HAHMAN, W. F. (P), Director, Solid Fuels Division, National Security Resources Board, 107 East Bradley Lane, Chevy Chase, Md., U.S.A. I: xlivi, lvii
- HAINSWORTH, REGINALD O. (P), Economic Geographer, Office of Foreign Agricultural Relations, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlivi, lvii
- HALE, J. D. (AP), Head, Wood Technology Section, Forest Products Laboratory, Department of Mines and Resources, Ottawa, Ont., Canada V: 247, 264, 265, 318, 321
- HALL, J. ALFRED (AP), Director, Pacific Northwest Forest and Range Experimental Station, 423 U.S. Court House, Portland 5, Ore., U.S.A. I: 138, 162; V: 131
- HALS, ALF O. (AP), Laboratory Engineer, Norwegian Institute of Technology, Maristuveien II, Trondhjem, Norway. III: 209, 220, 261
- HAMID, M. A. (AP), Chief Engineer (on Special Duty), Pakistan Government, 114-F, Model Town, Lahore, Pakistan I: 256, 262, 266, 267, 269, 270, 271, 274, 399; IV: 168, 209, 212, 321, 391, 413, 414; VI: 50, 268
- HAMILTON, HARRY (AP), National Consultant to the Swedish Hunter's Association, Stocksund, Sweden. IV: 445
- HAMILTON, WILLIAM J. (P), Professor of Zoology, Department of Conservation, Cornell University, Ithaca, N.Y., U.S.A. I: xliv, lvii
- HAMLIN, CHAUNCEY (P), President, International Council of Museums; President, Buffalo Museum of Science, Buffalo, N.Y., U.S.A. I: xliv, lvii
- HAMMOND, JOHN (AP), Reader in Agricultural Physiology, School of Agriculture, University of Cambridge, Cambridge, England I: 419; VI: 379, 380, 381, 414, 431, 434, 459, 460, 461, 495, 496, 497, 524, 525, 526, 557, 558, 560
- HANNUM, ERWIN C. (P), Program Coordinator, Bonneville Power Administration, Portland, Ore., U.S.A. III: 260; IV: 170, 459
- HANSEN, ANKER K. A. (P), Industrial Attaché, Danish Consulate-General, 17 Battery Place, Room 2436, New York 4, N.Y., U.S.A. III: 327
- HARDY, EVAN A. (AP), Professor of Agricultural Engineering, University of Saskatchewan, Saskatoon, Canada; Presently Chief, F.A.O. Technical Assistance Mission, Department of Agriculture, Peradeniya, Ceylon. III: 220; VI: 50, 53, 169, 185, 203, 205
- HARDY, F. (AP), Professor, Chemistry Department, Imperial College of Tropical Agriculture, Trinidad, British West Indies. II: 296, 299; VI: 52, 202, 203, 250, 269
- HARKOM, J. F. (A), Chief, Wood Preservation Division, Forest Products Laboratory, Dominion Forest Service, Department of Mines and Resources, Ottawa, Ont., Canada. V: 284
- HARRISON, J. D. B. (AP), Chief, Forest Research Division, Forestry Branch, Department of Resources and Development, 238 Sparks Street, Ottawa, Ont., Canada I: xxv, 77, 187; V: 31, 32, 211, 263, 264, 265, 320

CONFERENCE AUTHORS AND PARTICIPANTS

- HARROV, J. P. (AP), Secrétaire général de l'Institut pour la recherche scientifique en Afrique centrale, 42 rue Montoyer, Brussels, Belgium..... I: 269; VII: 226, 252
- HART, GEORGE H. (AP), Dean, Veterinary School, University of California, Davis, Calif., U.S.A. VI: 460, 461, 470
- HART, J. L. (A), Director, Pacific Biological Station, Fisheries Research Board of Canada, Nanaimo, B.C., Canada VII: 99
- HART, M. L. 't (A), Chief, Division for Grassland and Forage Crops, Central Institute of Agricultural Research, Wageningen, The Netherlands..... VI: 217, 450
- HARTLEY, HAROLD (P), President, World Power Conference, Barkside, Sumner Street, London, S.E.I., England I: 94, 99, 101, 103, 105, 110, 160, 317; III: 100, 259
- HASANAIN, S. Z. (A), Assistant Plant Pathologist, Central Department of Plant Protection, Ministry of Food, Agriculture and Health, Government of Pakistan, Karachi, Pakistan VI: 327
- HATHAWAY, GAIL A. (P), Special Assistant to Chief of Engineers, Office, Chief of Engineers, Department of the Army, Washington 25, D.C., U.S.A. I: 393; IV: 90, 92, 93, 94, 95, 345, 347, 458
- HAVINGA, B. (A), Director, Government Institute for Fisheries Investigations, Oost Indisch Huis, Amsterdam, The Netherlands IV: 408; VII: 1
- HAWKINS, L. A. (P), Farm Practice Research, International Harvester Company, Chicago, Ill., U.S.A.... VI: 204
- HAZZARD, ALBERT S. (P), Director, Institute for Fisheries Research, University Museum Annex, Ann Arbor, Mich., Research, University Museum Annex, Ann Arbor, Mich., U.S.A..... I: xliv, lvii
- HEACOX, CECIL E. (P), Senior Aquatic Biologist, New York State Conservation Department, Millbrook, N.Y., U.S.A. I: xliv, lvii
- HEAD, J. L. (P), Resident Mining Engineer, Anaconda Copper Mining Company, 25 Broadway, New York 4, N.Y., U.S.A. II: 101, 267
- HEALD, K. C. (P), Vice President, Gulf Oil Corporation, P.O. Box 1166, Pittsburgh, Pa., U.S.A.....I: xliv, lvii
- HEBLEY, HENRY F. (AP), Director of Research, Pittsburgh Consolidation Coal Company, Koppers Building, Pittsburgh 19, Pa., U.S.A..... III: 119, 123, 124
- HEFFORD, A. E. (A), Formerly Chief Inspector of Fisheries and Director of Fishery Research to the Marine Department; 22 Ravenswood Road, St. Clair, Dunedin, New Zealand VII: 150
- HEIM, ROGER (P), Professeur au Musée national d'histoire naturelle, Paris; Membre de l'Académie des sciences, Paris; Vice-Président de l'UICPN, aux bons soins de l'Académie des sciences coloniale, 15 rue Lapérouse, Paris 16, France..... VII: 255
- HEISING, CARL P. (P), Head, Division of Farm Management and Costs, Bureau of Agricultural Economics, Department of Agriculture, Washington 25, D.C., U.S.A. I: xliv, lvii
- HELLINGA, F. (A), Professor, Graduate School of Agriculture, Wageningen, The Netherlands.....IV: 363; VI: 611
- HELVEY, T. C. (P), Department of Entomology, Cornell University, Ithaca, N.Y., U.S.A. V: 74
- HENDRIX, J. WALTER (A), Associate Plant Pathologist, Department of Plant Pathology, Institute of Agricultural Sciences, State College of Washington, Pullman, Wash., U.S.A..... VI: 330
- HENRY, J. (A), Chef de la Section des Recherches Agronomiques, Institut national pour l'étude agronomique au Congo belge, Research Centre, Yangambi, Belgian Congo VI: 255
- HERRINGTON, G. N. (A), Senior Rural Education Officer, Moor Plantation, Ibadan, Nigeria..... I: 301
- HERITAGE, CLARK C. (AP), Director of Development, Weyerhaeuser Timber Company, P.O. Box 1645, Tacoma 1, Wash., U.S.A..... V: 305, 321
- HERSCHMAN, HARRY K. (P), Chief, Nickel Section, Ferro-Alloys Branch, Iron and Steel Division, National Production Authority, Room 215, NGAO Building, Washington 25, D.C., U.S.A..... I: xliv, lvii
- *HESS, EMIL (A), Chief, Federal Forest Service, Berne, Switzerland V: 151
- HEWETT, D. F. (P), Staff Geologist, U.S. Geological Survey, Washington, D.C., U.S.A..... II: 39, 102
- HEY, DOUGLAS (A), Director, Nature Conservation, P.O. Box 152, Stellenbosch, Union of South Africa.....VII: 154
- *HIBBEN, THOMAS E. (P), Adviser for Foreign Economic Development, Office of International Trade, Department of Commerce, Washington 25, D.C., U.S.A.... I: xliv, lvii
- HICKS, DONALD (A), Director of Scientific Control, Scientific Department, Hobart House, Grosvenor Place, London S.W. 1, England III: 158
- HIGAZY, RIAD (P), Assistant Professor of Geology, Faculty of Science, University of Alexandria, Alexandria, Egypt II: 58, 207, 240, 242, 243, 244
- HILBERT, G. E. (AP), Chief, Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, Department of Agriculture, Washington 25, D.C., U.S.A. I: 135
- HILL, GEORGE E. (P), Liaison Officer, World Health Organization, Palais des Nations, Geneva, Switzerland I: 1, lvii
- HIYAMA, YOSHIO (A), Fisheries Institute, Faculty of Agriculture, Tokyo University, Tokyo, Japan..... VII: 124
- HMAN, MAUNG (A), Chief Conservator of Forests, Nos. 25-26 Randeria Building, Phayre Street, Rangoon, Burma V: 199
- HOCKENSMITH, ROY D. (P), Chief, Soil Conservation Surveys Division, Department of Agriculture, Washington 25, D.C., U.S.A..... IV: 213; VI: 171, 172
- HODGINS, S. R. N. (P), Director, Information Service, Department of Agriculture, Ottawa, Ont., Canada I: xxxi, lvii
- HOFFMASTER, P. J. (P), Director, Michigan Department of Conservation, Lansing, Mich., U.S.A..... VII: 25
- HOFSTEDE, A. E. (A), Head, Subsection Inland Fisheries, Department of Agriculture and Fisheries, Molenvliet West 8, Batavia, Indonesia..... VII: 136
- HOGG, C. C. (P), Director, E. R. Brown School of Petroleum, Marietta College, Marietta, Ohio, U.S.A..... III: 66
- DE HOLLANDSCHE MOLEN, see Society for the Preservation of Windmills
- HOLLER, H. D. (P), Underground Corrosion Section, Bureau of Standards, Department of Commerce, Washington 25, D.C., U.S.A..... I: xliv, lvii
- HOLMAN, HAROLD E. (P), Chief, Forest Products Division, Office of Domestic Commerce, Department of Commerce, Washington 25, D.C., U.S.A..... V: 265
- HOLMGREN, J. P. (A), Norwegian Institute of Technology, Trondhjem, Norway III: 209
- HOLROYD, R. (A), Research Director, Imperial Chemical Industries, Billingham, Durham, England..... III: 96

* Deceased.

UNSCCUR PROCEEDINGS: INDEX

- HOLZER, WALTER F. (AP), Assistant Research Director, Crown Zellerbach Corporation, Camas, Wash., U.S.A. V: 292, 319
- HOMÈS, M. V. (A), Professeur à l'Université de Bruxelles, Brussels, Belgium VI: 153
- HORA, S. L. (AP), Director, Zoological Survey of India, Indian Museum, Calcutta 12, India IV: 460; VII: 62, 63, 65, 112, 115, 120, 160, 164, 183, 184, 185, 186
- HORNING, WALTER H. (P), Chief of Division of Forestry, Bureau of Land Management, Department of the Interior, Washington 25, D.C., U.S.A. I: xliv, lvii
- HOS, G. C. D. (A), Acting Inspector of River and Inland Fisheries, Maliebaan 25, Utrecht, The Netherlands VII: 145
- HOTCHKISS, W. O. (P), President Emeritus, Rensselaer Polytechnic Institute, 2 Tudor Lane, Scarsdale, N.Y., U.S.A. II: 99
- HOWARD, LOUIS B. (AP), University of Illinois, Urbana, Ill., U.S.A. VI: 359, 378, 379, 381
- HOWARD, ROBERT J. (P), Chairman, New York State Production and Marketing Administration Commission, Department of Agriculture, Washington 25, D.C., U.S.A. I: xliv, lvii
- HUBBERT, M. KING (P), Chief Consultant (General Geology), Shell Oil Company, Box 2099, Houston 1, Tex., U.S.A. I: 103, 164; II: 37, 98; III: 24, 25, 156, 222; IV: 91
- HUBERTY, MARTIN R. (AP), Professor of Irrigation, University of California, Los Angeles, Cal. U.S.A. IV: 357, 413
- HUDSON, P. S. (P), Director, Commonwealth Bureau of Plant Breeding and Genetics, School of Agriculture, Cambridge, England I: 343; VI: 304, 305, 306, 307, 308
- HUKILL, WILLIAM V. (A), Principal Agricultural Engineer, Agricultural Engineering Building, Iowa State College, Ames, Iowa, U.S.A. VI: 342
- HULL, LEWIS M. (P), National Council of State Garden Clubs, Inc., R.F.D. 2, Boonton, N.J., U.S.A. I: xliv, lvii
- HUNTER, LOUIS N. (P), Vice President-Research, The National Radiator Company, 221 Central Avenue, Johnstown, Pa., U.S.A. III: 220
- HUNSTMAN, A. G. (A), Consulting Director, Fisheries Research Board of Canada, University of Toronto, Toronto, Ont., Canada VII: 169
- HUSAIN, INAYAT (A), Ministry of Foreign Affairs and Commonwealth Relations, Government of Pakistan, Karachi, Pakistan IV: 274
- HUTCHEON, NEIL B. (A), Professor of Mechanical Engineering, University of Saskatchewan, Saskatoon, Sask., Canada III: 200
- HUTCHINS, LEE M. (AP), Head Pathologist in Charge, Division of Forest Pathology, Bureau of Plant Industry, Soils and Agricultural Engineering, U.S. Department of Agriculture, Beltsville, Md., U.S.A. I: xliv, lvii; V: 55, 72, 74

I

- IGNATIEFF, A. (P), Mining Engineer, Bureau of Mines, Department of Mines and Resources, Ottawa, Ont., Canada III: 123, 142, 155, 219
- ILVESSALO, YRJÖ (AP), Professor, State Academy of Finland, Unioninkatu 40 A, Helsinki, Finland V: 2, 29, 30, 31, 32, 72, 130, 212
- INSTITUTE OF PLANT BREEDING (A), Graduate School of Agriculture, Wageningen, The Netherlands VI: 281
- INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION, see Keller, Wesley

- INTERNATIONAL LABOUR OFFICE (A), Geneva, Switzerland I: 346
- ION, D. C. (P), Principal Geologist to the Anglo-Iranian Oil Company, Ltd., Abadan, Khuzistan, Iran III: 23, 24, 26
- IRRAY, SHRAGGA (AP), Senior Lecturer, Hydraulics Engineering Department, Institute of Technology, Haifa, Israel IV: 91, 93, 94, 105, 129, 130, 167, 170, 214, 412, 413, 414, 416, 417

J

- JACKSON, PHILIP (A), Deputy Director, Institute of Seaweed Research, Inveresk Gate, Musselburgh, Midlothian, Scotland VII: 174
- JACOB, K. D. (AP), Head, Division of Fertilizer and Agricultural Lime, Bureau of Plant Industry, Soils, and Agricultural Engineering, U.S. Department of Agriculture, Beltsville, Md., U.S.A. II: 274, 294, 295, 296, 297, 299
- JACQUÉ, LÉON (AP), Président-Directeur Général, Institut français du pétrole, 2 rue de Lubeck, Paris 16, France I: 102, 110; III: 23, 24, 25, 26, 67, 81, 99, 198
- JACQUIOT, CLÉMENT (A), Inspecteur principal des Eaux et Forêts, Chef de service au Laboratoire central d'essais du bois, Fontainebleau, France V: 283
- JAMES, M. C. (P), Assistant Director, Fish and Wildlife Service, Department of the Interior, Washington 25, D.C., U.S.A. I: xliv, lvii
- JANSA, O. VICTOR E. (A), Consulting Engineer, Vattenbyggnadsbyrån, Stockholm, Sweden IV: 102
- JEFFRIES, ZAY (P), Retired Vice president of General Electric Co.; Vice Chairman of the Minerals and Metals Advisory Board of the National Academy of Sciences; Member of Committee on Materials of the Research and Development Board, 1 Plastics Avenue, Pittsfield, Mass., U.S.A. I: xliv, lvii
- JELACIN, IVAN (AP), Professor, University of Ljubljana, Ljubljana, Yugoslavia VII: 158
- JENSEN, OLAF (A), Research staff, Norsk Hydro-Elektrisk Kvaestofaktieselskab, Solligaten, Oslo, Norway III: 173
- JENSEN, POUL F. (P), Chemical Engineer, in charge of the Inspection of Industrial Products under the Danish Ministry of Fisheries, Dr. Tvaergade 8, Copenhagen K, Denmark VII: 144
- JENSEN, S. TOVBORG (AP), Professor of Soils and Agricultural Chemistry, Royal Agricultural College, Copenhagen V, Denmark II: 99, 295, 297, 299; VI: 110, 213, 266, 267, 271, 525, 528, 557, 622
- JOB, T. J. (A), Fisheries Division, FAO Regional Office for Asia and the Far East, Bangkok, Thailand IV: 446
- JOHNSON, CHARLES S. (P), President, Fisk University, Nashville, Tenn., U.S.A. I: xliv, lvii
- JOHNSON, REGINALD T. (P), Conference Administrator, Department of State, Washington, D.C., U.S.A. I: xliv, lvii
- JOHNSON, SHERMAN E. (A), Assistant Chief, Bureau of Agricultural Economics, Department of Agriculture, Washington 25, D.C., U.S.A. VI: 79
- JOHNSON, V. WEBSTER (AP), Special Advisor on Land Tenure, Food and Agriculture Division, Mutual Security Agency, 800 Connecticut Avenue, N.W., Washington 25, D.C., U.S.A. VI: 75, 109, 110
- JOHNSTON, SAMUEL S. (AP), Technical Director, Electrolytic Department, Weirton Steel Company, Weirton, W.Va., U.S.A. II: 193, 208
- JOHNSTON, W. D. (P), Chief, Alaskan and Foreign Geology Branch, Geological Survey, Department of the Interior, Washington 25, D.C., U.S.A. I: xliv, lvii

CONFERENCE AUTHORS AND PARTICIPANTS

- JOLAIN, RENÉ (AP), Inspecteur Général des eaux et forêts, 32 bis, boulevard Aristide-Briand, Orléans, France..... I: 409, V: 50, 71, 74, 129, 130, 131, 173, 210, 212, 266
- JOLLÈS, PAUL (P), Attaché, Swiss Legation, Washington, D.C., U.S.A. II: 206
- JONES, E. E. (P), Petroleum Attaché, British Embassy, Washington, D.C., U.S.A. I: xxxix, lvii
- JONES, LEWIS A. (AP), Chief, Division of Drainage and Water Control, Department of Agriculture, Washington 25, D.C., U.S.A. IV: 405
- JONY, EMERICH (P), Principal Engineer, Federal Power Commission, 11 Park Place, New York, N.Y., U.S.A. IV: 458
- JORDAN, PAUL H. (P), Assistant to the Director, Office of Domestic Commerce, Department of Commerce, Washington 25, D.C., U.S.A. I: xliv, lviii
- JOSEPHSON, H. R. (P), Assistant Chief, Division of Forest Economics, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A. I: xliv, lviii
- JOVOVIC, N. (A), Engineer, Ministry of Forests, Belgrade, Yugoslavia V: 147
- JOYCE, THOMAS B. (P), Assistant Director, Agricultural Conservation Programs Branch, Production and Marketing Administration, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lviii
- JUDA, WALTER (P), Vice President, Ionics Incorporated, 152 Sixth Street, Cambridge 42, Mass., U.S.A.... IV: 128, 130
- JURION, F. (A), Directeur général de l'Institut national pour l'étude agronomique au Congo Belge, Yangambi, Belgian Congo VI: 255
- JUVA, KAREL (A), Professor at the Technical University, Veveri 95, Brno, Czechoslovakia..... IV: 366, 413

K

- KABRAJI, K. J. (A), Ministry of Foreign Affairs and Commonwealth Relations, Government of Pakistan, Karachi, Pakistan IV: 274
- KAKAZAI, M. A. (AP), Statistical Assistant Silviculturist, Forest Research Institute, P.O. New Forest, Dehra Dun, U.P., India..... V: 15
- KALINSKI, ALEX (AP), Director, Engineering Division, Ministry of Agriculture, Athens, Greece..... I: 402; IV: 170, 320, 378, 414; VI: 108, 109, 110, 111
- KAMPELER, R. A. (P), Director, Power Utilization Division, Tennessee Valley Authority, Chattanooga, Tenn., U.S.A..... IV: 458
- KARPOV, A. V. (P), Consulting Engineer, Central Water Power Irrigation and Navigation Commission, New Delhi, India. I: 249, 393; III: 261, 330; IV: 319, 323, 458, 459
- KASK, J. L. (P), Chief Biologist, Fisheries Division, Food and Agriculture Organization of the United Nations, Pacific Oceanic Fisheries Investigations, P.O. Box 3830, Honolulu, T.H. VII: 26, 63, 64, 65, 163, 164
- KASTMARK, C. F. (A), Korsnäsverken, Gävle 2, Sweden... V: 230
- KATHPALIA, K. N. (P), Superintending Engineer, I Circle, Irrigation Works, U.P. Meerut, India..... IV: 94
- KEEN, BERNARD A. (A), East African Agriculture and Forestry Research Organization, P.O. Box 21, Kikuyu, Kenya I: 216
- KEENLEYSIDE, H. L. (AP), Formerly Deputy Minister of Mines and Resources and Commissioner of the Northwest Territories, Ottawa, Canada; Director-General, Technical Assistance Administration, United Nations, N.Y. I: 38, 126, 368, 375, 379, 383, 384, 385
- KEFFORD, J. F. (A), Senior Research Officer, Commonwealth Scientific and Industrial Research Organization, Division of Food Preservation, Homebush, N.S.W., Australia VI: 374
- KEILLING, JEAN (A), Professeur à l'Institut National Agronomique, 16 rue Claude Bernard, Paris 5, France... I: 304
- KELKAR, D. G. (P), c/o Foreign Liason Representative, Soil Conservation Service, U.S. Department of Agriculture, Washington 25, D.C., U.S.A. I: xxxiv, lviii
- KELLER, WESLEY (AP), Geneticist, Division of Forage Crops and Diseases, Bureau of Plant Industry, Soils and Agricultural Engineering, U.S. Department of Agriculture, Utah State Agriculture College, Logan, Utah, U.S.A. VI: 307, 308, 338, 541, 556, 557, 560
- KELLEY, RALPH B. (A), Senior Principal Research Officer, Commonwealth Scientific and Industrial Research Organization, Division of Animal Health and Production, Liverpool, N.S.W., Australia..... VI: 397
- KELLOGG, CHARLES E. (AP), Chief, Division of Soil Survey, U.S. Department of Agriculture, Washington 25, D.C., U.S.A. ... I: 27, 272, II: 297, 299; VI: 51, 114, 168, 169, 172, 267, 269, 270, 271, 560, 620
- KELLY, SHERWIN F. (P), President, Sherwin F. Kelly Geophysical Services Inc., 900 Market Street, Wilmington, Del., U.S.A.; also President, Geophysical Explorations, Limited, 620 Federal Bldg., Toronto, Ont., Canada II: 56, 57, 99, 101; IV: 417
- KEMLER, E. N. (AP), Professor and Head, Machine Design Division, Department of Mechanical Engineering, University of Minnesota, Minneapolis 14, Minn., U.S.A. III: 213, 220, 222
- KEMP, LEBBEUS C. JR. (P), Director of Research, Texas Company, 135 East 42nd Street, New York 17, N.Y., U.S.A. III: 100
- KENNEDY, FRANK (A), Chief Heat and Fuel Engineer, Central Engineering Department, Dorman Long & Co., Ltd., Royal Exchange, Middlesbrough, England..... III: 293
- KERKHAM, R. K. (A), Senior Officer, Uganda Agricultural Service, Kampala, Uganda..... I: 296
- KERR, G. M. (P), Chief, Division of Range Management, Bureau of Land Management, Department of the Interior, Washington 25, D.C., U.S.A. I: xlvi, lviii
- KHAN, M. H. (A), Retired Agricultural Chemist, Muzafarabad, via Rawalpindi, West Pakistan VI: 6
- KHOSLA, A. N. (AP), Ministry of Irrigation and Power, Secretariat, North Block, New Delhi, India IV: 64, 94, 95, 291, 321, 322
- KING, ALEXANDER (P), Department of Scientific and Industrial Research, 5-11 Regent Street, London, S.W. 1, England..... I: 162; III: 195, 196, 197; V: 317, 318
- KING, C. D. B. (P), Ambassador of Liberia to the United States, Washington, D.C., U.S.A. I: xxxvi, lviii
- KNIPLING, EDWARD F. (AP), In charge, Division of Insects Affecting Men and Animals, Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lviii; VI: 488, 496, 497
- KNUDSEN, A. F. (P), Agricultural Counsellor, Embassy of Denmark to the United States, 2374 Massachusetts Avenue, N.W., Washington 8, D.C., U.S.A. VI: 204, 305, 308, 337, 339
- KÖHLER, RICHARD (A), Forschungs-Institut für Biotechnische Landwirtschaft, Schloss Kleeberg, Post Ruhstor 7-Rott, Bavaria VI: 130

UNSCCUR PROCEEDINGS: INDEX

- KORRINGA, P. (A), Government Institute for Fishery Investigations, Bergen op Zoom, The Netherlands..... VII: 47
- KOTOK, E. I. (P), Assistant Chief, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lviii
- KRISHNA, S. (A), Scientific Adviser to the High Commissioner and Scientific Liaison Officer in the U.K., Indian House, Aldwych, London, England..... V: 271
- KRISHNAN, M. S. (AP), Director, Geological Survey of India, 27 Chowinghee, Calcutta, India I: 112; II: 35, 37, 57, 67, 100
- KRUEGER, MYRON (AP), Professor of Forestry, School of Forestry, University of California, Berkeley 4, Calif., U.S.A. V: 257, 266
- KRUG, J. A. (P), Secretary, Department of the Interior, Washington 25, D.C., U.S.A. I: 5, 54, 58, 63, 69, 391, 392, 393, 429
- KRUPINSKI, B. (A), Chief Technical Director, Central Coal Board of Poland, Ul Powstancow 30, Katowice, Poland III: 104
- KSEMSRI, M. C. ATHIPORN (P), Chief of the Division, Central Service of Statistics, Bangkok, Thailand I: xxxviii, lviii
- KUNTSCHEN, M. F. (A), Directeur, Service Fédéral des Eaux, Département des Postes et des Chemins de Fer, Berne, Switzerland IV: 205
- KYI, MAUNG (P), Principal Forest and Soil Conservation Officer, Shan State, Tanugyi, Burma..... V: 213, 265
- L**
- LAMBERTS, H. (A), Institute of Plant Breeding, Wageningen, The Netherlands..... VI: 281
- LAMOUREUX, VINCENT B. (P), Environmental Sanitation Section, National Security Resources Board, Room 324, Old State Building, Washington 25, D.C., U.S.A. I: xlvi, lviii
- LANDA, STANISLAV (A), Professor, Czech Institute of Advanced Learning, Karlovo Nam 13, Prague, Czechoslovakia III: 93
- LANE, E. W. (AP), Consulting Hydraulic Engineer, Bureau of Reclamation, U.S. Department of Interior, Denver Federal Center, Denver, Colo., U.S.A. IV: 306, 322, 323
- LANGFORD-SMITH, T. (A), Senior Research Officer, Regional Planning Division, Department of National Development, Canberra, Australia..... IV: 158
- LANT, F. C. (A), Deputy Chief Fuel Engineer, Ministry of Fuel and Power, Fuel Efficiency Branch, Queen Anne's Chambers, Dean Farrar Street, London, S.W.1, England III: 206
- LAQUE, FRANK L. (AP), In charge, Corrosion Engineering Section, International Nickel Company, 67 Wall Street, New York 5, N.Y., U.S.A. II: 227, 241, 242, 243, 244
- LASKOWSKI, TADEUSZ (A), Director, General Institute of Fuel, Katowice, Ul Katowicka 64, Katowice, Poland III: 135
- LASSER, TOBIAS (A), Jefe de la Division de Botánica, Ministerio de Agricultura, Caracas, Venezuela..... V: 148
- LATHROP, E. C. (P), Head, Agricultural Residues Division, Northern Regional Laboratory, Bureau of Agricultural and Industrial Chemistry, Peoria, Ill., U.S.A. I: xlvi, lviii
- LATORRE, EMILIO (P), Jefe de Experimentación, Ministry of Agriculture, Bogota, Colombia..... I: xxxi, lviii
- LAWTON, F. L. (P), Engineering Institute of Canada, Montreal, Quebec, Canada..... I: xxxi, livii
- LEAHEY, A. (AP), Chief Soil Surveyor, Experimental Farms Service, Dominion Department of Agriculture, Ottawa, Ont., Canada..... VI: 120, 168
- LEAMING, M. P. (P), Production and Marketing Administration, U.S. Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lviii
- *LEBEAU, ROLAND (P), Counsellor of Embassy, Permanent Delegation of Belgium to the United Nations, 630 Fifth Avenue, New York 20, N.Y., U.S.A. I: xxx; lviii
- LECLERC, E. L. (P), Research Coordinator, Agricultural Research Administration, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lviii
- LE CORNEC, M. J. (A), Président, Directeur-Général du Comptoir des phosphates de l'Afrique du Nord, 19 rue Hamelin, Paris 16, France..... II: 270
- LEE, D. H. K. (P), Professor of Physiological Climatology, Johns Hopkins University, Baltimore 18, Md., U.S.A. VI: 433
- LEE, GEORGE W. (AP), Director, British Coke Research Association, 74 Grosvenor St., London, W.1, England III: 140, 158, 195, 198
- LEES, G. M. (A), Chief Geologist, Anglo-Iranian Oil Company, Ltd., Britannic House, Finsbury Circus, London, E.C. 2, England III: 2
- LE GALL, JEAN J. (A), Directeur de l'office scientifique et technique des Pêches maritimes; Président du Conseil Général pour Méditerranée; 1er Vice Président du Conseil International pour l'Exploration de la Mer; Secrétaire Général de la Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée, 59 ave. Raymond Poincaré, Paris 16, France..... VII: 11
- LEGENDRE, ANDRÉ M. (A), Ingénieur en Chef des Mines, 70 Boulevard Flandrin, Paris 16, France..... II: 4
- LEGGET, ROBERT F. (A), Director, Division of Building Research, National Research Council, Ottawa, Ont. Canada III: 200
- LEGGETTE, R. M. (P), Consulting Ground Water Geologist, American Geophysical Union, 551 Fifth Avenue, New York 17, N.Y., U.S.A. IV: 214
- LEHMANN, RENÉ, G. (P), Room 214, San Shin Building, 10, 1-chome Yurakucho Chiyodaky, Tokyo, Japan I: xxv, II: 55, 58, 166, 170, 209, 265, 266, 268, 294, 295, 299
- LEITCH, ISABELLA (AP), Director, Commonwealth Bureau of Animal Nutrition, Rowett Research Institute, Bucksburn, Aberdeenshire, Scotland, U.K. I: 408; VI: 267, 378, 379, 381, 430, 431, 432, 433, 434, 435, 438, 458, 459, 461, 497, 527, 528
- LELOUP, MARCEL (A), Director, Forestry and Forest Products Division, Food and Agriculture Organization Of the United Nations, Viale delle Terme di Caracalla, Rome, Italy I: 34
- LEOPOLD, A. STARKER (AP), Assistant Professor of Zoology, Museum of Vertebrate Zoology, University of California, Berkeley 4, Calif., U.S.A. VII: 205, 210, 254, 256
- LERNHARDT, ALFRED (A), Nuernmarket 10, Vienna, Austria. IV: 42
- LE-ROY GÁLVEZ, MARIO J. (P), Secretary-General to the Finlay Institute, Havana, Cuba I: xxxii, lviii
- LESTER-SMITH, W. C. (A), Senior Extension Officer, Eastern Circle, Department of Conservation and Extension, Southern Rhodesia, P.O. Box 143, Umtali, Southern Rhodesia I: 293
- LE VAN, JAMES H. (P), Senior Sanitary Engineer, U.S. Public Health Service, Region No. 2, 42 Broadway, Room 943, New York 4, N.Y., U.S.A. IV: 92, 128, 129, 167

* Deceased.

CONFERENCE AUTHORS AND PARTICIPANTS

- LEVÈQUE, LOUIS R. (P), Chef du service d'assainissement et du service sanitaire, Port-au-Prince, Haiti ... I: xxxiv, lviii
- LEVORSEN, A. I. (AP), Dean, School of Mineral Sciences, Stanford University, Stanford, Calif., U.S.A.... I: 94, 101, 104
- LEVY, E. BRUCE (A), Director, Grasslands Division, Department of Scientific and Industrial Research, P.O. Box 623, Palmerston North, New Zealand..... VI: 445, 553
- LEVY, WALTER J. (P), Economic Consultant, 300 Riverside Drive, Apartment 5E, New York, N.Y., U.S.A. I: xlvi, lviii
- LEWIS, A. B. (AP), Director of the Technical Cooperation Program, Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica..... I: 77
- LEWIS, R. D. (A), Texas Agricultural Experiment Station, College Station, Texas, U.S.A..... VI: 230
- LHÉRISON, C. (A), President of the Société haitienne d'études scientifiques, Port-au-Prince, Haiti..... I: 361
- LIBERT, O. J. (P), Division of International Conferences, Department of State, Washington 25, D.C., U.S.A. I: xlvi, lviii
- LIE, TRYGVE (P), Secretary-General of the United Nations I: xiii, 2, 3, 5, 7, 424, 425, 428, 429
- LIETZ, W. TEMPELAAR (P), 329 North Macaden Place, Los Angeles 4, Calif., U.S.A..... I: 106; III: 26, 66
- LIN, S. Y. (A), Superintendent of Fisheries Research, Northcote Science Building, University, Hong Kong VII: 131
- LINCOLN, F. C. (P), Assistant to the Director, Fish and Wildlife Service, Department of the Interior, Washington 25, D.C., U.S.A..... VII: 208
- LINDEMANN, H. J. (AP), Chief Engineer, Oslo Municipal Electric Supply System, Oslo, Norway..... III: 209, 220, 261
- LINEWEAVER, G. W. (P), Director, Operation and Maintenance, Bureau of Reclamation, Department of the Interior, Washington 25, D.C., U.S.A..... I: xlvi, lviii
- LITTLEJOHN, L. J. S. (A), Soil Conservation Officer, Department of Agriculture, P.O. Box 444, Nicosia, Cyprus VI: 10
- LOBELL, M. J. (A), Fisheries Consultant, Ahumada 131, Santiago, Chile VII: 41
- LOBRY DE BRUYN, C. A. (A), Director, Corrosion Institute, T.N.O., Delft, The Netherlands..... II: 234
- LOCKE, EDWARD G. (A), Division of Derived Products, Forest Products Laboratory, U.S. Department of Agriculture, Madison 5, Wis., U.S.A..... V: 395
- LØDDESØL, AASULV (A), Director, Norwegian Bog Association, Rosekrantzgt 8, Oslo, Norway..... VI: 43
- LÓPEZ, CARLOS G. (P), Director, Sociedad de Ingenieros y Arquitectos del Ecuador, Apartado No. 50, Quito, Ecuador I: 428; IV: 214
- LÓPEZ VIDELA, JORGE (P), President of the Bolivian Development Corporation, 707 Tower Building, Washington, D.C., U.S.A..... I: xxx, lviii
- LOUIS, P. F. (A), Administrateur de l'Inscription maritime, Direction des Pêches maritimes, Ministère des Travaux Publics, Paris, France..... VII: 72
- LOVERIDGE, E. W. (AP), Assistant Chief, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A..... V: 203, 213
- LOWRY, H. H. (P), Director, Coal Research Laboratory, Carnegie Institute of Technology, Pittsburgh, Pa., U.S.A. III: 196, 198
- LOWSON, H. (P), Manager, Petroleum Division, Anglo-Iranian Oil Company, Ltd., Britannic House, Finsbury Circus, London, England..... III: 24, 64
- LOZADA, FAUSTINO R. (P), Chief, Research Tests and Statistics Division, National Power Corporation, and Delegate to the Far Eastern Commission, Manila, Philippines I: xxxvii, lvii
- LUND, J. THOMSEN (P), Agriculturist, International Bank for Reconstruction and Development, Washington, D.C., U.S.A..... VI: 620, 621, 622
- LUNDBERG, HANS T. F. (AP), President and Manager, Lundberg Explorations Ltd., 1305 Victory Building, 80 Richmond St., West, Toronto, Ont., Canada II: 64, 98, 99
- LUNDIN, E. HARRY (AP), Professor, Royal Institute of Technology, Stockholm, Sweden..... I: 144
- LUONGO, N. A. (P), Acting Chief, Food and Agriculture Branch, I.F.I., Department of State, Washington, D.C., U.S.A. I: xlvi, lviii
- LUSH, JAY L. (A), Professor of Animal Husbandry, Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa, U.S.A. VI: 394

M

- MACDONALD, D. L. (P), Agricultural Education Specialist, Office of Foreign Agricultural Relations, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lviii
- MACDONALD, J. (P), Director of Research and Education, Forestry Commission, 25 Saville Row, London, W. 1, England V: 33, 73, 211, 212, 265
- MACFARLANE, W. A. (P), Director, United Kingdom Scientific Mission, 1800 K Street, N.W., Washington 6, D.C., U.S.A..... I: xxv, 105; III: 99, 100, 219, 326
- MACKENZIE, G. L. (P), Chief Engineer, Prairie Farm Rehabilitation Branch, Department of Agriculture, Regina, Sask., Canada IV: 417
- MACKLEY, FRED (AP), General Manager, Stanlow, Refinery, Shell Refining and Marketing Company, Ltd., Wirral, Cheshire, England III: 76, 99
- MACMILLAN, H. C. (P), Member for Economic Development, Research Council, South Pacific Commission, Noumea, New Caledonia..... I: 1, lviii
- MADRID S., CARLOS (P), Instituto Interamericano de Ciencias Agrícolas, Programa de Cooperación Técnica, Zon Andina; Apartado 478, Lima, Peru VI: 556, 557, 558, 560
- MAHALANOBIS, P. C. (AP), Director, Institute of Statistics, 204 Barrackpore Trunk Road, Calcutta 35, India I: xxv, 196; V: 30, 31, 32
- *MAITLAND, V. K. (AP), Forestry and Soil Conservation Adviser, British Middle East Office, Cairo, Egypt IV: 212, 213; V: 171, 173, 214; VI: 53, 104
- MALINA, FRANK J. (P), Deputy Head, Department of Natural Sciences, United Nations Educational, Scientific and Cultural Organization, 19 avenue Kléber, Paris 16, France..... I: 1, lviii
- MALMSTRÖM, TORVALD V. (P), Assistant Director, Royal Academy of Engineering Sciences, P.O. Box 5073, Stockholm 5, Sweden..... II: 210; III: 260, V: 263
- MANN, RALPH H. (AP), Engineer, Service Bureau, American Wood Preservers' Association, 60 East 42 Street, New York 17, N.Y., U.S.A..... V: 288, 318
- MANWARING, H. L. (P), Deputy Assistant, Production and Marketing Administration, Department of Agriculture, Washington 25, D.C., U.S.A..... I: xlvi, lviii
- MARSH, R. E. (AP), Assistant Chief, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A. V: 184, 211

* Deceased.

UNSCCUR PROCEEDINGS: INDEX

- MARSHALL, J. HOWARD (P), President, Ashland Oil and Refining Company, 1409 Winchester Avenue, Ashland, Ky., U.S.A. I: xlvi, lviii
- MASCIA, L. (P), Italian observer at the United Nations, 270 Park Ave., New York 22, N.Y., U.S.A. I: xxxv, lviii
- MASSÉ, P. (A), Directeur général adjoint, Électricité de France, 3 rue de Messine, Paris 8, France. IV: 430
- MASSON, D. R. (P), Chief, South African Liaison Office, 1785 Massachusetts Avenue, N.W., Washington, D.C., U.S.A. I: xxviii, lviii
- MASTOVSKY, OTAKAR (A), Professor, Technical University, Karlovo nam 13, Prague, Czechoslovakia. III: 218
- MATÉRN, BERTIL (A), Statistician, Swedish Forest Research Institute, Experimentalfältet, Stockholm, Sweden V: 9
- MATSON, E. E. (A), Chief, Forest Utilization Service, U.S. Department of Agriculture, 423 U.S. Court Building, Portland 5, Ore., U.S.A. V: 239, 264
- MATTER, JEAN (A), Directeur de la Compagnie Alais, Fruges et Camargue, Boite Postale 87, Paris 8, France. II: 254
- MATTHEWS, ALLAN F. (P), Editor, Minerals Yearbook, Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A. I: xlvi, lviii
- MAYNARD, L. A. (A), Director, School of Nutrition, Cornell University, Ithaca, N.Y., U.S.A. VI: 451, 460, 461
- MCCLELLAN, LESLIE N. (AP), Chief Engineer, Bureau of Reclamation, U.S. Department of the Interior, Denver Federal Center, Denver, Colo., U.S.A. IV: 247, 318, 320
- MCCRACKEN, ALVIN V. (AP), Director, Agricultural Conservation Programs Branch, Production and Marketing Administration, Department of Agriculture, Washington 25, D.C., U.S.A. VI: 85, 109, 110
- MCCULLOCH, WILLIAM C. (P), Coal Preparation Manager, Roberts and Schaefer Company, 130 N. Wells Street, Chicago, Ill., U.S.A. III: 142
- MCINTOSH, D.C. (A), Forest Products Engineer, Forest Products Laboratory, Dominion Forest Service, Department of Mines and Resources, Ottawa, Ont., Canada. V: 247
- MCKINNEY, A. W. (P), Executive Vice President, National Supply Company, Toledo 1, Ohio, U.S.A. I: xlvi, lviii
- MCLAUGHLIN, DONALD H. (AP), President of Homestake Mining Company, 100 Bush Street, San Francisco, Calif., U.S.A. I: 121, 127
- MCLAUGHLIN, GLENN E. (P), Chief Economist, Economic Division, National Resources Board, Old State Building, Washington 25, D.C., U.S.A. I: xlvi, lviii
- MCINTOCK, W. F. P. (AP), Firgrove, Rosemount, Perthshire, Scotland I: 99; II: 37, 38, 39, 44, 55, 56, 102, 166, 170; IV: 91, 92
- McMORRIS, WILLIAM L., JR. (AP), Preparation and Research Engineer, H. C. Frick Coke Company, Pittsburgh, Pa., U.S.A. II: 137, 167
- MCNALLY, J. A. (AP), Resident Manager, Woods Department, Brown Corporation, La Taque, Que., Canada V: 260, 266
- MCPhAIL, H. F. (P), Director, Branch of Power Utilization, Bureau of Reclamation, Department of the Interior, Washington 25, D.C., U.S.A. I: xlvi, lviii
- MCPEE, HUGH C. (P), Assistant Chief, Bureau of Animal Industry, Department of Agriculture, Washington 25, D.C., U.S.A. VI: 434, 460
- MEDINA OLIVIERI, FRANCISCO (P), Jefe del Dpto. Técnico de Concesiones y Conservación, Ministerio de Fomento, Caracas, Venezuela. III: 64
- MEEHEAN, O. LLOYD (AP), Chief, Branch of Game Fish and Hatcheries, Fish and Wildlife Service, Department of the Interior, Washington 25, D.C., U.S.A. VII: 138, 161
- MENHINICK, HOWARD K. (P), Regents' Professor of City Planning, Georgia Institute of Technology, Atlanta, Ga., U.S.A. I: 396; IV: 166, 169; VI: 53
- MERRILL, CHARLES (AP), Chief, Metal Economics Branch, Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A. II: 32, 38
- MERRIMAN, DANIEL (P), Director, Bingham Oceanographic Laboratory, Yale University, New Haven, Conn., U.S.A. I: xlvi, lviii
- MESSINES, J. (A), Inspecteur général des eaux et forêts, Région des Alpes, 9 Quai Créqui, Grenoble, France V: 155, 162
- MEYER, ALBERT J. (P), Assistant to President, Chairman of Economics Department, American University of Beirut, Beirut, Lebanon. I: xxv, lviii
- MEYER, H. ARTHUR (P), Department of Forestry, Pennsylvania State College, State College, Pa., U.S.A. V: 30, 31, 129, 130, 172, 173, 264
- MEYERHOFF, HOWARD A. (AP), Administrative Secretary, American Association for the Advancement of Science, 1515 Massachusetts Avenue, Washington, D.C., U.S.A. I: 117, 126
- MEYER-PETER, EUGÈNE (A), Directeur du Laboratoire de Recherches Hydrauliques à l'École Polytechnique Fédérale de Zurich, Gloriastrasse 37, Zurich, Switzerland. IV: 268
- MICHAUD, HOWARD H. (P), Assistant Professor, Department of Forestry, Purdue University, Lafayette, Ind., U.S.A. I: xlvi, lviii
- MIDDLETON, A. D. (A), Biologist, Imperial Chemical Industries, Ltd., Game Services, Burgate Manor, Fordingbridge, Hampshire, England. VII: 190
- MIGÈ, E. (A), Centre de recherches agronomiques du Maroc, French Morocco, French Union. VI: 616
- MIGAUX, L. (A), Directeur général de la Compagnie général de Géophysique, 48 boulevard Latour-Maubourg, Paris 7, France. III: 6
- MILLER, ALBERT E. (P), Assistant Vice President, Research and Development Department, Sinclair Refining Company, 630 Fifth Avenue, New York, N.Y., U.S.A. I: xlvi, lviii
- MILLER, H. J. (A), Metallurgical Engineer, British Insulated Callender's Cables Ltd., Prescot, Lancashire, England. II: 24
- MINES DOMANIALES DE POTASSE D'ALSACE (A), 93 Quai d'Orsay, Paris 7, France. II: 124
- MINETT, F. C. (A), Animal Husbandry Commissioner, Government of Pakistan, Karachi, Pakistan. VI: 467
- MINISTRY OF AGRICULTURE AND STOCK-BREEDING (A), Caracas, Venezuela. I: I, lviii; V: 148, 171
- MINISTRY OF DEVELOPMENT (A), Caracas, Venezuela III: 14, 37
- MINISTRY OF AGRICULTURE (A), Buenos Aires, Argentina. VI: 428, 457, 477, 493; VII: 252
- MINISTRY OF NATIONAL ECONOMY (A), National Commission for Cereals and Grain Elevators, Buenos Aires, Argentina. VI: 356
- MINISTRY OF WATER ECONOMICS (A), Federal People's Republic of Yugoslavia, Belgrade, Yugoslavia. IV: 260
- MOHAMMAD, CH. SARDAR (A), Agricultural Chemist, Agricultural College, Lyallpur, Pakistan. VI: 238

CONFERENCE AUTHORS AND PARTICIPANTS

- MONGE M., CARLOS (P), Director del Instituto de Biología Andina, Emilio Fernández 611, P.O. Box 821, Lima, Peru VI: 433, 434
- MONOD, THÉODORE (AP), Professeur au Muséum national d'histoire naturelle; Directeur de l'Institut français de l'Afrique noire, Dakar, Senegal, French Union I: 267, 275; VII: 62, 63, 152
- MONTURE, G. C. (P), Chief, Mineral Resources Division, Department of Mines and Resources, Ottawa, Ont., Canada I: 100, 411; II: 39, 58, 102, 166, 167, 168, 169, 170, 210, 241, 267, 268
- MOORE, ROSE E. (P), Chief, Technical Collaboration Branch, Office of Foreign Agricultural Relations, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lviii
- MOORE, W. C. (A), Director, Plant Pathology Laboratory, Ministry of Agriculture and Fisheries, Milton Road, Harpenden, Hertfordshire, England..... VI: 325
- MORALES, J. J. (P), Permanent Delegation of Nicaragua to the United Nations, 1627 New Hampshire Avenue, Washington 9, D.C., U.S.A..... I: xxxvii, lviii
- MORENO, ABELARDO (AP), Professor of Zoology, Director of Museo Poey, Catedra "U", University of Havana, Cuba I: 267, 279; VII: 207, 208
- MORGAN, JOHN D., JR. (P), Assistant for Materials and Stockpile Policies, National Security Resources Board, Room 34, Building T-3, Fort McNair, Washington 25, D.C., U.S.A..... I: xlvi, lvii
- MORRIS, JOSEPH S. (P), Partner and General Manager, Allen and Morris Drilling Contractors, 820 Alamo National Building, San Antonio 5, Tex., U.S.A..... I: xlvi, lviii
- MORRIS, R. H. (P), Special Assistant to Director, Eastern Regional Research Laboratory, Bureau of Agricultural and Industrial Chemistry, Wyndmoor, Pa., U.S.A. I: xlvi, lviii
- MORRIS, SAMUEL B. (P), General Manager and Chief Engineer, Department of Water and Power of the City of Los Angeles, 207 South Broadway, Los Angeles 54, Calif., U.S.A. IV: 92, 93
- MORRISON, FRANK B. (AP), Professor of Animal Husbandry and Animal Nutrition, Department of Animal Husbandry, Cornell University, Ithaca, N.Y., U.S.A. VI: 434, 442, 497, 527, 528, 557
- MOURSI, ABDUL A. (P), Agricultural Attaché, Egyptian Embassy, Washington 8, D.C., U.S.A..... I: xxxii, lix
- MUIR, ALEXANDER (AP), Head of Soil Survey of England and Wales, Rothamsted Experiment Station, Harpenden, Hertfordshire, England VI: 125
- MUKHERJEE, J. N. (AP), 10, Puran Chand Nahar Avenue, Calcutta 13, India..... II: 296, 297, VI: 51, 169, 171, 202, 203, 205, 233, 268, 305, 306, 307, 308, 619
- MULCAHY, B. P. (P), President, Fuel Research Laboratory, Inc., Indianapolis, Ind., U.S.A..... III: 196
- MULDER, E. G. (A), c/o Dr. P. Bruin, Acting Director-in-Chief, Landbouwproefstation en Bodemkundig Instituut T.N.O., Groningen, The Netherlands..... VI: 217
- MUNNS, E. N. (AP), Chief, Division of Forest Influences Research, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A..... IV: 213, 214; V: 143, 171, 172, 173; VII: 211
- MURPHY, R. C. (P), Chairman, Department of Birds, American Museum of Natural History, Central Park West at 79th Street, New York 24, N.Y., U.S.A..... VII: 255
- MURRAY, W. J., JR. (AP), Chairman, Railroad Commission of Texas, Tribune Building, Austin, Tex., U.S.A.... III: 32, 65
- MUSKAT, MORRIS (AP), Technical Assistant to the Vice President of Production, Gulf Oil Corporation, Pittsburgh 30, Pa., U.S.A..... III: 40, 65
- MYINT, U AUNG (AP), Agricultural Officer, Soil Conservation, in Charge, Taunggyi (Southern Shan State) Burma VI: 13, 51

N

NAIR, K. R. (A), Statistician, Forest Research Institute, New Forest, Dehra Dun, U.P., India..... V: 11

NARAYANAMURTI, D. (A), Chief Research Officer, Composite Wood Branch, Forest Research Institute, New Forest, Dehra Dun, U.P., India..... V: 271

NEEDHAM, LEONARD W. (A), Joint Managing Director, Colliery Engineering Limited, 46 Rutland Park, Sheffield 10, England..... III: 133

NELSON, SAMUEL B. (P), Assistant Chief Engineer of Water Works, Department of Water and Power of the City of Los Angeles, P.O. Box 3669, Terminal Annex, Los Angeles 54, Calif., U.S.A..... I: xlvi, lix

NELSON, WESLEY R. (P), Iraq Development Board, c/o American Embassy, Baghdad, Iraq..... IV: 91, 413, 414

NETHERLANDS GOVERNMENT (AP), The Hague, The Netherlands VII: 75

NEWMAN, L. L. (AP), Gas Engineer, Coal Branch, Fuels and Explosives Division, Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A. III: 142, 164, 196, 198

NIELSEN, JOHN P. (P), Associate Professor of Metal Science, Department of Chemical Engineering, College of Engineering, New York University, New York 53, N.Y., U.S.A. II: 242, 267, 268

NILSSON, R. D. (P), Regional Chief, Division of Lands, Bureau of Land Management, 1245 North 29th Street, Billings, Mont., U.S.A..... I: xlvi, lix

NIGHMAN, C. E. (P), Assistant Chief, Foreign Mineral Branch, Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A..... II: 166; III: 122, 124

NILSSON, GÖSTA (A), Vice President, Swedish State Power Board, Postfack, Stockholm 1, Sweden... III: 247, 260

NILSSON-LEISSNER, GUNNAR (A), Director, Government Central Seed Control Laboratory, Bergshamra, Stockholm 19, Sweden..... VI: 530

NORBERG, CHARLES R. (P), Department of State, Washington 25, D.C., U.S.A..... I: xlvi, lix

NORDENGREN, SVEN (A), United Swedish Superphosphate Factories, Landskrona, Sweden..... II: 278

NOTEVARP, OLAV (A), Director, Norwegian Fisheries, Official Research Laboratory, Bergen, Norway; Norwegian Institute of Technology, Trondheim, Norway VII: 84

O

O'Dwyer, WILLIAM (P), Former Mayor, City of New York, U.S.A.; Mexico, D.F., Mexico..... I: 3

OGG, WILLIAM G. (AP), Director, Rothamsted Experimental Station, Harpenden, Hertfordshire, England..... II: 294, 296, 297, 298, 300; VI: 168, 169, 203, 209, 266

OLDS, LELAND (AP), U.S. Department of the Interior Representative, New England-New York Inter-Agency Committee, 150 Causeway Street, Boston 14, Mass., U.S.A. IV: 425, 457, 458, 461

OLIVÉ, RAUL E. ALONSO (P), Agricultural Experimental Station, Santiago de las Vegas, Cuba..... I: xxii, lix

UNSCCUR PROCEEDINGS: INDEX

- OLSEN, CHESTER J. (P), Assistant Regional Forester, Forest Service, Ogden, Utah, U.S.A..... I: xlvi, lix
- OPPEDAL, MAGNE (P), Fisheries Attaché, Norwegian Embassy, 3401 Massachusetts Ave., Washington 7, D.C., U.S.A..... VII: 25, 26, 65, 112
- OPSOMER, J. E. (A), Professeur à l'Université de Louvain, 57 avenue Léopold III, Héverlé, Louvain, Belgium VI: 596
- Orellana A., RICARDO (AP), Ingeniero Agrónomo, Avenida 20, No. 47, Barquisimeto, Venezuela VI: 54, 205, 301, 306, 496
- Orozco M., MARCOS (AP), Jefe de Conservación de Suelos, Dirección General Forestal, Ministerio de Agricultura, Guatemala City, Guatemala..... I: 322; VI: 62, 111, 204, 559
- ORPEN, J. H. (P), Member, National Parks Board of Trustees, Africas Kop, Union of South Africa VI: 267, 497; VII: 208, 209, 210, 254, 256
- ORPEN, MRS. J. H. (P), Wildlife Protection Society, Africas Kop, Union of South Africa..... I: xxxviii, lix
- ORR, JOHN LEWIS (AP), Head, Low Temperature Laboratory, National Research Council of Canada, Ottawa, Ont., Canada IV: 425, 457, 458, 461
- ORTEGA, POMPILIO (A), Director General of Agriculture, Tegucigalpa, Honduras VI: 590
- ORTÍZ MÉNDEZ, JORGE (P), Director, Ministry of Agriculture, Bogota, Colombia I: xxxi, lix
- OSBORN, FAIRFIELD (AP), President, New York Zoological Society and Conservation Foundation, 30 East 40th Street, New York, N.Y., U.S.A..... I: xxv, 12, 27
- OSBORNE, JAMES G. (AP), Division of Forest Economics, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A..... V: 6, 29, 30, 31, 32, 130
- OWEN, A. D. K. (P), Assistant Secretary-General, United Nations Department of Economic Affairs..... I: 8
- ÖY, EMIL (A), Chemical Engineer, A/S Lilleborg Fabriker, Stavanger, Norway..... VII: 177
- P**
- PAAUW, F. V. D. (A), c/o Dr. P. Bruin, Acting Director-in-Chief, Landbouwproefstation en Bodemkundig Instituut T.N.O., Groningen, The Netherlands..... VI: 217
- PACHECO, ROBERTO (P), Adviser, Permanent Delegation of Bolivia to the United Nations, Empire State Building, Room 6305, New York 1, N.Y., U.S.A..... IV: 129, 130
- PACKARD, FRED M. (P), Executive Secretary, National Parks Association, 1840 Mintwood Place, N.W., Washington 9, D.C., U.S.A..... I: xlvi, lix
- PADILLA G., GUSTAVO (P), Jefe de la División Agroeconómica, Ministerio de Obras Públicas, Caracas, Venezuela I: 1, lix
- PAGOT, J. R. (A), Office de la recherche scientifique coloniale, Ministère de la France d'Outre-Mer, Paris, France VI: 407
- PAIGE, SIDNEY (P), Consultant, Research and Development Board, Department of Defense, Pentagon Building, Washington 25, D.C., U.S.A..... III: 221
- PAL, B. P. (A), Director, Indian Agricultural Research Institute, New Delhi, India..... VI: 284
- PANDIT, VIJAYA LAKSHMI (P), Ambassador of India to the United States of America, Washington, D.C., U.S.A.... I: 424
- PAPA BLANCO, FRANCISCO F. (P), Industrial Engineer, Universal Oil Products, 310 South Michigan Avenue, Chicago 4, Ill., U.S.A..... I: xlxi, lix
- PAPANICOLAOU, D. (AP), Director of Water Economy, Ministry of Public Works, Athens, Greece IV: 129, 168, 320, 347, 407, 418, 459
- PAPI GIL, ALFREDO (A), Agricultural Section, National Bank of Nicaragua, Managua, Nicaragua..... VI: 264
- PARHAM, B. E. V. (P), Senior Agricultural Officer, Colonial Agricultural Service, South Pacific Commission, Suva, Fiji Islands..... VI: 559
- PARKER, F. W. (P), Assistant Chief, Bureau of Plant Industry, U.S. Department of Agriculture, Beltsville, Md., U.S.A. I: xlvi, lix
- PARKER, JOHN C. (AP), P.O. Box 75, Halesite, L. I., N.Y., U.S.A. I: 47
- PARKINSON, DANA (P), Chief of Division of Information and Education, Forest Service, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lix
- PARKS, MERCER (AP), Petroleum Engineer, Humble Oil Company, Houston, Tex., U.S.A..... III: 21, 26
- PARSONS, A. B. (P), Consulting Engineer, Bureau of Mines, Department of the Interior, Room 505, Customs House, San Francisco, Calif., U.S.A..... I: xlvi, lix
- PARTAIN, LLOYD E. (P), President, Soil Conservation Society of America; Research Department, Curtis Publishing Company, Independence Square, Philadelphia, Pa., U.S.A..... I: xlvi, lix
- PASK, V.A. (P), British Electricity Authority, Trafalgar Buildings, 1 Charing Cross, London, S.W. 1, England I: xxxix, lix
- PAULSEN, C. H. (AP), Chief, Water Resources Division, Geological Survey, Department of the Interior, Washington 25, D.C., U.S.A..... IV: 37, 91, 92, 93
- PAVARI, ALDO (A), Director, Sylviculture Experimental Station, Via delle Cascine 1, Florence, Italy..... V: 168
- PAVLOVIĆ, STOJAN (AP), Professor, Department of Mineralogy and Petrology, University of Belgrade, Belgrade, Yugoslavia II: 95, 101, 102; IV: 410
- PEACE, T. R. (A), Forest Pathologist, Forestry Commission, Forest Research Station, Alice Holt Lodge, Wrecclesham, Farnham, Surrey, England..... V: 60
- *PECK, RANKIN P. (P), President, National Congress of Petroleum Retailers, 325 Farwell Building, Detroit 26, Mich., U.S.A. I: xlvi, lix
- PEHRSON, ELMER W. (AP), Regional Director, Region IX, Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A..... II: 2, 35, 37
- PENDLETON, ROBERT L. (A), Professor of Tropical Soils and Agriculture, Isaiah Bowman School of Geography, Johns Hopkins University, Baltimore 18, Md., U.S.A. VI: 258
- PÉRARD, J. (A), Président du Syndicat général des industries de traitement des sous-produits de la Pêche Maritime, 42 rue Saint Jacques, Paris 5, France..... VII: 110
- PERLMAN, S. DONALD (P), Director of Conservation, National Security Resources Board, Washington 25, D.C., U.S.A. I: xlvi, lix
- PETER, HOLLIS W. (P), Assistant Chief, Division of International and Functional Intelligence, Department of State, Washington, D.C., U.S.A..... I: xlvi, lix
- PETTIT, K. G. (P), Meteorologist, Meteorological Service of Canada, Low Temperature Laboratory, National Research Council of Canada, Ottawa, Ont., Canada... IV: 27
- PFEFFER, ANTONÍN (A), Professor, Technical University, Prague, Czechoslovakia V: 62
- PHELAN, V. C. (AP), Director, Canada Branch, International Labour Office, Ottawa, Ont., Canada..... I: 327

* Deceased.

CONFERENCE AUTHORS AND PARTICIPANTS

- PHILLIPS, PAUL L.** (P), President, International Brotherhood of Paper Makers, Paper Makers' Building, Albany 1, N.Y., U.S.A..... I: xlvi, lxx
- PHILLIPS, RALPH W.** (A), Deputy Director, Agriculture Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy VI: 408, 430, 431, 433, 435
- PICARD, F.** (AP), Directeur des études, Régie nationale des usines Renault, 8 avenue Emile Zola, Billancourt (Seine), France I: 106; III: 283, 326, 327, 328, 329
- PICTON, WALTER L.** (P), Water Specialist, National Security Resources Board, Washington 25, D.C., U.S.A. I: xlvi, lxx
- PINCHOT, MRS. GIFFORD** (AP), 1615 Rhode Island Ave., Washington, D.C., U.S.A..... I: 318, 323
- PINOCHET, RAMIRO** (P), Representative of the Chilean State Railways in the United States, 120 Broadway, New York 5, N.Y., U.S.A..... I: xxxi, lxx
- PIRNIA, H.** (A), Director General of the Ministry of Finance, Tehran, Iran..... IV: 162
- PIZARRO, GUSTAVO** (P), Assistant Dean, School of Chemical Engineering, University of Concepción, Concepción, Chile I: xxxi, lxx
- POHL, L. L.** (P), Membre correspondant du Muséum national d'histoire naturelle de Paris, Délégué de la Société nationale d'accimatation et de protection de la nature, Paris, France; 215 West 83rd Street, New York 24, N.Y., U.S.A..... I: xxxiv, lxx
- POTTER, C. E.** (P), Field Agent, Extension Service, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lxx
- POTTER, CHARLES J.** (P), President, Rochester and Pittsburgh Coal Company, Inc., Indiana, Pa., U.S.A. III: 124, 142, 156, 197
- POUGH, FREDERICK H.** (P), Consulting Mineralogist, 4680 Independence Avenue, New York 71, N.Y., U.S.A..... II: 102
- POUGH, RICHARD H.** (P), Curator of Conservation and Use of Naturel Resources, American Museum of Natural History, Central Park West at 79th Street, New York 24, N.Y., U.S.A..... VII: 253
- POULIN, JOHN A.** (P), Director, Foreign Branch, Oil and Gas Division, Department of the Interior, Washington 25, D.C., U.S.A..... I: xlvi, lxx
- POURBAIX, MARCEL** (AP), Secrétaire général du Comité international de Thermodynamique et du Cinétique Electrochimiques, Directeur du Centre Belge d'Étude de la Corrosion, 50 avenue F.-D. Roosevelt, Brussels, Belgium II: 238, 243
- POWER, EDWARD A.** (AP), Chief, Statistical Section, Branch of Commercial Fisheries, Fish and Wildlife Service, Department of the Interior, Washington 25, D.C., U.S.A. VII: 81, 111, 114
- PRASHAD, BAINI** (A), Director of Fisheries, West Bengal, Writers' Building, Calcutta, India..... IV: 446
- PRATT, EDMUND ADDISON** (P), Consulting Engineer, 250 East 43d Street, New York 17, N.Y., U.S.A..... I: xlvi, lxx
- PREGO, A. J.** (A), Institute of Soils and Agronomy, Ministry of Agriculture, Buenos Aires, Argentina..... VI: 23
- PRICE, M. P.** (P), Member of Parliament, Chairman, Parliamentary and Scientific Committee, House of Commons, Westminster, London, S.W.1, England V: 174, 210, 212, 214; VI: 459, 527
- PRICE, REGINALD C.** (P), Director, Division of Water and Power, Office of the Under Secretary, Department of the Interior, Washington 25, D.C., U.S.A..... I: xlvi, lxx
- PRITCHARD, A. L.** (P), Director, Conservation and Development Service, Department of Fisheries, West Block Ottawa, Ont., Canada..... I: xxxi, lxx
- PRITCHARD, DONALD W.** (P), Associate Director, Chesapeake Bay Institute, Johns Hopkins University, Baltimore 2, Md., U.S.A..... IV: 91; VII: 25, 63
- Q**
- QUEVEDO, C. V.** (A), Ingeniero Agrónomo, Instituto de Suelos y Agrotecnia del Ministerio de Agricultura y Ganadería, Cervino 3101, Buenos Aires, Argentina VI: 21, 66, 155
- R**
- RABANAL, HERMINIO R.** (A), Chief, Fish Culture Section, Philippine Institute of Fisheries Technology, Bureau of Fisheries, Department of Agriculture and Natural Resources, Manila, Philippines VII: 142
- RAESIDE, J. D.** (P), Scientific Attaché, Embassy of New Zealand to the United States, Washington, D.C., U.S.A. VI: 52, 53, 168
- RAGGATT, HAROLD G.** (A), Director, Bureau of Mineral Resources, Geology and Geophysics, Ministry of National Development, Chancery House, Melbourne, Australia II: 50
- RAJAGOPALASWAMY, K.** (AP), Chief Geologist, Associated Cement Companies, Ltd., Bombay, India..... II: 21, 38
- RALSTON, OLIVER C.**, (A), Chief Metallurgist, Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A..... II: 252, 265, 267, 268
- RANDALL, ROBERT H.** (A), Bureau of the Budget, Executive Office of the President, Old Department of State Building, Washington 25, D.C., U.S.A..... I: 173
- RANGANATHAN, C. R.** (A), Principal, Forest Research Institute and Colleges, New Forest, Dehra Dun, U.P., India V: 95, 134
- RANGHEL, APARICIO G.** (AP), Field Director, Soil Conservation Service, Colombian Federation of Coffee Growers, Bogotá, Colombia I: 345, 385; V: 120, 172, 174; VI: 51, 89, 110, 527, 528, 559
- RAO, H. SRINIVASA** (A), Chief Research Officer, Central Marine Fisheries Research Station, Madras, India..... VII: 171
- RASMUSSEN, D. IRVIN** (AP), In charge, Wildlife Management, Intermountain Region, Forest Service, U.S. Department of Agriculture, Ogden, Utah, U.S.A. VII: 201, 209, 255
- RATINEAU, JACQUES** (P), Inspecteur général de l'Agriculture, Ministère de l'Agriculture, Gare de Plaisir-Grignon, Banlieue Ouest (Seine-et-Oise), France II: 295; VI: 51, 202, 267, 495, 496, 498, 557, 622
- RAUSHENBUSH, STEPHEN** (AP), Consultant, United Nations; 3503 Lowell Street, N.W., Washington 16, D.C., U.S.A. I: xxv, 163, 202, 419; II: 37, 39; IV: 128, 130, 210, 211, 213, 214, 318, 319, 320, 322, 413, 459; V: 170, 173; VI: 621, 623; VII: 67
- RAVANZO, RAMÓN R.** (P), Project Engineer, National Power Corporation, Manila, Philippines..... I: xxxvii, lxx
- RAVER, PAUL J.** (AP), Administrator, Bonneville Power Administration, U.S. Department of the Interior, Portland 8, Ore., U.S.A..... I: 392, 393; III: 301, 328, 329
- RAY, J. N.** (A), Director, Teddington Chemical Factory Ltd., Suren Road, Andheri, Bombay, India..... II: 288; V: 276
- RAYCHAUDHURI, S. P.** (A), Ministry of Food and Agriculture, Government of India, New Delhi, India... VI: 126, 128

UNSCCUR PROCEEDINGS: INDEX

- REAY, G. A. (A), Superintendent, Torry Research Station (Aberdeen), Department of Scientific and Industrial Research, 27 Salisbury Terrace, Aberdeen, Scotland VII: 93
- RECKNAGEL, ARTHUR B. (P), Technical Director of Forestry, St. Regis Paper Company, 230 Park Avenue, New York 17, N.Y., U.S.A..... V: 212
- REGAN, MARK M. (P), Assistant Head, Division of Land Economics, Bureau of Agricultural Economics, Department of Agriculture, Washington, D.C., U.S.A.... I: xlvi, lix
- REICHELDERFER, F. W. (P), Director, U.S. Weather Bureau, Department of Commerce, Washington 25, D.C., U.S.A. I: xlvi, lix
- REIFENBERG, ADOLPH (P), Professor of Soils, Hebrew University, Jerusalem, Israel..... VI: 50, 169
- RENNER, F. G. (AP), Chief, Range Division, Soil Conservation Service, Department of Agriculture, Washington 25, D.C., U.S.A. IV: 212; VI: 525, 526, 528, 544, 557, 558, 559, 560
- RENNERFELT, ERIK (A), Assistant Professor, Swedish Forest Research Institute, Experimentalafaltet, Stockholm, Sweden V: 287
- RENOU, JEAN (A), Chef du Service presse-information de la Marine nationale, Paris, France; North Atlantic Ocean Regional Planning Group, North Atlantic Treaty Organization, 1030 31st Street, N.W., Washington, D.C., U.S.A..... VII: 95
- RETTALIATA, J. T. (P), Dean of Engineering, Illinois Institute of Technology, Chicago, Ill., U.S.A..... III: 327
- REVELLE, ROGER R. D. (P), Professor of Oceanography and Associate Director, University of California, Scripps Institution of Oceanography, La Jolla, Calif., U.S.A. VII: 186
- REYNA DROUET, RAFAEL (P), Budgetary Technical Commission, Vargas No. 374, Quito, Ecuador..... I: 250, 316, 345
- RHOAD, ALBERT OLIVER (AP), Head, Animal Industry Department, Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica; Kings Ranch, Kingsville, Texas, U.S.A. I: 313; VI: 421, 431, 432, 434, 458, 459, 460, 461, 462, 469, 525, 557
- RIAZ, A. G. (A), Soil Conservation Adviser, Government of Pakistan, Quetta, Baluchistan, Pakistan..... IV: 6
- RICHARDS, B. D. (A), Consulting Engineer, Sir William Halcrow and Partners, Alliance House, Caxton Street, Westminster, London, S.W.1, England..... IV: 48
- RICHARDS, S. H. (P), Liaison Officer, United Kingdom Scientific Mission, 1800 K Street, N.W., Washington 6, D.C., U.S.A. I: xxxix, lix
- RICHARDSON, N. A. (A), Director, Department of Scientific and Industrial Research, Forest Products Research Laboratory, Princes Risborough, Aylesbury, Buckinghamshire, England V: 269
- RICHTER, SVEN (P), Consulting Chemical Engineer, 419 West Johnson Street, Philadelphia, Pa., U.S.A. III: 66; V: 318
- RIDDELL, J. O. (A), District Commissioner, Ministry of Works, P.O. Box 423, Wanganui, New Zealand.... IV: 375
- RINGERS, J. A. (P), Former Minister of Reconstruction, Consulting Engineer, Anna Paulownastraat 117, The Hague, The Netherlands I: 393, 396; III: 329; IV: 128, 129, 169, 171, 345, 346, 347, 349
- RIPLEY, P. O. (A), Experimental Farms Service, Department of Agriculture, Central Experimental Farm, Ottawa, Ont., Canada..... VI: 196
- RIPLEY, S. DILLON (P), Associate Curator and Professor of Zoology, Yale University, New Haven, Conn., U.S.A. I: xlvi, lix
- RISON, STUART (P), Formerly Technical Assistant to Director, United Kingdom Scientific Mission, Washington, D.C., U.S.A.; Technical Assistance Administration, United Nations, New York I: xlvi, lix
- RITCHIE, A. T. A. (A), Game Warden, Nairobi, Kenya, East Africa VII: 218
- RITCHIE, FRED. (P), Chief, Program Operations, Agricultural Conservation Programs Branch, Production and Marketing Administration, Department of Agriculture, Washington 25, D.C., U.S.A..... I: xlvi, lix
- ROBB, WILLIAM (A), Director, Scottish Society for Research in Plant Breeding, Craigs House, Corstorphine, Edinburgh 12, Scotland..... VI: 280
- ROBERTS, GEORGE, JR. (P), Manager, Research Department, Stanolind Oil and Gas Company, Tulsa, Okla., U.S.A. III: 101
- ROBINSON, A. (A), Technical Director, Appleby Frodingham Steel Company, Scunthorpe, Lincolnshire, England II: 152
- ROBINSON, J. FRENCH (P), President, East Ohio Gas Company, Cleveland, Ohio, U.S.A. I: xlvi, lix
- *ROBINSON, R. L. (P), Chairman, Forestry Commission, London, England V: 32, 70, 72, 73, 74, 130
- ROCKWELL, FRED G. (P), Director, Non-Metallic Minerals Division, National Security Resources Board, Washington 25, D.C., U.S.A..... I: xlvi, lix
- RODRÍGUEZ, FILEMÓN C. (AP), Manager, National Power Corporation, and National Research Council of the Philippines, Quezon City, Philippines... I: 240, 395; IV: 94, 168
- RODRÍGUEZ AGUILAR, M. (P), Head, Exploration Department, Petróleos Mexicanos, Mexico City, D.F., Mexico I: 248, 254; III: 24, 25, 27
- RODRÍGUEZ ARIAS, J. C. (P), Economic Counsellor, Argentine Delegation to the United Nations, 12 West 56th Street, New York 19, N.Y. U.S.A..... I: 246
- RODRÍGUEZ FABREGAT, ENRIQUE (P), Permanent Delegate of Uruguay to the United Nations, 220 E. 42nd Street, Room 2514, New York, N.Y., U.S.A. I: 326, 332, 333, 334, 343, 344, 345; IV: 349
- RODRÍGUEZ G., JORGE NOEL, (P), Aerial Photography Section, State Geographic Institute, Bogotá, Colombia I: xxxii, lix
- RODRÍGUEZ L., A. (A), Director General de Aprov. Hidráulicos, Secretaría de Recursos Hídricos, Mexico, D.F., Mexico..... IV: 388, 458
- RODRÍGUEZ Z., M. (A), Jefe de la Sección Conservación de Suelos, Departamento de Investigaciones Agrícolas, Ministerio de Agricultura, Santiago, Chile..... VI: 150
- ROELSE, H. V. (P), Vice President, Federal Reserve Bank of New York, New York 45, N.Y., U.S.A..... I: 249
- ROGERS, HOWARD T. (P), Chief, Soils and Fertilizers Research Branch, Division of Agricultural Relations, Tennessee Valley Authority, Knoxville, Tenn., U.S.A. I: xlvi, lix
- ROJAS DE LA TORRE, LUIS (AP), National University of Mexico; 50 East 42nd St., New York, N.Y., U.S.A. IV: 461; VI: 68, 108, 172, 497, 622; VII: 254
- ROLLEFSSEN, GUNNAR (A), Director, Institute of Marine Research, Boks 226, Bergen, Norway..... VII: 2
- ROMERO, SEBASTIÁN ANÍBAL (AP), Director Forestal, Ministerio de Agricultura, Caracas, Venezuela V: 148, 174, 208, 213

* Deceased.

CONFERENCE AUTHORS AND PARTICIPANTS

- ROSE, HAROLD J. (P), Vice President and Director of Research, Bituminous Coal Research Corp., 2609 1st National Bank Building, Pittsburgh 22, Pa., U.S.A. III: 326, 327
- ROTTENSTEN, KNUD (A), Land Economics Research Laboratory, Bulowsvej 13, Copenhagen 5, Denmark..... VI: 390
- ROUNCE, N. V. (A), Regional Assistant Director of Agriculture, Mwanza, Lake Province, Tanganyika Territory, East Africa..... VI: 585
- ROUSSEAU, JACQUES (P), Director, Montreal Botanical Garden, 4101 Est. rue Sherbrooks, Montreal, Que., Canada VII: 186
- ROUSSELIER, M. (A), Chef du Service des projets hydrauliques, Électricité de France, 3 rue de Messine, Paris 8, France IV: 430
- ROWAN, A. H. (P), President of Rowan Oil Co., 903 Commercial Standard Building, Fort Worth 2, Tex., U.S.A. I: xvii, lxxix
- ROWSE, R. H. (A), Technical Director, Messrs. Smith and Wellstood, Ltd., Bonnybridge, Stirlingshire, Scotland III: 206
- ROY, S. N. (P), Chairman, Department of Statistics, Calcutta University, Calcutta, India..... I: xxxv, lxxix
- RUSCK, AKE (A), President, Swedish State Power Board, Kardunansmakeregata 8, Stockholm, Sweden..... IV: 422
- RUSSENHOLT, EDGAR S. (P), Acting Secretary, Canadian Wheat Pools, Wheatpool Building, Winnipeg, Man., Canada I: xxxi, lxxix

S

- SABATIER, J. (A), Directeur adjoint des Industries de la houille, Charbonnages de France, 62 rue 9, avenue Percier, Paris 8, France..... III: 168
- SACHANEN, A. N. (P), Research Associate, Secony-Vacuum Laboratories, Research and Development Department, Paulsboro, N. J., U.S.A..... III: 100
- SAID, RUSHDI (P), Lecturer, Faculty of Science, Fouad I University, Gizeh, Egypt..... I: xxxii, lxxix
- SAIN, KANWAR (P), Member (Designs) and Chief Engineer, Hirakud Dam Project, P. O. Hirakud (Orissa), India..... I: 395, 402; IV: 320, 321, 347, 415, 458, 461
- SAINT-GUILHEM, R. (A), Directeur technique, Centre d'études et de recherches des Charbonnages de France, 35 rue Saint Dominique, Paris 7, France..... III: 130
- SALATIN, FERNANDO (P), Chief Engineer, Corporación de Fomento de la Producción, 37 Wall Street, New York, N.Y., U.S.A..... I: xxxi, lxxix
- SALIM, P. B. A. (A), Assistant Director, Central Engineering Authority, Government of Pakistan, Karachi I, Pakistan IV: 355
- SALKIND, VICTOR A. (P), Adviser, Delegation of Israel to the United Nations, 11 E 70th Street, New York 21, N.Y., U.S.A. I: xxxv, lxxix
- SALLENAVE, P. (A), Chef de la Division de Technologie des Bois, Centre Technique Fareslier Tropical 45bis, avenue de la Belle Gabrielle, Nogent-sur-Marne (Seine), France V: 279
- SALNIKOV, IVAN S. (AP), Coordinator Petroleum Engineering and Equipment, Standard Oil Company, (New Jersey), 30 Rockefeller Plaza, New York 20, N.Y., U.S.A. III: 10, 25, 26
- SALTER, ROBERT M. (AP), Chief, Bureau of Plant Industry, Soils and Agricultural Engineering, Department of Agriculture, Washington 25, D.C., U.S.A.... I: 83

- SAM, ELEEN (P), Natural Science Section, United Nations Educational, Scientific and Cultural Organization, 19 avenue Kléber, Paris 16, France..... I: 1, lxxix
- SAMPSON, ARTHUR W. (AP), Professor of Forestry, University of California College of Agriculture, Agricultural Experiment Station, School of Forestry, Berkeley 4, Calif., U.S.A..... VI: 509, 525, 526, 527, 528
- SAMUEL, LUDWIG (P), Agricultural Attaché, Embassy of Israel, Washington, D.C., U.S.A..... I: 420
- SANGUINETTI, RAÚL V. (P), Jefe de la Sección Estudios Hidroeléctricos y Regadío, Ministerio de Obros Publicos, Montevideo, Uruguay I: 399
- SANTA CRUZ, HERNÁN (P), Permanent Representative of Chile to the United Nations, 350 Fifth Avenue, Room 6002, New York 1, N.Y., U.S.A. I: 308, 313, 316, 318, 321, 322, 323
- SANTA MARÍA, see Sanz de Santa María
- SANTA ROSA, JAYME (A), Químico, pela Escola Nacional de Química, do Brasil; Tecnologista-químico do Instituto Nacional de Tecnologia, do Rio de Janeiro; Consultor-químico da Confederação Nacional da Indústria, do Brasil; Redator == chefe a editor da *Revista de Químico Industrial*, do Rio de Janeiro; Rua Senador Dantas, 20-40 Andar, Rio de Janeiro, Brazil..... V: 312; VI: 70
- SANZ DE SANTA MARÍA, CARLOS (P), Professor of Political Economy, Universidad Nacional de Colombia, Bogotá, Colombia IV: 128
- SARAOJA, EERO K. (A), Research Department, Finnish Association of Electricity Supply, Helsinki, Finland... III: 305
- SATTAR, A. (A), Plant Pathologist, Government of West Punjab, Lahore W. P., Pakistan..... VI: 327
- SAUCEDO CARRILLO, F. (P), Chief of Investigation and Information, Soil Conservation Service, Mexico, D.F., Mexico VI: 51, 109, 205, 267
- SAURINO, BENEDICT (P), Manager, Statistical Research Division, Sun Oil Company, Philadelphia 3, Pa., U.S.A. I: xlvi, lxxix
- SAVILLE, THORNDIKE (P), Dean, College of Engineering, New York University, University Heights, New York 53, N.Y., U.S.A. IV: 457, 459
- SAWYER, CHARLES (P), Secretary of Commerce, Department of Commerce, Washington 25, D.C., U.S.A. I: xvii, lxxix
- SCHAEFER, VINCENT J. (AP), Research Chemist, General Electric Research Laboratory, 1 River Road, Schenectady 5, N.Y., U.S.A..... IV: 2, 90, 91
- SCHAFFER, LEON (A), Professeur à l'École nationale des eaux et forêts, Nancy, France..... V: 90
- SCHANG, P. (A), Vice-Président du Syndicat national des Producteurs l'iode, 3 avenue du Président Wilson, Paris, France..... VII: 180
- SCHJANBERG, E. (A), Research Director, Swedish Shale Oil Company, Ltd., Örebro, Sweden..... III: 51
- SCHIMMEL, HERBERT (P), Deputy Secretary of the Preparatory Committee, Deputy Executive Secretary of the Conference; United Nations Department of Economic Affairs I: xxv, 128; II: 244; VI: 380; VII: 164
- SCHMIDT, WALTER A. (AP), President, Western Precipitation Corporation, 1016 West Ninth Street, Los Angeles 15, Calif., U.S.A..... II: 183, 207, 208
- SCHNEIDER, JORGE (P), Engineer, Corporación de Fomento de la Producción de Chile, 40 Fifth Avenue, New York, N.Y., U.S.A..... I: xxxi, lxxix
- SCHOLLE, SIGURD (P), Vice President, Southeastern Oil, Inc., Lincoln Building, 60 East 42 Street, New York 17, N.Y., U.S.A..... I: xlvi, lxxix

UNSCCUR PROCEEDINGS: INDEX

- SCHROEDER, WILBURN C. (AP), Assistant Director, Bureau of Mines, Department of the Interior, Washington 25, D.C., U.S.A. III: 84, 100, 101
- SCHURTER, WALTER (A), Chief Federal Inspector, Public Works, Eidg. Oberbauinspektorat, Monbyoustrasse 45, Berne, Switzerland IV: 183
- SCHWENDEMAN, J. R. (P), Head, Department of Geography, College of Arts and Sciences, University of Kentucky, Lexington, Kentucky, U.S.A. VI: 204
- SEARS, P. D. (A), Senior Pasture Ecologist, Grasslands Division, Department of Scientific and Industrial Research, P. O. Box 623, Palmerston North New Zealand VI: 517
- SEELE, KEITH C. (P), Associate Professor of Egyptology, University of Chicago, Chicago 37, Ill., U.S.A. VII: 254
- SEELY, H. E. (AP), Head, Forest Inventories Section, Forest Research Division, Forestry Branch, Ottawa, Ont., Canada V: 20, 31, 32
- SEIDENFADEN, GUNNAR (P), Economic Counsellor, Embassy of Denmark to the United States, Washington 8, D.C., U.S.A. VII: 186
- SEN, A. T. (A), Ministry of Food and Agriculture, Government of India, New Delhi, India VI: 126, 128
- SEQUENS, J. (A), Director of Kovohutě Metal Foundries, National Corporation, Angelicka VI. 17, Prague 12, Czechoslovakia II: 197
- SETHI, D. R. (A), Agricultural Development Commissioner, Ministry of Food and Agriculture, Government of India, New Delhi, India VI: 566
- SETINEK, KAREL (A), Head of the Forestry Department, Ministry of Agriculture, Prague, Czechoslovakia V: 187
- SETZER, JOSÉ (A), Department of Geology, College of Natural Sciences, University of São Paulo, São Paulo, Brazil VI: 136
- SEVIAN, VAHÉ J. (AP), Engineer-in-charge of Hydraulic Section, Directorate General of Irrigation, Baghdad, Iraq IV: 148
- SHAFEI, MOHAMED Z. (P), Instructor, Faculty of Law, Fouad I University, Giza, Egypt I: xxxii, ix
- SHANKLIN, JOHN F. (P), Chief, Land Use Management, Division of Land Utilization, Office of the Secretary, Department of the Interior, Washington 25, D.C., U.S.A. I: xvii, ix
- SHANNON, R. S. (P), President, Pioneer Oil Corporation, 919 Midland Savings Building, Denver 2, Color., U.S.A. I: xviii, ix
- SHAW, A. C. (P), Chief Forester, Champion Paper and Fibre Company Building, Canton, N.C., U.S.A. I: xlvi, ix
- SHEINERMAN, SAMUEL (P), Kfar-Malal, P.O. Ramatayim, Israel I: xxxv, ix
- SHELTON, BARRETT (AP), Publisher, *Decatur Daily*, Decatur, Ala., U.S.A. I: 376, 385
- SHELUBSKY, M. (A), Hebrew University-Hadassah Medical School P.O. Box 1255, Jerusalem, Israel VII: 147
- SHERMAN, ARTHUR (AP), Director of Mines and Geology, Treasury Department, Monrovia, Liberia II: 75, 100; III: 220
- SHEWHART, W. A. (AP), Research Engineer, Bell Telephone Laboratories, Murray Hill, N.J., U.S.A. I: 188
- SHIAH, CHYN-DUOG (P), Chief, Technical Department, National Resources Commission of China, 111 Broadway, Room 515, New York 6, N.Y., U.S.A. I: xxxi, ix
- SHOEMAKER, JAMES H. (P), Director, Program Adjustment Division, National Security Resources Board, Old State Building, Washington 25, D.C., U.S.A. I: xlvi, ix
- SHOW, S. B. (AP), Chief, Forestry Branch, Food and Agriculture Organization of the United Nations; 376 Addison Avenue, Palo Alto, Calif., U.S.A. V: 71, 129, 173, 193, 211, 212
- SIDDQUI, RAFAT H. (A), Professor of Chemistry, Government College, Lahore, Pakistan VI: 238
- SILKETT, ROSS J. (P), Agriculturist, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, lx
- SIMAICA, Y. M. (A), Inspector General, Nile Control Department, Public Works Ministry, Cairo, Egypt IV: 81, 254
- SIMMONS, FREDERICK C. (AP), Forester, Northeastern Forest Experiment Station, U.S. Department of Agriculture, 102 Motors Avenue, Upper Darby, Pa., U.S.A. V: 217, 234, 263, 264, 265
- SIMONPIETRI, A. C. (P), Secretary, Commission on Cartography, Pan American Institute of Geography and History, Washington, D.C., U.S.A. I: 172
- SKINNER, CARLTON (P), Special Assistant to Secretary of the Interior, Department of the Interior, Washington 25, D.C., U.S.A. I: xlvi, lx
- SMRTANA, JAN (A), Professor, Technical University in Prague; Head, Institute of Hydraulics, Hydrology and River Engineering, Hydrologic Institute, Solinova 7, Prague, Czechoslovakia IV: 78
- SMITH, F. G. WALTON (P), Director, Marine Laboratory, University of Miami, Coral Gables, Fla., U.S.A. I: xlvi, lx
- SMITH, JOE T. (AP), Superintendent, Hofuf Agricultural Project, Saudi Arabia; c/o Mr. Charles B. Smith, Route 4, Floydada, Tex., U.S.A. IV: 385; VI: 202
- SNELGROVE, A. K. (P), Head, Department of Geological Engineering, Michigan College of Mining and Technology, Houghton, Mich. U.S.A. I: xlvi, lx
- SNIDER, ROBERT G. (P), Research Director, Conservation Foundation, 30 East 40 Street, New York 16, N.Y., U.S.A. I: xxv, VI: 55, 173, 383, 437, 499, 529
- SNYDER, RUTH (P), Extension Division, University of Virginia, Charlottesville, Va., U.S.A. I: 269
- SOCIÉTÉ HAÏTIENNE D'ÉTUDES SCIENTIFIQUES (A), I: 361
- SOCIETY FOR THE PRESERVATION OF WINDMILLS IN THE NETHERLANDS (DE HOLLANDSCHE MOLEN) (A), Amsterdam. The Netherlands III: 319
- SÖNME, SVEN (A), Fisheries Biologist, Prinsengr, 2C, iv, Oslo, Norway VII: 13
- SÖN SANN (P), Ancien ministre des affaires économiques, Cambodia I: xxxiv, ix
- SOPER, J. DEWEY (A), Dominion Wildlife Officer, Alberta and the Territories, Dominion Wildlife Service, Lands and Development Services Branch, Department of Mines and Resources, Edmonton, Alberta, Canada ... VII: 229
- SØRENSEN, E. (AP), Veterinary Surgeon, Royal Veterinary and Agricultural School, Marielystvej 8, Copenhagen F, Denmark VI: 392
- SOUVANNAYONG (P), Conseiller de l'Union française pour le Laos, Laos I: xxxiv, ix
- SPAIC, IVAN (A), Engineer, Institute for Forestry Research, People's Republic of Croatia, Zagreb, Yugoslavia V: 66
- SPEEDIE, MILTON G. (A), Senior Executive Engineer for Dams, State Rivers and Water Supply Commission of Victoria, Eildon, Victoria, Australia IV: 243
- SPENN, C. F. (P), Assistant Chief, Bureau of Agricultural and Industrial Chemistry, Department of Agriculture, Washington 25, D.C., U.S.A. I: xlvi, ix
- SPIEGLER, K. S. (A), Research Chemist, Weizmann Institute of Science, Rehoboth, Israel; Department

CONFERENCE AUTHORS AND PARTICIPANTS

- of Chemistry, Massachusetts Institute of Technology, Cambridge 39, Mass., U.S.A..... IV: 115
- SPORN, PHILIP (AP), President, American Gas and Electric Company, 30 Church Street, New York 8, N.Y., U.S.A..... III: 224, 259, 261
- SPURR, STEPHEN H. (AP), Professor of Silviculture, Department of Forestry, School of Natural Resources, University of Michigan, Ann Arbor, Mich., U.S.A. V: 24, 31, 32
- STABLEFORTH, A. W. (A), c/o A. N. Juckham, Agricultural Attaché, British Embassy, Washington, D.C., U.S.A. VI: 464
- STAFFORD, HARLOWE M. (AP), Engineer in charge, Surface Water Branch, Geological Survey, U. S. Department of the Interior, 2520 Marconi Avenue, Sacramento 15, Calif., U.S.A..... IV: 357, 413
- STAGE, HARRY H. (P), Entomologist, Bureau of Entomology and Plant Quarantine, Department of Agriculture, Washington 25, D.C., U.S.A..... I: xlvi, ix
- STARKEY, E. C. (AP), Chief, Division of Plant Pathology and Botany, Department of Agriculture, University of Minnesota, University Farm, St. Paul 1, Minn., U.S.A. VI: 319, 337, 338
- STAMM, ALFRED J. (AP), Forest Products Laboratory, Forest Service, U.S. Department of Agriculture, Madison, Wis., U.S.A. V: 296, 321
- STAMP, L. DUDLEY (AP), Professor of Social Geography in the London University, London School of Economics, Houghton Street, Aldwych, London, W.C. 2, England I: 63
- STANLEY, OWEN G. (AP), Chief, Engineering Division, South Pacific Division, Corps of Engineers, U.S. Army, Oakland Army Base, Calif., U.S.A..... IV: 306, 322
- STEAD, WILLIAM H. (P), Director, Office of Natural Resources, National Security Resources Board, Executive Office Building, Washington 25, D.C., U.S.A.... VI: 52
- STEEL, E. W. (A), Consulting Engineer to Instituto Nacional de Obras Sanitarias, Edificio las Mercedes 3er Piso, Esquina Tierta Honda, Caracas, Venezuela IV: 111
- STEIDLE, EDWARD (P), Dean, School of Mineral Industries, Pennsylvania State College, State College, Pennsylvania, representing American Institute for Mining and Metallurgical Engineering, U.S.A..... I: 273
- STEWARTS AND LLOYDS LTD. (A), Corby, Northamptonshire, England II: 160
- STIGZELIUS, HERMAN (P), Director, Bureau of Mines, Helsinki, Finland I: xxxiii, ix
- STORIE, RAYMOND EARL (P), Soil Technologist, in charge Soil Survey, University of California, Berkeley 4, Calif., U.S.A.; Observer for Soil Science Society of America IV: 414; V: 32; VI: 169
- STRAUB, LORENZ G. (AP), Directeur, St. Anthony Falls Hydraulic Laboratory, University of Minnesota, Minneapolis 14, Minn., U.S.A..... IV: 276, 321
- STRAUS, MICHAEL W. (AP), Commissioner, Bureau of Reclamation, Department of the Interior, Washington 25, D.C., U.S.A..... IV: 369, 414, 417, 418
- STRONE, I. R. (P), Chief, Water Resources Division, Engineering and Water Resources Branch, Department of Resources and Development, Ottawa, Ont., Canada I: 399; IV: 170
- STRONG, T. H. (A), Director, Bureau of Agricultural Economics, Department of Commerce and Agriculture, Canberra, Australia..... VI: 613
- SUCKLING, F. E. T. (A), Agrostologist, Grasslands Division, Department of Scientific and Industrial Research, Palmerston North, New Zealand..... VI: 445
- SULLIVAN, JOHN (AP), Assistant Director, Battelle Memorial Institute, 505 King Avenue, Columbus 1, Ohio, U.S.A. II: 146, 168, 170
- SUMAN, JOHN R. (P), Vice President, Standard Oil Company (New Jersey), 30 Rockefeller Plaza, New York, N.Y., U.S.A. I: xlvi, ix
- SUTHERLAND, B. P. (A), Administrative Assistant, Consolidated Mining and Smelting Company of Canada, Ltd., Trail, B.C., Canada..... II: 140
- SUTTON, H. (AP), Director of Materials Research Development (Air), Ministry of Supply, St. Giles Court, 1-13 St. Giles High Street, London W.C. 2, England..... II: 169, 205, 207, 240, 244, 246, 265, 266, 267
- SVEISTRUP, P. P. (P), Lecturer at the University and Chief of Bureau in the Greenland Government, Copenhagen, Denmark I: xxxii, ix
- SWANSON, C. L. W. (P), Chief Soil Scientist, Connecticut Agricultural Experimental Station, P.O. Box 1106, New Haven, Conn., U.S.A..... I: xlvi
- SWANSON, C. O. (A), Chief Geologist, Consolidated Mining and Smelting Company of Canada, Ltd., Trail, B.C., Canada II: 140
- SWANSON, GUSTAV A. (AP), Head, Department of Conservation, Fernow Hall, Cornell University, Ithaca, N.Y., U.S.A. VII: 209, 235, 254
- SWICK, LOUIS J. (P), Chairman, County Production and Marketing Administration, Wilson, N.Y., U.S.A..... VI: 337
- SYLVAIN, PIERRE G. (A), Formerly Director, National School of Agriculture, Port-au-Prince, Haiti; Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica I: 357
- SZYFRES, B. (P), Assistant Chief, Laboratorio de Biología Animal, Dirección de Ganadería, Montevideo, Uruguay I: 394

T

- TABARES, RAUL ESPARZA (P), Chief, Department of Chemistry, Agricultural Experimental Station, Santiago de las Vegas, Cuba..... I: xxxii, ix
- TAKAYAMA, SHIGEVE (A), Central Fisheries Station of Japan, Tokyo, Japan..... VII: 100
- TALLARICO, L. A. (A), Institute of Soils and Agronomy, Ministry of Agriculture, Buenos Aires, Argentina..... VI: 23
- TAMAYO, FRANCISCO (A), Jefe de la Campaña para el control de Pastoreo, Dirección Forestal, Ministerio de Agricultura, Apartado de Correos 2156, Caracas, Venezuela V: 148
- TAMESIS, FLORENCIO (A), Dean, School of Forestry, University of the Philippines; Director of Forestry, Department of Agriculture and National Resources, Manila, Philippines V: 243
- TANNING, Å. VEDEL (A), Director, Danmarks Fiskeri- og Havundersøgelse, Charlottenlund Slot, Charlottenlund, Denmark VII: 8
- TANNOUS, AFIF (P), Regional Specialist for Middle East, Office of Foreign Agricultural Relations, Department of Agriculture, Washington 25, D.C., U.S.A..... I: xlvi, ix
- TARR, H. L. A. (A), Acting Director, Fisheries Research Board of Canada, Fisheries Experimental Station, Vancouver, B.C., Canada..... VII: 97

UNSCCUR PROCEEDINGS: INDEX

- TASKER, CYRIL (P), Director of Research, American Society of Heating and Ventilating Engineers, 7218 Euclid Avenue, Cleveland 3, Ohio, U.S.A..... III: 220, 222
- TATON, A. (A), Assistant à la division de botanique de l'Institut national pour l'étude agronomique du Congo belge, Yangambi, Belgian Congo..... VI: 594
- TAYLOR, E. L. (A), Deputy Director, Ministry of Agriculture and Fisheries, Veterinary Department, Weybridge, Surrey, England..... VI: 485
- TAYLOR, HARDEN F. (P), Research Professor, Institute of Fisheries Research, University of North Carolina, Chapel Hill, N.C., U.S.A..... VII: 63, 115
- TECHNICAL AGRICULTURAL SERVICE, (A), Utrecht, The Netherlands IV: 399
- TEED, P. L. (A), Vickers-Armstrong, Ltd., Weybridge Works, Weybridge, Surrey, England..... II: 257
- TELKES, MARIA (AP), Research Associate, Department of Metallurgy, Massachusetts Institute of Technology, Cambridge, Mass., U.S.A..... III: 215, 221, 222
- TEMPANY, HAROLD A. (A), Formerly Agricultural Adviser to the British Colonial Office; 7 North End House, Fitzjames Avenue, Kensington, London, W.14, England VI: 35
- TESTER, A. L. (A) (Fisheries Research Board of Canada), Professor of Zoology, University of Hawaii, Honolulu, T.H. VII: 5
- THA, U Po (P), Professor of Chemistry, University of Rangoon, Burma I: xxx, ix
- THAYSEN, A. C. (A), Director, Colonial Microbiological Research Institute, Port of Spain, Trinidad..... I: 149
- THEODORIDES, PHRIXOS (P), Member of Faculty of Arts and Sciences, Harvard University, Cambridge, Mass.; 807 Patton Drive, Silver Spring, Md., U.S.A. I: xxxiv, ix
- THIERY, R. R. (P), Agricultural Counsellor, Argentine Embassy, Mexico, D.F., Mexico..... I: 267
- THIJN, S. A. (A), Institute of Plant Breeding, Wageningen, The Netherlands VI: 281
- THISTLE, M. W. (A), Public Relations Branch, National Research Laboratories, Ottawa, Ont., Canada..... VI: 363
- THOMAS, PERCY H. (AP), Consulting Engineer, Federal Power Commission, 1800 Pennsylvania Avenue, Washington, D.C., U.S.A..... III: 260, 310, 329, 330
- THOMPSON, HAROLD (A), Chief, Division of Fisheries, Council for Scientific and Industrial Research, Marine Biological Laboratory, Cronulla, New South Wales, Australia VII: 28
- THOMSON, A. P. (A), Working Plans Officer, Forest Management Division, Head Office, New Zealand Forest Service, Wellington, New Zealand V: 27
- THORN, JAMES (AP), Formerly President, Economic and Social Council of the United Nations, 60 Totara Road, Wellington, E. 4, New Zealand..... I: 425
- THORNTWHAITE, C. W. (P), Director, Laboratory of Climatology, Johns Hopkins University, Seabrook, N.J., U.S.A..... I: xviii, ix
- TIGERSCHIÖLD, MAGNUS (A), Director of Research, Swedish Ironmasters' Association, Stockholm, Sweden III: 176
- TIMMONS, JOHN F. (P), Professor of Land Economics, Iowa State College of Agriculture and Mechanical Arts, Ames, Iowa, U.S.A..... IV: 417; VI: 50, 108, 110, 171, 527, 622
- TOFANI, B. JOSEPH (P), Corps of Engineers, Department of the Army, Washington 25, D.C., U.S.A..... I: xviii, ix
- TOLLEY, HOWARD ROSS (P), Formerly Director of Economics and Statistics, Food and Agriculture Organization of the United Nations, 212 South Fairfax Street, Alexandria, Va., U.S.A..... I: i, lx
- TORREY, PAUL D. (A), Orchem Corporation, 705 Lamar Boulevard, Austin 3, Texas, U.S.A..... III: 46
- TOXOPEUS, H. J. (A), Institute of Plant Breeding, Wageningen, The Netherlands VI: 281
- TRUITT, R. V. (P), Director, Department of Research and Education, State of Maryland, Solomons Island, Md., U.S.A..... I: xviii, lx
- TUKKER, J. G. (A), Director, Government Poultry Advisory Service, 298 Utrechtseweg, De Bilt, The Netherlands VI: 387
- TUNSTELL, GEORGE (P), Chief, Forest Research Division, Department of Resources and Development, Ottawa, Ont., Canada I: 383; V: 72, 130, 172, 212, 318
- TURK, K. L. (P), Head, Department of Animal Husbandry, Cornell University, Ithaca, N.Y., U.S.A..... VI: 434
- TURNBULL, R. F. (A), Senior Principal Research Officer, Utilization Section, Division of Forest Products, Commonwealth Scientific and Industrial Research Organization, 69 Yarra Bank Road, South Melbourne, S.C. 4, Australia V: 311
- TURNER, ARTHUR W. (AP), Assistant Chief, Bureau of Plant Industry, Soils and Agricultural Engineering, Agricultural Research Administration, U.S. Department of Agriculture, Beltsville, Md., U.S.A. VI: 198, 202, 204

U

- UHLIG, HERBERT (AP), Associate Professor, Massachusetts Institute of Technology, Cambridge, Mass., U.S.A. II: 213, 240, 241, 244, 268
- URBAIN, A. (A), Directeur Honoraire du Muséum national d'histoire naturelle, 57 rue Cuvier, Paris 5, France... VII: 247
- UREN, LESTER C. (P), Professor of Petroleum Engineering, University of California, Berkeley, Calif., U.S.A. III: 26, 101
- URIBE ARANGO, HERNÁN (P), Assistant, Soil Conservation Research, Federation of Coffee Growers, Manizales, Carrera, 23, No. 2561, Colombia..... I: xxxii, ix
- UTAH AGRICULTURAL EXPERIMENT STATION, see Keller, Wesley
- UTZ, ERVIN J. (AP), Assistant Commissioner, Bureau of Indian Affairs, Department of the Interior, Washington 25, D.C., U.S.A..... VI: 602, 621
- UYTBENBOGAART, JOHANNES W. H. (AP), Chief, Chemical Industries Department, Bataafse Petroleum Maatschappij, Carel Van Bylandtlaan 30, The Hague, The Netherlands..... III: 79, 99, 100, 326, 327

V

- VALDEYRON, GEORGES (A), Directeur du Service botanique et agronomique de Tunisie, Service Botanique, Ariana, Tunisie VI: 610
- VALDÉZ P., JORGE (P), Inspector of Public Works Projects, Ministry of Agriculture, La Paz, Bolivia.... I: xxx, ix
- VAN BEUKERING, J. A. (A), Professor of Rural Economics, Agricultural University, Rijksstraatweg 80, Wageningen, The Netherlands..... VI: 563
- VAN BLOMMESTEIN, W. (P), Chief of Irrigation in Indonesia, Ministry of Roads and Rivers, Batavia, Indonesia IV: 171

CONFERENCE AUTHORS AND PARTICIPANTS

- VANCE, B. F. (P), Chairman, Production and Marketing Administration, U. S. Department of Agriculture, College Station, Tex., U.S.A..... VI: 110
- VANDEVEER, W. W. (P), Retired Petroleum Consultant, 627 National City Bank Building, Cleveland 14, Ohio, U.S.A. I: xlviii, lx
- VAN GRAAN, H. (P), Secretary, Union of South African Parks, P.O. Box 787, Pretoria, Union of South Africa VII: 253, 256
- VAN RYSELBERGHE, PIERRE (A), Professor of Chemistry, University of Oregon, Eugene, Ore., U.S.A..... II: 238
- VAN STRAELEN, V. (A), Directeur de l'Institut royal des sciences naturelles de Belgique, 31 rue Vautier, Brusseles 4, Belgium..... VII: 222
- VAN TASSEL, ALFRED J. (P), Secretary of the Preparatory Committee, Executive Secretary of the Conference; United Nations Department of Economic Affairs I: xxv, 12, 72, 249, 323, 384
- VARGAS VAGLIO, OSCAR (P), Assistant Director, Soil Conservation Section, Ministry of Agriculture, Guadalupe, Costa Rica..... VI: 51
- VARLET, H. (A), Ingénieur en chef des Ponts et Chausées, Directeur de l'électricité et du gaz au Ministère de l'Industrie et du Commerce, 62, rue de Courcelles, Paris 8, France..... IV: 132
- VAUCH, MASON (A), Head, Agricultural Engineering Department, Allahabad Agricultural Institute, Allahabad, U.P., India..... VI: 174
- VAUGHAN-JONES, T. G. C. (A), Director of Game and Tsetse Control, P.O. Box 72, Lusaka, Northern Rhodesia VII: 220
- VELANDER, EDY (P), Director, Royal Academy of Engineering Sciences, Box 5073, Stockholm 5, Sweden I: 30, 34, 37, 46, 51, 72, 343, 414; II: 294, 295, 298; III: 197, 328; V: 30, 31, 318, 320; VI: 202, 306, 307
- VERGARA, ROBERTO (AP), Compañía de Acero del Pacífico, S.A., Casilla 167-D, Santiago, Chile..... I: 235, 239
- VERLOR, J. B. (P), Service Commercial, S.N.C.F. 54, Boulevard Haussmann, Paris 9, France..... I: xxxiv, lx
- VERNON, W. H. J. (A), Senior Principal Scientific Officer (Head of Corrosion Group), Department of Scientific and Industrial Research Chemical Research Laboratory, Teddington, Middlesex, England..... II: 218
- VIAUD, MANUEL CHAVEZ (AP), Professor of Biology and Conservation of Natural Resources, Escuela Agrícola Panamericana, Apartado 93, Tegucigalpa, Honduras VI: 17, 51, 52, 271
- VIRTANEN, A. I. (A), Director, Biochemical Institute; President and Member of the Academy of Finland, Biochemical Institute, Kalerankaty 56-B, Helsinki, Finland VI: 347
- VISENTINI, MARCO (A), Président du Conseil Supérieur des Travaux Publics, Ministère des Travaux Publics, Rome, Italy IV: 178
- VITAL, N. (A), Directeur de l'Association Suisse de Colonisation Intérieure et d'Agriculture Industrielle, Zurich, Switzerland VI: 61
- VOGEL, G. H. (P), Director, Petroleum Division, National Security Resources Board, Washington 25, D.C., U.S.A. I: xlvi, lx
- VOGT, WILLIAM (P), National Director, Planned Parenthood Federation of America, Inc., 501 Madison Avenue, New York, N.Y., U.S.A..... VII: 208, 209, 210

- VON BONDE, CECIL (A), Director of Fisheries for the Government of the Union of South Africa, Division of Fisheries, Beach Road, Sea Point, Cape Town, Union of South Africa..... VII: 35
- VOSKUIL, WALTER H. (P), Head, Mineral Economics Section, Illinois State Geological Survey, Urbana, Ill., U.S.A..... I: xlvi, lx

W

- WADIA, D. N. (A), Geological Adviser, Government of India, Ministry of Natural Resources and Scientific Research, New Delhi, India..... I: 113
- WAGAR, J. V. K. (AP), Head, Department of Forest Recreation and Wildlife Conservation Department, School of Forestry and Range Management, Colorado State College of Agricultural and Mechanical Arts, Fort Collins, Colo., U.S.A..... VII: 195, 209
- WAH, U THIEN (P), Burma State Scholar..... I: xxx, ix
- WALFORD, L. A. (P), Chief, Branch of Fishery Biology, Fish and Wildlife Service, Department of the Interior, Washington 25, D.C., U.S.A. VII: 25, 26, 60, 63, 64, 65 114, 115
- WANARAKS, PHYA ANUWAT (A), Honorary Technical Adviser to the Sawmill Association of Thailand, Bangkok, Thailand..... V: 227
- WANGAARD, FREDERICK F. (P), Associate Professor of Forest Products, Yale University, 205 Prospect Street, New Haven, Conn., U.S.A..... I: xlvi, lx
- WARE, T. M. (AP), Chief Engineer, International Minerals and Chemical Corporation, 1106 Illinois Road, Wilmette, Ill., U.S.A..... II: 128, 167
- WARNE, WILLIAM E. (P), U.S. Director of Technical Cooperation for Iran, American Embassy, Tehran, Iran I: 395, 399
- WARREN, GUY I. (P), Vice President, Kenwar Oil Corporation; President, Texas Independent Producers and Royalty Owners' Association, 1501 Driscoll Building, Corpus Christi, Tex., U.S.A..... I: xlvi, lx
- WASSON, THERON (P), Chief Geologist, Pure Oil Company, 35 East Wacker Drive, Chicago, Ill., U.S.A. I: xlvi, lx
- WÄSTLUND, GEORG (A), Royal Institute of Technology, Stockholm, Sweden..... II: 203
- WATERER, R. R. (A), Conservator of Forests, Forest Department, Nicosia, Cyprus..... V: 140
- *WATHEN, A. L. (P), Chief Engineer, Engineering Division, Bureau of Indian Affairs, Department of the Interior, Washington, D.C., U.S.A..... I: xlvi, lx
- WATTS, LYLE F. (P), Chief Forester Emeritus, U.S. Forest Service, P.O. Box 4137, Portland 8, Ore., U.S.A. V: 129
- WEAVER, FRANK LLOYD (P), Chief, Division of River Basins, Bureau of Power, Federal Power Commission, Washington, D.C., U.S.A..... III: 25
- WEAVER, PAUL (P), Chief Geophysicist, Gulf Oil Corporation, Box 2100, Houston, Tex., U.S.A..... II: 56
- WEBER, E. W. (P), Corps of Engineers, Department of the Army, Washington 25, D.C., U.S.A.; also member of the International Joint Commission (Canada and United States)..... I: 400; IV: 346, 347
- WEEKS, L. G. (P), Chief Research Geologist, Standard Oil Company (New Jersey), 30 Rockefeller Plaza, New York 20, N.Y., U.S.A..... I: 107; III: 25
- WEGELEIUS, T. H. A. (P), Professor of Forest Technology, University of Helsinki, Finland..... I: xxxiii, lx
- * Deceased.

UNSCCUR PROCEEDINGS: INDEX

- WEI, H. R. (P), Deputy Representative to United Nations Atomic Energy Commission, Permanent Delegation of China to the United Nations, 144-14 Union Turnpike, Flushing, L.I., N.Y., U.S.A..... I: xxxi, lxi
- WEISSMANN, ERNEST (AP), Director of the Industry and Materials Division, United Nations Economic Commission for Europe, Palais des Nations, Geneva, Switzerland I: 58, 107
- WEITZELL, E. C. (P), Agricultural Economist, Department of Agriculture, Washington 25, D.C., U.S.A. I: xix, lxi
- WELCH, FRANK J. (P), Dean and Director, College of Agriculture, Mississippi State College, State College, Miss., U.S.A..... II: 298; VI: 557, 559
- WENNSTRÖM, MAGNUS (A), Consulting Engineer, Vattenbyggnadsbyrån, Malmö, Sweden..... IV: 124
- WESTON, JOHN C. (A), Scientific Officer, Building Research Station, Department of Scientific and Industrial Research, Garston, near Watford, Hertfordshire, England II: 206
- WETMORE, ALEXANDER (P), Secretary, Smithsonian Institution, Washington 25, D.C., U.S.A..... I: xlix, lxi
- WEYMARK, W. J. (P), Power Engineer, Sun Life Building, Room 1800, Montreal, Que., Canada..... I: xxxi, lxi
- WHEELER, R. A. (P), Engineering Adviser, International Bank for Reconstruction and Development, Washington, D.C., U.S.A..... I: 1, lxi
- WHIPPLE, C. E. (P), Regional Investigations Branch, Office of Foreign Agricultural Relations, Department of Agriculture, Washington 25, D.C., U.S.A..... I: xlix, lxi
- WHITAKER, J. RUSSELL (P), Professor of Geography, George Peabody College for Teachers, Nashville, Tenn., U.S.A. I: xlix, lxi
- WHITE, GILBERT (AP), President, Haverford College, Haverford, Pa., U.S.A. I: 388, 390, 391, 392, 393, 394, 395, 396, 399, 400, 402, 403; IV: 131, 166, 169, 171
- WHITE, R. G. (A), Director, Animal Breeding and Genetics Research Organization, Glenbourne, 6 South Oswald Road, Edinburgh 9, Scotland..... VI: 384
- WICKARD, CLAUDE R. (P), Administrator, Rural Electrification Administration, Department of Agriculture, Washington 25, D.C., U.S.A..... I: xlix, lxi
- WILL, RALPH R. (P), Administrative Officer, Department of Agriculture, Washington 25, D.C., U.S.A..... I: xlix, lxi
- WILLIAMS, CLYDE (AP), Director, Batelle Memorial Institute, Columbus, Ohio, U.S.A. II: 172, 205, 207, 210
- WILLIAMS, F. A. (A), Fuel Technologist, Ministry of Fuel and Power, 7 Millbank, London, S.W.1, England... III: 264
- WILSON, H. H. (A), Divisional Mechanization Engineer, Scottish Division, Production Department, National Coal Board, 14 Grosvenor Street, Edinburgh 12, Scotland III: 115
- WILSON, MILBURN L. (AP), Director of Extension Work, Department of Agriculture, Washington 25, D.C., U.S.A. I: 262
- WILSON, R. C. (A), Pacific Northwest Forest Experiment Station, Forest Service, U.S. Department of Agriculture, Washington 25, D.C., U.S.A..... V: 24
- WILSON, RALPH N. (P), Engineer, Hydrology and Hydraulics Branch, Corps of Engineers, Department of the Army, Washington, D.C., U.S.A..... I: xix, lxi
- *WING, S. P. (P), Special Representative, Office of Engineering Assistant, Bureau of Reclamation, Department of the Interior, Washington 25, D.C., U.S.A. IV: 92, 93, 94, 95, 347, 458
- WIRTH, CONRAD L. (AP), Assistant Director, National Park Service, Department of the Interior, Washington 25, D.C., U.S.A. IV: 436, 459
- WITTEVEEN, C. J. (A), Former Chief Engineer-Director, Service of Rijks Waterstaat, Ministry of Transport, The Hague, The Netherlands..... IV: 326
- WOLMAN, ABEL (A), Professor of Sanitary Engineering, Johns Hopkins University, Baltimore 18, Md., U.S.A. I: 334; IV: 98
- WOOD, R. F. (A), Forestry Commission Forest Research Station, Alice Holt Lodge, Wrecclesham, Farnham, Surrey, England..... V: 100
- WOODFORD, T. VAN DYKE (AP), Research Engineer, Bureau of Reclamation, Denver Federal Center, U.S. Department of the Interior, Denver, Colo., U.S.A. IV: 314, 322, 323
- WOODWARD, F. N. (AP), Director, Institute of Seaweed Research, Inveresk Gate, Musselburgh, Midlothian, Scotland I: XXV, 131, 164; VII: 1, 185, 186
- WOOTEN, H. H. (AP), Head, Land Utilization Section, Division of Land Economics, Bureau of Agricultural Economics, Department of Agriculture, Washington 25, D.C., U.S.A..... VI: 602
- WORMSER, FELIX E. (P), Vice President, St. Joseph Lead Company, 250 Park Avenue, New York 17, N.Y., U.S.A. I: xlix, lxi
- WORTHING, MARION W. (P), Chief, Industrial and Minerals Products Staff, Division of Functional Intelligence, Department of State, Room 403, 23d and E Streets, N.W., Washington 25, D.C., U.S.A..... II: 207
- WORTHINGTON, E. B. (A), Scientific Secretary, Office of the East Africa High Commission, P.O. Box 601, Nairobi, Kenya, East Africa..... VII: 215
- WOULBROUN, JULES (P), Attaché of Embassy, Permanent Delegation of Belgium to the United Nations, 630 Fifth Avenue, New York 20, N.Y., U.S.A. I: xxx, lxi
- WRATHER, W. E. (AP), Director, U.S. Geological Survey, Washington, D.C., U.S.A..... II: 48, 55
- WRIGHT, S. J. (A), Agricultural Engineering Adviser, Ford Motor Company, Ltd., Dagenham, Essex, England VI: 178
- WYLIE, N. V. K. (P), Administrative Officer, Department of Mines and Resources, Ottawa, Ont., Canada..... I: xxxi, lxi

Y

- YANCEY, H. F. (AP), Supervising Engineer, Northwest Experiment Station, Bureau of Mines, Seattle 5, Wash., U.S.A. III: 125, 140, 198
- YATES, FRANK (A), Rothamsted Experimental Station, Harpenden, Hertfordshire, England..... I, 192
- YELLOTT, JOHN I. (A), Director of Research, Locomotive Development Committee, Bituminous Coal Research Inc., P.O. Box 225, Dunkirk, N.Y., U.S.A..... III: 271
- YOUNG, GEORGE H. (P), Director of Research, Mellon Institute, 4400 Fifth Avenue, Pittsburgh 13, Pa., U.S.A. II: 241, 243, 244

* Deceased.

CONFERENCE AUTHORS AND PARTICIPANTS

Z

ZAHNISER, HOWARD (P), Executive Secretary, Wilderness Society, Editor, *The Living Wilderness*, 1840 Mintwood Place, N.W., Washington, D.C., U.S.A..... I: xl ix, lxi

ZÁRATE B., HUGO (P), Chief of Construction, Department of Works, La Paz, Bolivia..... I: xxx, lxi

ZAVADIL, JAN (A), Professor of Advanced Technical Education, Úvora 33, Brno 16, Czechoslovakia..... IV: 119

ZAYED, ABDEL AZIZ (P), Commercial Counsellor, Royal Egyptian Embassy, Washington 8, D.C., U.S.A.... I: xxxii, lxi
ZOUAIN, MAURICE (P), Directeur-Général de l'Agriculture, Republic of Lebanon, Beirut, Lebanon V: 174; VI: 204, 337, 339, 558, 559

ZUCKERMAN, SALLY (P), Deputy Chairman, Advisory Council on Scientific Policy, Great Britain, Department of Anatomy, University of Birmingham Medical School, Birmingham, England I: 130, 135, 138, 144, 149, 157, 159, 162, 163, 164, 384; II: 268, 297

ALPHABETICAL LIST OF SUBJECTS OF CONFERENCES AND TITLES OF CONTRIBUTED PAPERS

(Some of the titles have been inverted in order to bring the key word to the fore)

- Aeromagnetic Surveying, Techniques and Results of [Balsley], III: 8
- Agricultural Conservation Program of the United States [McCormack], VI: 85
- Agricultural Development in Relation to Land Use in Sukumaland [Rounce], VI: 585
- Agricultural Education in Uganda [Kerikham], I: 296
- Agricultural Industries, Importance of the Study of, in an Instructional Programme Dealing with the Conservation and More Efficient Use of Natural Resources [Keiling], I: 304
- Agricultural Lands, Opportunities for the More Effective Use of New, VI: 561-623
- Agricultural Production, Techniques for Increasing [Salter], I: 83
- Agricultural Products as Starting Materials for the Chemical Industry [Bergmann], I: 157
- Agricultural Resources (Natural) of the Belgian Congo [Homes], VI: 153
- Agricultural Use of New Lands, Opportunities for the More Effective [Hellinga] VI: 611
- Agro-Ecological Suitability Based on Index Plants, Calculations, Key and Notation Used in Surveys of [DeFina and Garbosky], VI: 139
- Agro-Technical Reorganization of the Wind-Eroded Pampa Area [Arena and Quevedo], VI: 21
- Algae, Utilization of, [Öy], VII: 177
- Animal Health in Great Britain, Minor Elements in Relation to, [Green], VI: 454
- Animals, Problems in Connexion with Imported Species of [Ministry of Agriculture, Argentina], VII: 252
- Argentine Cattle, Measures to Protect the Health of [Ministry of Agriculture, Argentine], I: 477
- Artificial Insemination, Value of the Use of [Sörensen], VI: 392
- Aswan Reservoir, Preservation of [Simaika], IV: 254
- Biological Purification of Settled Sewage in Shallow Ponds [Wennström], IV: 124
- Bird Resources, Management of [Falla], VII: 233
- Bird Resources, Management of [Soper], VII: 229
- Bird Resources, Management of [G. A. Swanson], VII: 235
- Bird Resources, On the Conservation of [Delacour], VII: 228
- Bird Resources, Peruvian Management of [Avila], VII: 231
- Blast Furnace Acid Burdening Practice [Staff of Stewarts & Lloyds Ltd.], II: 160
- Bovines in French West Africa, Improvement of [Pagot], VI: 407
- Canadian Experiments on Induced Precipitation [Orr, D. Fraser and Pettit], IV: 27
- Canal Linings, Costs and Benefits of [Woodford], IV: 314
- Cement Industry in India and Pakistan, Geographical Basis of [Rajagopalaswamy], II: 21
- Chemurgy, Contribution of [Hilbert], I: 135
- Coal, Mechanical Preparation of, and its Utilization [Laskowski], III: 135
- Coal Carbonization, III: 157-198
- Coal in America, Preparation of [T. Fraser and Yancey], III: 128
- Coal Mining, III: 103-125
- Coal Preparation, III: 127-142
- Coal Production, New Techniques for Increasing [Hebley], III: 119
- Coal Resources Conservation, Underground Mining and the Problem of [Krupinski], III: 104
- Coal-Washing in France, Studies on [Cheradame and Saint-Guilhem], III: 130
- Coke Consumption in the Production of Iron and Steel, Possibilities of [Tigerschöld], III: 176
- Coke Used in Smelting Iron Ore, Method for Reducing the Amount and Quality of [Cavanagh], III: 183
- Coking Industry with Special Reference to Great Britain [Hicks and Lee], III: 158
- Complementary Nature of European Resources—A Basis for Developing Regional Economic Cooperation [Weissmann], I: 58
- Conservation, Design as a Factor in [Wästlund], II: 203
- Conservation and Development, Economic Considerations in [Raushenbush], I: 202
- Conservation and Land-Use Practices in China, Application of Simple [Buck], I: 226
- Conservation and Utilization of Resources, Statistical Control in [Shewhart], I: 188
- Conservation and Utilization Practices, Application of Simple [Keen], I: 216
- Conservation by Substitution, II: 245-268
- Conservation in Great Britain, Problems of, as Illustrated by the Status of the Red Deer (*Cervus Elaphus*) and the Atlantic Seal (*Halichoerus grypus*) [Darling], VI: 250
- Conservation in Production (*Oil and Petroleum*) [Comins], III: 30
- Conservation in Production of Petroleum [Murray], III: 32
- Conservation of Fuel in Britain by Improved Coal Preparation [Grounds and Needham], III: 133
- Conservation of Green Crops [Virtanen], VI: 347
- Conservation of Ground-Water in Britain [Buchan], IV: 40
- Conservation of Natural Resources, Contribution of Cuban Schools to the [Moreno and Fernandez], I: 279
- Conservation of Natural Resources in French Black Africa, Education and the [Monod], I: 275
- Conservation of Natural Resources in Jamaica, Methods of Teaching [Lester-Smith], I: 293

UNSCCUR PROCEEDINGS: INDEX

- Conservation of Natural Resources, Organizing Rural People for the Proper Use and [Coady], I: 219
- "Controlled Area" System in Relation to Game Management on Rangelands in Northern Rhodesia [Vaughan-Jones], VII: 220
- Converting Crops to Human Food, Efficiency of Different Classes of Farm Animals in [Morrison], VII: 442
- Converting Farm Crops to Food, Efficiency of Different Classes of Farm Animals in [Leitch], VI: 438
- Corrosion, Costs and Benefits of Conservation of Cast Iron and Steel Pipelines by Control of [Carriere and Lobry de Bruyn], II: 234
- Corrosion, Cost of, to the United States [Uhlig], II: 213
- Corrosion, Fundamental Research of the Committee for Electrochemical Thermodynamics and Kinetics on [Pourbaix and Rysselberghe], II: 238
- Corrosion, Prevention by Means Other Than Protective Coatings [LaQue], II: 227
- Corrosion and its Control, Cost of [Vernon], II: 218
- Corrosion Control, Conservation by, II: 211-244
- Corrosion Control, Report on the Conservation of Metals by [Chaudron], II: 212
- Createable Resources: The Development of New Resources by Applied Technology, I: 129-165
- Createable Resources: The Development of New Resources by Applied Technology [Woodward], I: 131
- Cropping Systems, Influence of, on Sustained Production, Soil Management and Conservation [R. D. Lewis], VI: 230
- Cropping Systems as an Aid to Sustained Production [Archibald], VI: 225
- Cropping Systems in the Equatorial Forest Region of the Belgian Congo [Junior and Henry], VI: 255
- Crop Plants, Notes on Developing and Maintaining High-Yielding [Institute of Plant Breeding, Wageningen], VI: 281
- Crop Policy, Feeding of Livestock in Relation to: Nutritional Diseases of Livestock [Maynard], VI: 451
- Crop Policy and the Feeding of Livestock, VI: 438-462
- Crops, Adaptation of, to New Environment [Cardon and Erlanson], VI: 292
- Crops and Grassland, Protection of, VI: 309-339
- Crops and Grasslands, Protection of, against Insects [Annand], VI: 315
- Crops and Grasslands, Protection of, against Insects [Galley], VI: 310
- Crops Suitable for the Large Semi-Arid Areas in the State of Lara [Orellana A.], VI: 301
- Dam Sites, Preliminary Comparison and Selection of [Speedie], IV: 243
- Dam Structures, Deterioration of Large [McClellan], IV: 247
- Decatur Story, The [Shelton], I: 376
- Deer Production on Forest Lands, Ecological Aspects of [Leopold], VII: 205
- Development, Mechanization and Equipment for Large-Scale Quarry Operations in the Northampton Sand Ironstone [Beilby], II: 106
- Dew Observations and their Significance-New Methods in Dew Estimation [Duvdevani], IV: 45
- Disease Control of Agricultural Crops in Hawaii [Hendrix], VI: 330
- Drainage Basin Management, IV: 173-215
- Drainage Basin Management; Water Control Through Watershed Management [Gorrie], IV: 174
- Drainage of Land for Production [Jones], IV: 405
- Drainage of Land for Production [Technical Agricultural Service, Utrecht, The Netherlands], IV: 399
- Drilling Equipment and Techniques, New Developments in [Salnikov], III: 10
- Economic Aspects of Experimental Meteorology [Schaefer], IV: 2
- Economics of Competitive Fuels for Various Purposes and Their Uses to Meet Future Fuel Requirements [Jacque], I: 102
- Education and Conservation [Gille], I: 256
- Education for Conservation, I: 255-306
- Educational Methods of Instructing Native Populations of Africa in the Protection and More Efficient Use of Resources [Deheyen], I: 298
- Egypt, Recent Experience in Lift Irrigation and Drainage in [Ahmed Bey], IV: 297
- Egyptian Elasmobranchii, Exploitation of [Abou Samra], VII: 44
- Electric Energy Production, New Developments in [Giguet], III: 296
- Electric Power, Harnessing the Wind for [Thomas], III: 310
- Electrical Power Systems in Sweden, Joint Operation of [Nilsson], III: 247
- Electricity, Use as Heating Agent in Norway [Holmgren, Hals and Lindemann], III: 209
- Electricity Grid System in Great Britain, Some Experiences of the Operation of [Hacking], III: 244
- Electrolytic Tinplate—Its Production and Benefits [Johnston], II: 191
- Energy, New Developments in Production and Utilization of, III: 263-330
- Erosion Survey in the Province of Bio Bio, Chile [Rodriguez Z.], VI: 150
- Extension Methods in Conservation Education [Wilson], I: 262
- Farm Mechanization, Guide Lines to Further [Turner], VI: 198
- Farming, Aids to, VI: 173-205
- Farming, Implement Aids for Small-Scale [Wright], VI: 178
- Farming, Mechanization for [E. A. Hardy], VI: 185
- Farming, Simple Tools and Equipment for Small-Scale [Bourdelle], VI: 180
- Farming, Simple Tools and Equipment for Small-Scale [Vaugh], VI: 174
- Farming (Planned Group) in Nyanza Province, Kenya [Chambers], VI: 102
- Farming (Tropical) in Hawaii, Mechanization of [Guillou], VI: 191
- Farming Systems in Relation to Soil Conservation and Use [Ripley], VI: 196
- Farms (Small) Machinery Problems, in the Light of Swedish Experience [Berglund], VI: 182
- Fat Synthesis by Micro-organisms and its Possible Applications in the Food Industry [Lundin], I: 144
- Fertilizer Materials, Economics of World Availability and Use of [Diaz Vial], II: 291
- Fertilizer Materials, Economics of World Availability and Use of [Grimmett and Elliott], II: 285
- Fertilizer Materials, Economics of World Availability and Use of [Ray], II: 288
- Fertilizer Materials and their Use, Economics of World Supply of [Curtis], II: 281

ALPHABETICAL LIST OF SUBJECTS AND TITLES OF CONTRIBUTED PAPERS

- Fertilizer Practice, Field Experiments as the Basis for Planning [Crowther], VI: 221
- Fertilizers in British Caribbean Agriculture [F. Hardy], VI: 250
- Fertilizers (Inorganic) in Conservation, II: 269-300
- Fire-Weather Forecasting in Australia [Cromer], V: 53
- Fish, Changes in the North Sea Stocks of [M. Graham], VII: 166
- Fish (Fresh-Water), Management and Cultivation of, VII: 119-164
- Fish (Fresh-Water), Management and Cultivation of—Principles and Practices with Special Reference to Conditions in New Zealand [Heford], VII: 150
- Fish, Methods of Detecting by Echo Ranging and Echo Sounding [Renou], VII: 95
- Fish (Marine), Propagation and Transplantation of [Blegvad], VII: 51
- Fish (Sea) By-Products Industry, French [Pérard], VII: 110
- Fish (Marine) in Europe, Propagation and Transplantation of [Dannevig], VII: 57
- Fish-Farming in Israel, Review of [Shelubsky], VII: 147
- Fish, Recent Advances in Methods of Handling, Preservation, Processing and Distribution of [Notevarp], VII: 84
- Fish, Recent Advances in Methods of Handling, Preservation, Processing, and Distribution of; Developments in Utilization, New Products and By-Products [Bransnaes], VII: 90
- Fish, Recent Advances in the Handling and Processing of [Reay], VII: 93
- Fish, in Sweden, Protection of [Alm], IV: 439
- Fish and Fish Products, Recent Advances in Various Technological Aspects of Handling [Tarr], VII: 97
- Fish Population, Changes in Abundance of VII: 1-26
- Fish Populations, Changes in the Abundance of [Rollefsen], VII: 2
- Fish Populations, Fluctuations in, owing to Climatic Changes [Taning], VII: 8
- Fish (Cold-Water) Resources in South Africa, Management of [Hey], VII: 154
- Fish Stocks, Research on Use and Increase of [Huntsman], VII: 169
- Fisheries (Marine), Economic Statistics on [Louis], VII: 72
- Fisheries, Enclosing of the Zuyder Zee and its Effect on [Havinga], IV: 408
- Fisheries (Sea), Present World Problem of [LeGall], VII: 11
- Fisheries, Statistics on Economic Features of [Bates], VII: 68
- Fisheries, Statistics on Economic Features of [Gerhardsen], VII: 79
- Fisheries, Stocking and Rearing for River and Inland [Hos], VII: 145
- Fisheries, Technological Development in, with Special Reference to the Factory Ship in the United States [Anderson], VII: 103
- Fisheries (Lake) of Egypt [El Saby], VII: 126
- Fisheries of the United States, Statistics on Economic Features of [Power], VII: 81
- Fisheries Statistics [The Netherlands Government], VII: 75
- Fisheries Statistics and Technological Development, VII: 67-118
- Fishery (Fresh-Water)—Artificial Insemination of Carps [Jelacin], VII: 158
- Fishery, Latent Resources and Means for Their Development [de Vries and Bottemanne], VII: 39
- Fishery, Latent Resources and Means for Their Development [Thompson], VII: 28
- Fishery, Latent Resources and Means for Their Development [Von Bonde], VII: 35
- Fishery Conservation, Research in: Techniques used in Studying Fisheries; and the Integration of Hydrological, Biological and Other Studies in a Well-Rounded Marine Fisheries Research Programme in India [Rao], VII: 171
- Fishery Resources in Chile, Development of [Lobell], VII: 41
- Fishing, Effect of, upon the Stocks of Pacific Halibut [Dunlop], VII: 16
- Fishing, Effects of, on Norwegian Freshwater and Anadromous Fishes [Somme], VII: 13
- Fishing Methods, Technological Advances in [J. L. Hart], VII: 99
- Flood Control [Beard], IV: 331
- Flood Control [Witteveen], IV: 326
- Flood Control and Navigation, IV: 325-349
- Flood Run-Off, Estimation of [Richards], IV: 48
- Food, Critical Shortages of [Broadley], I: 30
- Food Preservation, Work of the Canadian Committee on [Thistle and Cook], VI: 363
- Food Yeast in the British Empire [Thaysen], I: 149
- Forest Administration in Venezuela [Romero, Corothie and Gondelles A.], V: 208
- Forest Areas, Timber Volumes, Growth and Drain, Adaptation of Modern Statistical Methods to the Estimation of [Matern], V: 9
- Forest Areas, Timber Volumes, Growth and Drain, Adaptation of Modern Statistical Methods to the Estimation of [Nair], V: 11
- Forest Crop, Harvesting: Log Transportation [Krueger], V: 257
- Forest Diseases and Insect Pests, Control of [Pfeffer], V: 62
- Forest Diseases and Insect Pests in Great Britain, Control of [Peace], V: 60
- Forest Fire Control [A. A. Brown], V: 34
- Forest Fire Control in Canada, Some Modern Aspects of [Beall], V: 40
- Forest Fire Control in Tropical Countries — Experience in Cambodia [Allouard], V: 43
- Forest Insects in Canada, Control of [De Gryse], V: 57
- Forest Inventories, V: 1-32
- Forest Inventories, Adaption of Modern Statistical Methods to [Osborne], V: 6
- Forest Inventories, Sampling Techniques in [Ilvesalo], V: 2
- Forest Inventory, United States Experience in the Use of Air Surveys in [Spurr], V: 24
- Forest Inventory Methods in the Chaco Park [Festenessi], V: 16
- Forest Management, V: 75-132
- Forest Management [Chaturvedi], V: 82
- Forest Management-Working Plans and their Adaptation to Changing Conditions [Duscheck], V: 76
- Forest Management and Working Plans and their Adaptation to Changing Conditions [Eklund], V: 85
- Forest Policy, Practical Basis of Norwegian [Eide], V: 103
- Forest Policy and Forest Law, Essential Features of [de la Cruz], V: 181
- Forest Policy and Forest Legislation, The Basic Principles of [Setinek], V: 187
- Forest Policy and Law, Essential Features of [Marsh], V: 184
- Forest Policy in the British Commonwealth of Nations [Blakford], V: 178
- Forest Resources of Mexico [Dupré Ceniceros], V: 88
- Forest Services, Organization of [Human], V: 199
- Forest Services, Organization of [Snow], V: 193

UNSCCUR PROCEEDINGS: INDEX

- Forest Valuation in Argentina, System of [D'Adamo], V: 189
 Forestry Data, Technical Development in Air Surveys and Interpretation of [Seely], V: 20
 Forestry Data, Technical Developments in Air Survey and the Interpretation of, New Zealand Experience [Thomson], V: 27
 Forestry Policy and Legislation, Outline of [Castagnou], V: 176
 Forestry (Protection) [Munnis], V: 143
 Forestry Technique in the Teak Forests of Java [Becking], V: 106
 Forests, Administration of, V: 175-214
 Forests, Administration of: Organization of Forest Services [Loveridge], V: 203
 Forests: Critical Shortages [Leloup], I: 34
 Forests, Protection of, V: 33-74
 Forests, Protection of-Forest Fire Control [Jolain], V: 50
 Forests, Protection of Logs after Felling in Tropical [Sallenave], V: 279
 Forests, Protective Functions of the, V: 133-174
 Forests, Protective Functions of [Jovovic], V: 147
 Forests, Protective Functions of [Ranganathan], V: 134
 Forests, Protective Functions of [Romero, Corothie, Delgado, Tamayo and Lasser], V: 148
 Forests, Protective Functions of [Waterer], V: 140
 Forests of Colombia and Some of their Industrial Possibilities [Ranghel G.], V: 120
 Forests (North America), Control of Insects and Diseases in [Craighead and Hutchins], V: 55
 French Mine-Mouth Power Stations (1952 Programme); Features Due to the High Ash Content of the Fuel Burned [Georges and Gibrat], III: 256
 Fuel Production (Synthetic) [Landa], III: 93
 Fuel Production (Synthetic) [Schroeder], III: 84
 Fuels and Energy, I: 93-110
 Fuels and Energy: Critical Shortages [Parker], I: 47
 Fuel Utilization, Future Outlook on [Broeze], III: 268
 Fuel Utilization, Future Trends in [Cox and Williams], III: 264
 Fuel Utilization, Future Outlook on [Picard], III: 283
 Fuel Utilization and Conservation, Future Trends in [Yellott], III: 271

 Game and Fur Conservation, VII: 187-211
 Game and Fur Conservation on Rangelands in the Western United States [Rasmussen], VII: 201
 Game Conservation on Croplands in Great Britain [Middleton], VII: 190
 Game Control in Kenya Colony [Ritchie], VII: 218
 Game Resources, Administration of [Gouilly-Frossard], VII: 242
 Game (Big) Resources in the United States, Administration of [Day], VII: 239
 Gaseous Oxygen, Note on the Use of [Brandt], II: 176
 Genetic Stocks, Development and Maintenance of Superior [Fraukel], VI: 274
 Genetic Stocks, Development and Maintenance of Superior [Robb], VI: 280
 Genetic Stocks at the Indian Agricultural Research Institute, New Delhi, Development and Maintenance of Superior [Pal], VI: 284
 Genetic Stocks of Cereals, Canadian System of Collecting and Maintaining [Goulden], VI: 286
 Grassland, Evaluation of, by Botanical Research in the Netherlands [De Vries], VI: 522

 Grassland Problems, British, and Some Results [Davies], VI: 514
 Grazing Land, Recent Advances in Methods for Restoring Deteriorated [Renner], VI: 544
 Grazing Land, Relation of Sustained Livestock Production to Condition of [Bywater], VI: 506
 Grazing Land, Relation of Sustained Livestock Production to Condition of [Forsling], VI: 500
 Grazing Land Deterioration, Management of a Permanent Pastoral Industry to Guard against [Levy], VI: 553
 Grazing Lands, Application of Ecological Principles in Determining Condition of [Sampson], VI: 509
 Grazing Lands, Condition of, VI: 499-528
 Grazing Lands, Seeding and Restoration of Natural, VI: 529-560
 Grazing Lands, Testing New Plant Materials for Re-Vegetation of [Keller], VI: 541
 Grazing Lands, Testing New Plant Materials for Re-Vegetation of [Nilsson-Leissner], VI: 530
 Grazing Lands in Ituri (Belgian Congo), Possibilities for Creating New [Taton], VI: 594
 Gypsy Moth (*Lymantria Dispar L.*) Control by Means of Spraying from Aircraft [Spaic], V: 66

 Heat Pump as a Conservation Device [Kemler], III: 213
 Heating, Economics in [Mastovsky], III: 218
 Herring on the West Coast of Vancouver Island, British Columbia, Fluctuations in the Abundance of [Tester], VII: 5
 Hydro Power and Conservation - A New Engineering Technique [Olds], IV: 425
 Hydro Power and Conservation of Power Resources [Massé and Rousselier], IV: 430
 Hydro Power and Other Water Uses, IV: 421-461
 Hydro Power and Other Water Uses: Protection of Fish and Wildlife [Gabrielson], IV: 452
 Hydro Power in Sweden [Rusck], IV: 422
 Hydrological Problems, Application of Probability Theory to the Solution of [Felber], IV: 85

 Industrial Development in Venezuela [Aguerrevere], I: 239
 Industrialization, Special Problems in [Abbink], I: 232
 Industrialization Plans, Assessing Resources in Relation to, I: 231-254
 Industrialization Plans, Special Problems in Assessing Philippine Resources in Relation to [Rodríguez], I: 240
 Industrialization Plans of Less-Developed Countries, Special Problems in Assessing Resources in Relation to [Vergara], I: 235
 Infectious Diseases in Great Britain, Prevention of Introduction, and Control of Spread of [Stableforth], VI: 464
 Inland Waterways, Utility of [Aubert], IV: 338
 Integrated Power System, III: 223-262
 Integrated Power System as the Basic Mechanism for Power Supply [Sporn], III: 224
 Iron and Steel, Conservation in Production of [Williams], II: 172
 Iron and Steel, Ideas on the Future Production of [Durrer], II: 180
 Irrigation, Recent Developments in [Straus], IV: 369
 Irrigation and Drainage, IV: 351-419
 Irrigation Farms, Development of, with Special Reference to Irrigation and Crop Production under Desert Conditions as Observed in Saudi Arabia [Smith], IV: 385
 Irrigation in Greece, Some Aspects of [Kalinski], IV: 378

ALPHABETICAL LIST OF SUBJECTS AND TITLES OF CONTRIBUTED PAPERS

- Irrigation in Indonesia, Recent Developments in [Eysvoogel], IV: 382
- Irrigation in Mexico, Recent Developments in [Rodríguez], IV: 388
- Irrigation in Pakistan [Hamid], IV: 391
- Irrigation in a Semi-Humid Climate, Development of: Ashburton-Lyndhurst Project, New Zealand [Riddell], IV: 375
- Irrigation Programmes (Indonesia), Relationship of Soil Characteristics to [Eysvoogel], IV: 353
- Labour (for Less Developed Countries), Techniques in the Recruitment and Training of [Phelan], I: 327
- Labour and Public Health Techniques, I: 325-366
- Labour for Resource Development, Recruitment and Training of [International Labour Office], I: 346
- Logging Techniques, Improvements in [Tamesis], V: 243
- Land Management, Effects of, upon Run-Off and Groundwater [Cook], IV: 193
- Land Reclamation [Sethi], VI: 566
- Land Reclamation in the Federal People's Republic of Yugoslavia [Filipovic], IV: 395
- Land Settlement, Investigational Technique in—With Particular Reference to the Commonwealth, (Australia) War Service Land Settlement Scheme [Strong and A. J. Campbell], VI: 613
- Landslide at Serrières-en-Chautagne (Savoie), Work on Stabilizing the [Messines], V: 162
- Land-Use, Planning of, for Full Production with Special Reference to European Conditions and the National Planning Undertaken in the United Kingdom [Stamp], I: 63
- Land Use Improvement in the Middle East, The Planning of [Maitland], VI: 104,
- Lead, Conservation of [Faye], II: 194
- Lead and Zinc Resources in Sardinia [Carta], II: 70
- Liquid Fuel Production, Flexibility of the High Pressure Hydrogenation Process for [Holroyd], III: 96
- Livestock, Adaptation of, to New Environments [Grandstaff], VI: 424
- Livestock, Adaptation of, to New Environments [Hammond], VI: 414
- Livestock, Adaptation of, to New Environments [Rhoad], VI: 421
- Livestock, External Parasites of [Knippling], VI: 488
- Livestock, Feeding of, and its Relation to Crop-Raising Practice [Ministry of Agriculture, Argentina], VI: 457
- Livestock, Internal and External Parasites of [Taylor], VI: 485
- Livestock, Internal Parasites of [Foster], VI: 481
- Livestock, Reasonably Possible Rates of Improving by Breeding [Lush], VI: 394
- Livestock Breeding, VI: 383-435
- Livestock Breeding—Adaptation of Stock to Environment and Improvement of Breeds by Crossing [Calvo], VI: 399
- Livestock Diseases and Pests, VI: 463-498
- Livestock Diseases and Pests [Minett], VI: 467
- Livestock Diseases and Pests [Ministry of Agriculture, Argentina], VI: 493
- Livestock Improvement, Progeny Testing Stations [Rottensten], VI: 390
- Livestock Improvement and Its Relation to the Conservation and Utilization of Resources [Phillips], VI: 408
- Livestock Improvement in the United Kingdom [White], VI: 384
- Livestock Resources, Conservation of, by Control of Disease [Christiansen], VI: 473
- Livestock Resources, Conservation of, by Control of Disease [G. H. Hart], VI: 470
- Log Transportation [Collardet], V: 249
- Log Transportation in Tropical Forest Exploitation [Gazonnaud], V: 253
- Log Transportation Project in Eastern Canada [McNally], V: 260
- Logging and Sawmill Techniques, V: 215-266
- Logging Techniques in the United States, Improvements in [Drake, Simmons, Collet and Matson], V: 234
- Longwall Mechanization in Britain and the Development of Machines for "Continuous Mining" [Wilson], III: 115
- Low-Grade Iron Ores, Methods of Utilization of—Economic Mineral Dressing as the Preliminary Condition for Inexpensive Large-Scale Mining [Bierbrauer], II: 163
- Low Grade Ores, New Processes for Utilization of [Diamond, c/o. Swanson and Sutherland], II: 140
- Low-Grade Ores, New Processes for Utilization of [Sullivan], II: 146
- Low-Grade Ores at the Appleby-Frodingham Works of the United Steel Companies, Ltd., Iron and Steel Making from [Robinson], II: 152
- Magnesia and Magnesium from Sea-water [Teed], II: 257
- Malaya, Development of New Rice Lands in [Allan and Berwick], VI: 588
- Man as a Resource [Wolman], I: 334
- Management of a Permanent Pastoral Industry in The Netherlands [*t* Hart], VI: 450
- Manufacture, Conservation in, II: 171-210
- Marine Algae [Schaeffg], VII: 180
- Marine Algae, Utilization of [Jackson], VII: 174
- Marine Resources, Research in the Conservation and Utilization of, VII: 165-186
- Memorandum (Société haïtienne d'Études scientifiques), I: 361
- Metallic Mine Mechanization to Increase Recovery: Mining and Concentrating in Sweden [Dalhammar], II: 110
- Metallic Mines in France [Audibert], II: 116
- Metallurgical Coke, Overcoming Shortages of [Fieldner and Newman], III: 164
- Metallurgical Cokes from Coals of Poor Coking Quality, Production of High-Grade [Sabatier], III: 168
- Metals, Role of Protective Coats in the Conservation of [Evans], II: 223
- Metals (Light), Future of [Sutton], II: 246
- Metals and Minerals, I: 111-128
- Metals and the Standard of Living [Meyerhoff], I: 117
- Metals (Light) for Steel and Copper, Possibilities and Limitations in the Substitution of [Matter], II: 254
- Metals in Relation to Living Standards in Industrially Under-Developed Countries [Wadia], I: 113
- Metals-in-Use, Accumulation and Conservation of [Merrill], II: 32
- Metals (Light), The Future of, with Special Reference to Titanium [Ralston], II: 252
- Mine Mechanization to Increase Recovery [Arce], II: 113
- Mineral Deposits, Geographical Factors in the Utilization of [Bateman], II: 13
- Mineral Deposits in Bolivia, Possibilities for the Discovery of [Ahlfeld], II: 82
- Mineral Discoveries in the Central and Northern Parts of Brazil, Best Methods of Accelerating [Abreu], II: 83
- Mineral Discovery [Blondel], I: 168

UNSCCUR PROCEEDINGS: INDEX

- Mineral Discovery, Possibilities and Costs of Methods of [Gray], II: 60
Mineral Discovery in Australia, Outlook for [Raggatt], II: 50
Mineral Discovery in Great Britain, Outlook for [McLintock], II: 44
Mineral Discovery in Liberia, Possibilities and Costs of Methods of [Sherman], II: 75
Mineral Discovery in North and South America, Outlook for Future [Wrather], II: 48
Mineral Exploration, Modern Geophysical Methods as Aid in [Lundberg], II: 64
Mineral Resources, Conservation of [McLaughlin], I: 121
Mineral Resources, Increasing by Discovery, II: 59-103
Mineral Resources, Increasing by Discovery: Possibilities and Costs of Methods of Discovery [Calvache], II: 79
Mineral Resources: Outlook for Future Discovery, II: 41-58
Mineral Resources: Outlook for Future Discovery [Dixey], II: 42
Mineral Resources of Brazil, Geographical Factors in the Utilization of [Abreu], II: 17
Mineral Resources of India [Krishnan], II: 67
Mineral Shortages, Critical [Keenleyside], I: 38
Mineral Supplies and Their Measurement, II: 1-39
Mineral Supplies and Their Measurement: Iron and Manganese [Legendre], II: 4
Mineral Supplies by Cost Range, Estimates of Selected World [Pehrson], II: 2
Mineral Wealth in Yugoslavia, Development of [Pavlović], II: 95
Minerals Containing Phosphorus and Potassium in Sweden and their Utilization in the Fertilizer Industry, Resources of [Nordengren], II: 278
Mining and Milling, Conservation in, II: 105-170
Mining and Processing Pittsburgh No. 8 Seam Coal in Greene County, Pennsylvania, U.S.A. [McMorris], II: 137
Mining Costs in the Alsace Potash Mines from 1927 to 1948, Influence of Technical Advances on [Les Mines Dominales de Potasse d'Alsace], II: 124
Mlalo Rehabilitation Scheme [Clegg], VI: 88
National Park Institute of the Belgian Congo, Scientific Work of the [Van Straelen], VII: 222
Natural Resources, Protection of: Education and Propaganda [Furon], I: 289
Nile, The Régime of, and the Use of Forecasts [Simaika], IV: 81
Non-Coking Bituminous Coal, a New Electric Process for the Carbonization of [O. Jensen], III: 173
Non-Ferrous Metals, Conservation of [Sequens], II: 197
Non-Metallic Mines, Mechanization of [Barr], II: 128
Non-Metallic Mines, Mechanization of [Blum-Picard], II: 119
Nutrition in the Use and Conservation of Natural Resources, Application of the Principles of [Clements], I: 338
Oil and Gas, New Techniques for Increasing Production of, III: 29-67
Oil and Gas Discovery, Review of Techniques for [Lees], III: 2
Oil and Gas Discovery and Production, Techniques of, III: 1-27
Oil and Gas Production in Venezuela, New Methods, Instruments and Equipment in [Ministerio do Fomento, Caracas, Venezuela], III: 14
Oil and Gas Production Techniques in Venezuela [Ministerio de Fomento, Caracas, Venezuela], III: 37
Oil and Natural Gas Prospecting, Consideration of the Techniques of [Migaux], III: 6
Oil Chemistry, III: 69-101
Oil Chemistry, Review of Present Status and Trends of [Egloff], III: 70
Oil Chemistry, Study of the Present Position and Trend of [Jacqué], III: 81
Oil from Oil Shale—Experience in the United States [Cattell], III: 57
Oil Recovery, Advances in Efficiency of [Muskat], III: 40
Oil Shale in Brazil [Bastos], III: 62
Overfishing [M. Graham], VII: 20
Paraná Pine, Rational Exploitation of [Descartes de Garcia Paula], V: 315
Pasture Plants in New Zealand, Breeding of [Corkill] VI: 534
Pereiro, Wild Plant of the Drought Region of Brazil, and its Wax [Santa Rosa], V: 312
Petroleum, Secondary Recovery of [Torrey], III: 46
Petroleum Chemical Industry in the Netherlands, Some Aspects of the Development of [Uytenbogaart], III: 79
Petroleum Production from Continental Shelves [Parks], III: 23
Petroleum Refining in the United Kingdom [Mackley], III: 76
Petroleum Reserves, Estimates of Undiscovered [Levorseen], I: 94
Plant Breeding, VI: 272-308
Plant Breeding-Development and Maintenance of Superior Genetic Stocks [Bogh], VI: 289
Plant Breeding, Improvement of the Yield of Cereals in Sweden due to [Akerman], VI: 297
Plant Diseases, Control of [Stakman], VI: 319
Plant Diseases Control in Pakistan, Some Popular Methods of [Ahmad, Hasanain and Sattar], VI: 327
Plant Diseases in the French Overseas Territories, Control of [Bouriquet], VI: 333
Plant Diseases in the United Kingdom [Moore], VI: 325
Plant Nutrients by Cost Range, Estimate of World Supplies of the Principal [Le Cornec], II: 270
Plant Nutrients (Inorganic), World Resources of Principal [Jacob], II: 274
Pond Culture of Warm-Water Fishes [Hora], VII: 120
Pond Culture of Warm-Water Fishes [Lin], VII: 131
Pond Culture of Warm-Water Fishes as Related to Soil Conservation [Meehan], VII: 138
Pond Culture of Warm-Water Fishes in Indonesia [Hofstede], VII: 136
Pond Culture of Warm-Water Fishes (with Special Reference to Bangos or Milk Fish Cultivation under Philippine Conditions) [Rabanal], VII: 142
Poultry Breeding in the Netherlands [Tukker], VI: 387
Power for Industrial and Agricultural Development [Raver], III: 301
Power for Industrial and Agricultural Development in Finland [Saraaja], III: 305
Preservation of Meat, Eggs, Fruits and Vegetables [Bate-Smith], VI: 256
Preservation of Perishable Foods [Borgström], VI: 370
Preservation of Perishable Foods [Howard], VI: 359
Preservation of Perishable Foods, Australian Problems in the [Kefford and Empey], VI: 374
Pulping Processes, Improved-Utilization of Waste Liquors [Hägglund], V: 289

ALPHABETICAL LIST OF SUBJECTS AND TITLES OF CONTRIBUTED PAPERS

- Reclamation and Utilization of New Lands in Morocco [Miege], VI: 616
- Reclamation of the Amazonian Flood-lands near Belém [de Camargo], VI: 598
- Reclamation of Flood-lands for Production [Opsomer], VI: 596.
- Reclamation of Land in Central and Southern Tunisia for Rational Agricultural Use, Possibilities and Problems in the [Valdeyron], VI: 610
- Reclamation of New Lands for Agriculture [Dumont], VI: 605
- Reclamation of New Lands for Agriculture—Potentialities and Problems [De Vries and Van Beukering], VI: 563
- Reclamation of New Lands for Agriculture—Potentialities and Problems in Development by Irrigation and Drainage [Wooten and Utz], VI: 602
- Reclamation of New Lands for Agriculture—Potentialities and Problems in Tropical Regions [Guillaume], VI: 570
- Reclamation of New Lands for Agriculture—Utilization of Eroded Lands [Ortega], VI: 590
- Recreation and Wildlife Problems Peculiar to Rangelands of Western United States [Wagar], VII: 195
- Rehabilitation of Devastated and Derelict Woodlands [Wood], V: 100
- Resource Appraisal, Methods of, I: 167-200
- Resource Appraisal and Utilization, Statistical Tools in [Mahalanobis], I: 196
- Resource Utilization, Place of Experimental Investigations in the Planning of [Yates], I: 192
- Resource Programmes, Adaptation of, I: 201-230
- Resource Surveys [Randall], I: 173
- Resource Techniques for Less-Developed Countries: A Symposium, I: 307-323
- Resources, Interdependence of, I: 53-69
- Resources, Interdependence of [De Martonne], I: 55
- Rice-Paddy Carp Culture in Japan [Hiyama], VII: 124
- River Basin, Experience in the Integrated Development of: Excerpt from an Economic Report on the Conservation and Utilization of the Natural Resources of Iran [Pirnia], IV: 162
- River Basin Development, Comprehensive Planning for [Varlet], IV: 132
- River Basin Development, Comprehensive—A Symposium, IV: 121-172
- River Basins, Integrated Development of, I: 367-385
- River Development in the Central Valley of California [Boke], IV: 137
- River Development Projects, Modern Principles for the Construction of Hydro-Electric Stations and [Grzywienski], IV: 256
- River Engineering Works, Use of Scale Models in the Planning of [Meyer-Peter], IV: 268
- River Hydrology, Analysis of Experimental Data on: Classification of Hydrological Studies and of the Estimates derived from them [Coutagne], IV: 52
- River Research, Use of Small Scale Models in [Danel], IV: 275
- Rivers and other Waterways of the United States, Development of, for Navigation [Burger], IV: 335
- Rural Education and its Influence on the Conservation and Better Use of Natural Resources in Nigeria [Herington], I: 301
- Saury Lift-Net Fishing with Light [Takayama], VII: 100
- Sawmill Industry, Brief Account of the Progress of the Swedish [Kastmark], V: 230
- Sawmill Refuse and Bark, Utilization of [Heritage and Locke], V: 305
- Sawmill Techniques [Simmons], V: 217
- Sawmill Techniques [Wanaraks], V: 227
- Sawmill Techniques in Belgium [Antoine], V: 231
- Sawmill Techniques in the Conservation of Forest Resources [Entrican], V: 225
- Scientific and Technical Personnel for the American Tropics, Preparation of [Allee], I: 353
- Scrap Metals, Supply and Industrial Applications of [Miller], II: 24
- Sheep, Selection of Techniques for Improvement of [Kelley], VI: 397
- Silt Problem in the Basin Development of the North China Plain [Fong], IV: 309
- Silting, Measurement and Control of [Khosla], IV: 291
- Silvicultural Techniques, Selection of [Aung Din], V: 117
- Silvicultural Techniques, Selection of [Ranganathan], V: 95
- Silvicultural Techniques, Selection of [Schaeffer], V: 90
- Silviculture of Mixed Tropical Rain Forests [Aubréville], V: 114
- Soil, Increasing the Productivity of [Papi Gil], VI: 264
- Soil and Forest Conservation and Protection of Water Supplies [A. B. Lewis and Harrison], I: 77
- Soil and Water Conservation [Bennett], I: 73
- Soil in The Netherlands, Possibilities of Improving the Fertility of, by More Rational Application of Lime, Inorganic and, Organic Manures and by Improvement of its Texture [Bruin Castenmiller, Mulder, Paauw and 't Hart], VI: 217
- Soil Characteristics and Salinity in Relation to Irrigation and Drainage [Stafford and Huberty], IV: 357
- Soil Conditions (General) of Southern Brazil [Setzer], VI: 136
- Soil Conservation—An Economic Appraisal [Cépede], VI: 95
- Soil Conservation, Biological Soil Research in Relation to [Franz], VI: 160
- Soil Conservation, Economics of [V. W. Johnson], VI: 75
- Soil Conservation and Farm Technique in Britain, Effect of Mechanization on [W. H. Cashmore], VI: 189
- Soil Conservation, Farming Systems in Relation to [S. E. Johnson], VI: 79
- Soil Conservation, Land Use Regulations as Aids to [Tempany], VI: 35
- Soil Conservation, Methods of, VI: 1-54
- Soil Conservation: Methods of Organization [Dykes], VI: 56
- Soil Conservation, Physical Methods of [Buie], VI: 2
- Soil Conservation, Physical Methods of [Khan and Riaz], VI: 6
- Soil Conservation, Physical Methods of [Myint], VI: 13
- Soil Conservation, Physical Methods of [Viaud], VI: 17
- Soil Conservation, Research and [Duley], VI: 164
- Soil Conservation, Role of Grassland in-Aerial Topdressing and Seeding Trials [Campbell], VI: 548
- Soil Conservation, Some Research Aspects of, and the Future of the Hills [Levy and Suckling], VI: 445
- Soil Conservation in Cyprus [Littlejohn], VI: 10
- Soil Conservation in New Zealand, Supplementary Education for [D. A. Campbell], I: 285
- Soil Conservation in Nyasaland [Badcock], I: 283
- Soil Conservation in Switzerland [Vital], VI: 61
- Soil Conservation Methods, Importance of Practical Demonstration in Teaching, and its Application in Argentina [Quedero], VI: 66
- Soil Conservation Problem in Norway [Løddesøl], VI: 43
- Soil Conservation Programmes, Organization and Evaluation of VI: 55-111

UNSCCUR PROCEEDINGS: INDEX

- Soil Conservation Service in Colombia [Ranghel G.] VI: 89
Soil Conservation Work, Methods of Organization in [Orozco, M.], VI: 62
Soil Erosion (Type, Degree, Area, Causes) in the Argentine Republic, Surveys of Zones Affected by [Quevedo], VI: 155
Soil Fertility and Pasture Production—Legumes, Fertilizers and the Grazing Animal [Sears], VI: 517
Soil Management Practices, Co-ordination of the Best, into Unified Farm Management Plants [Black], VI: 97
Soil Productivity, Improving, VI: 207-272
Soil Productivity, Improving: Temperate Climates [Ogg], VI: 209
Soil Productivity, Improving: Tropical Climates [Mukherjee], VI: 233
Soil Productivity, Improving: Tropical Climates [Siddiqui and Mohammad], VI: 238
Soil Productivity in Southeastern Asia and the Indies, Improving [Pendleton], VI: 258
Soil Research in Relation to Soil Conservation [Edelman], VI: 163
Soil Research in Relation to Soil Conservation [Raychaudhuri and Sen], VI: 128
Soil Survey and Research in Relation to Soil Conservation, VI: 113-172
Soil Survey in Relation to Land Use and Soil Conservation in Canada [Leahy], VI: 120
Soil Survey in Relation to Soil Conservation [Grange], VI: 123
Soil Survey in Relation to Soil Conservation [Kellogg], VI: 114
Soil Survey in Relation to Soil Conservation [Köhler], VI: 130
Soil Survey in Relation to Soil Conservation [Raychaudhuri and Sen], VI: 126
Soil Survey in Relation to Soil Productivity [Muir], VI: 125
Soil Utilization and Conservation—Method of Organization [de la Torre], VI: 68
Soils, Calcium Absorption and Lime Loss from Leaching in [S. T. Jensen], VI: 213
Soils and Forests, I: 71-91
Soils and Moisture in the Semi-Arid Region of Argentina, Experiments with Methods of the Conservation of [Prego and Tallarico], VI: 23
Soils and Water Control [Butt and Salim], IV: 355
Soils and Water Control by Reclamation Management [Juva], IV: 366
Soils and Water Control Programmes [Hellinga], IV: 363
Solar Energy in Evaporation of Dead Sea Brine, Use of [Bloch], II: 261
Space Heating, Conservation in Utilization of Fuel for, III: 199-222
Space Heating, Conservation in Utilization of Fuel for [Hutcheon and Legget], III: 200
Space Heating, Conservation in Utilization of Fuel for [Rowse, Westom and Lant], III: 206
Space Heating by Solar Energy [Telkes], III: 215
Space Heating with Reference to Insulation, Conservation of Fuel in [Dill], III: 204
Stock Raising [Ministry of Agriculture, Buenos Aires, Argentina], VI: 428
Storage and Preservation of Agriculture Products, VI: 341-381
Storage and Preservation of Agricultural Products [Hukill], VI: 342
Storage of Agricultural Products [Govin], VI: 354
Storage of Some Agricultural Products in Australia [A. B. Cashmore] VI: 344
Storage of Wheat in Underground Silos [Ministry of National Economy, Argentina], VI: 356
Strip Mining in India [Frost], III: 117
Sulphide Ores in Northern Sweden, Methods in Prospecting for [Geijer], II: 62
Sulphur, Origin of Italian [Gualtieri], II: 85
Swedish Shale Oil Industry [Schjanberg], III: 51
Symposium on Future Lines of Study and Direction for Progress, I: 405-422
Tennessee Valley Authority, The Experience of, I: 367-385
Tennessee Valley Authority, The Experience of, in the Comprehensive Development of a River Basin [Clapp], I: 369
Tennessee Valley Region, Impact of TVA upon [Cole], I: 379
Thermal Power Generation, Progress in [Bushman], III: 278
Timber Protection in France, Main Problems of [Jacquot], V: 283
Torrents and Avalanches [Hess], V: 151
Torrents (Mountain), Methods for Controlling, Used by the *Administration des Eaux et Forêts* in the Alps [Messines], V: 155
Torrents (Mountain) and Avalanches, Control of, through Establishment and Maintenance of Forest Cover [Pavari], V: 168
Training of Technical and Scientific Staff for the Conservation and Utilization of Resources in Haiti [Sylvain], I: 357
Trees, Treatment of, with Toxic Chemicals to Facilitate Removal of Bark and to Reduce Weight [Hale and McIntosh], V: 247
Underground Gasification: Utilization of Coal at the Mine [Doumenc], III: 151
Underground Gasification of Coal, III: 143-156
Underground Gasification of Coal, Laboratory and Field-Scale Experimentation on the [Fies and Elder], III: 144
Utilization of By-Products Gases Produced in an Iron and Steel Works [Kennedy], III: 293
Utilization of Energy: Integrated Power System; Possibilities for the Development of a European Power Grid [Ailleret], III: 250
Utilization of Windpower in the Netherlands, Report on [*De Hollandsche Molen*], III: 319
Waste Gases, Treatment of [Schmidt], II: 183
Water: Analysis and Utilization of Data [Smetana], IV: 78
Water, Control and Utilization of Polluted [Steel], IV: 111
Water, Control and Utilization of Polluted [Zavadil], IV: 119
Water, Desalinization of Brakish [Spiegler], IV: 115
Water, Recreational Use of [Wirth], IV: 436
Water, Use of Models in Planning Structures for Measuring and Dividing [Dominguez], IV: 263
Water, Utilization of Surface, Underground and Sea [Wolman], IV: 98
Water (Artificial Ground) Supplies in Sweden [Jansa], IV: 102
Water Control Structures, IV: 217-323
Water Control Structures: Dams [Coyne], IV: 224
Water Control Structures, including Dams, Canals, Locks and Desilting Works, Latest Development in Design, Construction and Operation of Major [Aubert], IV: 219
Water Control through River Basin Conservancy [Visentini], IV: 178
Water Control through Watershed Management [Bailey], IV: 180

ALPHABETICAL LIST OF SUBJECTS AND TITLES OF CONTRIBUTED PAPERS

- Water Control through Watershed Management [Frolow], IV: 186
- Water Control Works, Use of Models in Planning of [Hussain and Kabraji], IV: 274
- Water Control Works, Use of Models in Planning [Straub], IV: 276
- Water Economy, Summary Report on Greece's [Papanicolaou], IV: 407
- Water Policy, Federal Supervision of, in the Interests of Soil Conservation in Switzerland [Schurter], IV: 183
- Water-Power Register, Methodology of the Austrian [Lernhardt], IV: 42
- Water-Power Stations, Considerations for General Planning of [Beurle], IV: 432
- Water Resources, Appraisal of IV: 1-95
- Water Resources, Appraisal of: Analysis and Utilization of Data; Forecasting Water Yield, Flood Run-Off, Flood Frequency, Power Potential [Khosla], IV: 64
- Water Resources, Current Concepts in Appraisal of [Paulsen], IV: 37
- Water Resources, Importance of Sediment Control in the Conservation and Utilization of [Lane and Stanley], IV: 306
- Water Resources, Snowy River Scheme in Relation to Utilization of Australia's [A. S. Brown], IV: 141
- Water Resources in the United States, Appraisal of: Analysis and Utilization of Data; Water Supply and Flood Forecasting [Bernard], IV: 56
- Water Resources of the Euphrates and Tigris, Economic Utilization and Development of [Sevian], IV: 148
- Watershed Management, Effects of, on Water Yield [Frolow], IV: 203
- Water Storage in the Negeb [Irmay], IV: 105
- Water Supply and Pollution Problems, IV: 97-130
- Water Supply in the Agricultural Areas of Western Australia [Langford-Smith], IV: 158
- Water Use Projects, Protection of Fish and Wildlife in [Detwiler], IV: 449
- Water Yields, Effect of Stream Management on [Kuntschen and Bircher], IV: 205
- Wildlife and Fish in India, Protection of [Prashad and Job], IV: 446
- Wildlife in Sweden, Protection of [Hamilton], IV: 445
- Wildlife on Croplands [E. H. Graham], VII: 188
- Wildlife Problems Peculiar to Rangelands of Western United States, Recreation and [Wagar], VII: 195
- Wildlife Resources, Management of, VII: 213-256
- Wildlife Resources, Management of [Harroy], VII: 226
- Wildlife Resources, Management of [Urbain], VII: 247
- Wildlife Resources, Management of [Worthington], VII: 215
- Wild Plants of the Semi-Arid Region of Brazil and their Industrial Utilization [Santa Rosa], VI: 70
- Windpower: Its Interest and Possibilities [Fardin], III: 322
- Wood, Chemical Utilization of [Ant-Wuorinen], V: 303
- Wood, Preservation and Chemical Utilization of, V: 267-321
- Wood, Preservation of [Harkom], V: 284
- Wood, Preservation of [Rennerfelt], V: 287
- Wood Fibre: Creatable Resources of Wide Utility [Hall], I: 138
- Wood in the United States, Chemical Utilization of [Holzer], V: 292
- Wood Preservation, Methods of, and Their Uses, with Special Reference to Over-all Economies in Consumption [Krishna and Narayananamurti], V: 271
- Wood Preservation, Methods of, and Their Uses, with Reference to Over-all Economies in Consumption [Ray], V: 276
- Wood Preservation in Great Britain [Richardson], V: 269
- Wood Preservation in the United States in its Relation to the Conservation of American Forests [Mann], V: 288
- Wood Waste and Bark, Utilization of [Stamm], V: 296
- Wood Waste and Bark Utilization in Australia [Turnbull], V: 311
- World Resources and World Population [Clark], I: 15
- World Resources Situation, I: 11-28
- World Resources Situation [Osborn], I: 12
- World Review of Critical Shortages, I: 29-51
- Yugoslavia, Construction of Jablanitza and Mavrovo Dams in [Ministry of Water Economics, Yugoslavia], IV: 260

SUBJECT INDEX FOR VOLUMES I TO VII

- Aar River, Switzerland: hydro-power developments, IV:135C
- Aberdeen, Scotland: institute for livestock research, VI:386A
- Aberdeenshire, Scotland: agriculture, VI: 507B-508D
- Abortion, contagious, *see* Brucellosis
- Abra Pampa Animal Husbandry Station, Jujuy (Argentina), VI:404D
- Abrasives, artificial, I:42C
- Acacia farnesiana*, *see* Espino blanco
- Academic tenure, for teachers of agriculture, I:360B
- Acaricides, VI:489A
- Acclimatization societies: New Zealand, VII:153D, 154B
- Accumulators: lead economizing in, II: 195B
- Acetone: shortages, I:133D
- Acetone-butyl alcohol fermentation, I: 158A, 158C
- Acetylene, III:82B
- Acid pulping process, *see* Sulphite process
- Acids: as cause of metal corrosion, II:215A
- Acrococia mexicana*, *see* Coyer
- Adaptation of livestock, *see* Livestock — adaptation to environment
- Adaptation of plants, *see* Crops—adaptation to environment; Plants—adaptation to environment
- Adolescence: extra demands for nutrients, I:341B
- Adult education: Africa, I:274B; important to resource conservation and utilization, I:220-21; training of workers for resource development, I:350C; *see also* Extension work
- Advisory service, *see* Extension work
- Aerial fertilizing and seeding, *see* Aircraft — use in fertilizing and seeding
- Aerial maps, *see* Maps, aerial
- Aerial photogeology: in prospecting, III:4A
- Aerial photography: accuracy of position for oil prospecting, III:9A; hypothetical financing, I:174B; in forest surveys, V:85, 20-27, 32A; in land survey mapping, I:79D; in resource surveying, I:179B, 187B, 321B; in soil surveys, VI:115D, 169A; in vegetation surveys, I:185C; in surveys of insect damage, V:32A; of jungle areas in Pacific, V:32D
- Aerogenerator, III:312B-314B
- Aeromagnetic surveying: in oil finding, III:24C; techniques and results, III:8-10
- Aeronautical charts, I:179D; relation to marine insurance rates, I:175C;
- U.S.A. Air Force, I:179A
- Aforestation, *see* Forest planting; Shelterbelt; Watershed management
- Africa: agriculture, I:339B; VI:558D, 575A-576C; animal food in diet, VI:443A; capital import, I:19C; conflict between humans and wildlife, VII:252D-253A; conservation education, I:298-301, 314C; VII:217D copper deposits, I:170D; depletion of resources, I:275; effects of colonization on wildlife, VII:218B-220A, 226B-227B; fertility rate, I:24A; fish culture, VII:161C; fish supply in coastal waters, VII:60C; forests, I:36B; 143D; grazing lands, VI:525C; improved use of resources, I:214A; International Conventions of 1933 and 1937, VII:217B; land ownership customs, I:217B; latent fisheries resources, VII:35D-36A; livestock breeding, VI:501B, 560B-D; management of wildlife resources, VII:215-17; manganese production, I:120A; mechanization of mines in, II:123D; mining exploration, I:169A, 169C; mortality, I:21D; native objections to mineral prospecting, II:43C; population before 19th century, I:17C; possible ore deposits, I:41B; projected population, industrialization and income, I:209(tab.); reasonable exploitation of natural resources, I:277C; reservations for nomads, I:81D; standard farm land, I:27C; trawling fishery, VII:32C-32D; undernutrition, I:339C; unused land, I:19B; uranium deposits, I:120C
- Africa, British: administration of conservation measures, I:273B
- Africa, Central: inter-territorial consultation on game and fauna administration, VII:217C; population, VI:573(*map*); undeveloped land, I:32D
- Africa, East: agricultural colonization, VI:586A, 586C; agriculture, VI:580A-584A, 585-86, 588A; dairying, VI:440D; grazing land, VI: 587A; *see also* British East Africa and names of organizations beginning East African
- Africa, Equatorial: ecology, VI:571(*tab.*); forests, VI:579B; savanna regions, VI:579C
- Africa, French: soil conservation, VI:52D
- Africa, French tropical: demography, VI:572C-574B; land reclamation, VI:570-85
- Africa, North: artesian wells, I:57B; forest fire control, V:51D; forest resources and consumption, I:35D; grazing land depletion, VI:501A, 503C; iron products, I:120B; phosphate deposits, II:272A, 276C
- Africa, South: *see* South Africa, Union of Africa, South-west: lead-zinc-copper developments, II:16B
- Africa, West: bauxite, deposits, II:247B; fertility rates, I:17B, 23C; forests, V:114-16; increased food production, I:32D; livestock breeding, VI:497D; population, VI:573 (*map*) *see also* British West Africa
- African Rinderpest Conference, Nairobi (1948), VII:217C
- Africans: need of conservation education, I:276B
- After-cultivation, VI:178B, 179C-180C
- Agar, VII:185D; red seaweeds as source, VII:174B
- Age-tables, I:22A
- Agha Jari (oil field), Iran, I:99D
- Agricultural and pastoral associations (New Zealand), I:286B
- Agricultural area, *see* Agricultural space
- Agricultural banks: Haiti, I:364D
- Agricultural census: projected by FAO, I:198C
- Agricultural colonization: Africa, VI: 580A-584A; Africa, East, VI:586A, 586C; Agricultural communities, closely settled: diet, I:340A
- Agricultural communities, primitive: diet, I:339A
- Agricultural Conservation Program (U.S.A.), VI:85-88
- Agricultural credit: Argentina, I:267D; necessary for agricultural settlement, I:82B

UNSCUR PROCEEDINGS: INDEX

- Agricultural development: coupling with industrial development, I:208D; Europe, I:62A; limiting factors in, I:317A; problems, I:194-96
- Agricultural education, I:350B; Africa, I:298B, 300A; Colombia, I:345C; Haiti, I:357-60; Inter-American Institute of Agricultural Sciences, I:353-56; Latin America, I:313C; Nigeria, I:301-4; Uganda, I:296-98
- Agricultural equipment, I:85C; VI:174-85 186C; Burma, VI:16A; co-operative use, VI:183C, 202C, 203B; improvement in design and production, I:408D; manual implements, VI:181D-182C; shortage in Europe, 61C; Sweden, VI:182-85; trade balance in Europe, I:62A
- Agricultural experimentation: errors in, I:193C; measures of variability, I:189B; problems, I:198A; timing, I:195A
- Agricultural extension work, *see* Extension work
- Agricultural fairs, as means of education, I:260B
- Agricultural field work, desirable for students, I:360A
- Agricultural industries: conservation programmes, I:260B, 305C; immediate *vs.* long term remuneration, I:305A; instructional programmes dealing with conservation, I:306A; relation to conservation, I:304-6
- Agricultural instructors: Belgian Congo, I:299D
- Agricultural labour, *see* Labour, agricultural
- Agricultural land, *see* Land, arable; Land use
- Agricultural population, *see* Labour, agricultural
- Agricultural potentialities: geologic mapping, I:180C
- Agricultural products, I:409A; allocation of, 271D; estimated increase, I:18A; income from, I:377D; industrial uses, I:131C, 137A, 157-59; local industrialization, I:401D; markets, I:377B; non-food uses, I:134B; preservation, VI:342-81; prices, I:16B, 19A, 19D, 27A, 212D; quality, I:27B; storage, VI:342-81; storage in Australia, VI:344-47; waste through inadequate transport and storage facilities, I:234A
- Agricultural research, I:87A, 315C; continuance necessary, I:86D;
- Agricultural Research Council (UK), VI:386B
- Agricultural settlement, *see* Agricultural colonization
- Agricultural space: Africa, VI:575B; individual reclamation, VI:576D; UK, VI:515A
- Agricultural system: surveys, I:194C
- Agricultural techniques, I:83-91; general use, I:87D; introduction, I:88C; transferring, I:87B-D
- Agriculture: Africa, VI:102-4; Africa, East, VI:585-88; Algeria, VI:608A; Argentina, VI:21-34, 66-67, 356-58, 457-58; Asia, I:417B; Australia, VI:344-47; Belgian Congo, VI:153-55; Brazil, I:25A; VI:598-602; British Caribbean Region, VI:250-55, 269A; British colonies, I:314B; Burma, VI:13-16; Canada, I:25B; VI:196-98, 225-30, 286-89; Chile, I:237B-238A; China, I:25B, 226B; IV:310A; VI:262C; Colombia, VI:89-94; confidence in government recommendations necessary, I:297B; co-operation of technicians, I:408C; Cyprus, VI:10-12; Denmark, VI:204D, 267D, 289-92; effect of forests on, V:173A; effect of industrialization on, I:246C, 248C; El Salvador, VI:17-21, 271A; France, VI:605-8; Greece, IV:378-82; Guatemala, VI:111D; Haiti, I:361B, 361D; Hawaii, VI:191-95, 330-33; history, VI:174A-175C; Honduras, VI:590-94; improved methods, I:7C, 16; India, I:18B, 24D, 25B, 115B; VI:175C-177D; Indochina, VI:334D; Indonesia, I:321B; IV:382-84; VI:564D-566C; Israel, IV:45-47; VII:149D-150C; Italy, I:25B; Jamaica, I:294B; VI:269A; Japan, I:18B, 24D; Java, IV:211D-212A, 383A; Kenya, VI:102-4; labour supply (*see* Labour, agricultural); long-term planning, I:88B; Madagascar, VI:334C, 335B, 335D; major industry in less developed countries, I:310C; Malaya, VI:588-90; mechanization (*see* Agriculture, mechanized); Mexico, IV:388-91; VI:68-70 (*see also* Ejido system);
- Africa, East (*cont.*): Middle East, VI:104-7; Morocco, VI:616-19; Netherlands, I:25B; VI:217-20, 450-51; Netherlands East Indies, VI:334D; New Zealand, I:18B, 24D, 25D; VI:554C; Nigeria, VI:270A; Pakistan, I:274D; IV:391-94; VI:6-9, 239-49, 327-29; Poland, I:25B; Portugal, VI:307B; Puerto Rico, VI:334C; relation to soil conservation, VI:79-85; relation to water resources, IV:152B; Scotland, VI:384A-385A; Spain, I:25B; Sukumaland, VI:585-88; Surinam, VI:564D-566C; Sweden, I:18B, 24D; VI:182-85, 297-301; Switzerland, VI:61-62; temperate climates, VI:209-13; Tennessee Valley (U.S.A.), I:373A, 380B, 381D; Thailand, VI:260D, 261B, 262B; Trinidad, VI:269A; tropics (*see* Agriculture, tropical); Tunisia, VI:610; United Kingdom, I:65A, 68B-69C; VI:178-80, 189-91, 221-24, 325-27, 515A; use of petroleum products, III:73C; Venezuela, I:239D; VI:301-3; *see also* Contour cultivation; Crop rotation; Crops; Dairy products; Extension work; Food production; 4-H clubs; Labour, agricultural; Livestock breeding; Soils; Strip cropping; Subsistence farming; Tillage; and headings beginning Farm, Land, Rural
- Agriculture, mechanized, I:317D, 415B; VI:185-89; Africa, VI:580A-584A; Africa, East, VI:588A; Asia, I:115B; Canada, VI:198A; Denmark, VI:204D; Hawaii, VI:191-95; relation to crop production, VI:198-201; skilled labour for, I:331C; small farms, VI:179A-180C, 182-85; UK, I:68C; VI:189-91, 203D; U.S.A., III: 85B
- Agriculture, tropical, I:27D, 79A, 417B; VI:191-95, 233-49, 255-58, 269C, 334C, 440C, 560B, 563-66; costs, VI:564C
- Agriculture Act (UK, 1947), I:67C
- Agronomists, *see* Technicians
- Aguilar Mountains, Argentina, VI: 402A
- Aigle Dam, France, IV:232D, 237D, 239A
- Air and gas repressuring in oil recovery, III:47A, 47C
- Air compression: in mining operating, II:111A
- Air conditioning, III:213-14, 269A

SUBJECT INDEX FOR VOLUMES I TO VII

- Air Conditioning and Refrigerating Machine Association (U.S.A.), III:214C
- Aircraft: aluminium alloys in construction, II:248C; geophysical survey from, I:169D; use for counting game, VII:240C; use in cloud study, IV:11B-15A; use in fertilizing and seeding, VI: 548-52, 558D-559B; use in fishing, VII:99B; use in forest fire control, V:52A; use in forest protection, V:56B; use in insect pest control, V:66-70; VI:314B; use in mineral exploration, I:56B; II:98C
- Airfoils: aerodynamics, III:311B
- Airplane engines: fuel, III:71D, 97C, 97D, 265C, 271A; performance of engine-driven propeller and turbojet engine propulsion systems, III:288 (*diag.*); thrust characteristics of adjustable-pitch propeller and turbojet engine, III:288 (*diag.*);
- Airplane propellers: aerodynamics, III: 311B
- Airports elimination of ice from, IV:18D-19D
- Air surveys: technical developments, V:27-29; use in forest inventories, V:20-27;
- Alabama-Coosa River, U.S.A., IV:42C
- Alabama Flour Mills, Decatur, Alabama (U.S.A.), I:377C
- Alabama Power Company (U.S.A.), III: 144-50, 262A
- Alagoas State, Brazil: shale oil resources, III:63A
- Alaska: forests, I:143D; gold rush (1898), II:13C; soil survey, I:183A
- Alaska* (fishing vessel), VII:104B
- Alaska, Gulf of, *see* Gulf of Alaska
- Alaska-Juneau operation of low grade gold extraction, II:143D
- Albacore: grounds in mid-Pacific, VII: 31C
- Alberta, Canada: cropping systems, VI: 227J-229A; forest conservation, V:180B; petroleum deposits, I:98C, 100D, 171B; soil surveys, VI:121C
- Albert Canal, Belgium, IV:223A
- Albert National Park (Belgian Congo), VII:223A-B; exploration of southern sectors, VII: 224D; studies of psychology of large mammals in, VII:225D; study of parasites of vertebrates in, VII:225A
- Albuquerque, New Mexico (U.S.A.): experiments in inducing precipitation, IV:20D, 91D
- Alcohol: as motor fuel, I:137D, 143A; wood pulp by-product, V:291B, 294C
- Alcohol, ethyl: fermentation from sulphate waste, I:142B;
- Alcohol, ethyl: from petroleum, III:73B; from petroleum by-products, III:99C; from sawmill refuse, V:310A;
- Alcohol, industrial, I:137C; from agricultural materials, I:137D; from southern pine sawdust, I:142C; Haiti, I:361B; Philippines, I:242D; production, I:143A
- Alcohol, isopropyl: from petroleum, III:73B
- Alcohol-producing plants: Morocco, VI:618D
- Alewife: conservation measures needed, VII:30B
- Alfalfa, VI:515B, 530D; hybridization, I:85A; introduction into U.S.A., VI:293A-C; varieties, VI:293A-C
- Alfalfa-drying plant, Decatur, Alabama, I:377C
- Algae, VII:185D; carbohydrates, VII:186C; classification, VII:180B; habitat, VII:180B; in fish ponds, VII:123D; tropics, VII:186C
see also Laminarin
- Algae, fresh water: use as starting material, I:133B
- Algae, marine, *see* Seaweed
- Algae, sea-bed, VII:181B-182B
- Algae, shore, VII:175A, 176A, 178C, 180D
- Algal celluloses, VII:176B
- Algeria: agriculture, VI:608A; phosphate deposits, II:272A; watershed protection, 173A
- Alginic acid, I:133C, 134B; VII:175A, 176A, 178B, 186B; commercial extraction, VII:176B; industrial use, I:158C
- Alkali lignin: wood pulp by-product, V:295B-C
- Alkaline compounds: use in reducing corrosive wear, II:215B
- Alkaline soils, *see* Soils, alkaline
- Alleghany oil field, Pennsylvania and New York (U.S.A.), III:43D
- All-India Conference for the Preservation of Wild Life, IV:447B
- Alloying: as means of corrosion control, II:231D-232D
- Alloys, I:56B; conservation in steel-making, II:175C; corrosion-resistant, II:215C; importance to industrial economy, I:120A; improvement of metals by addition of, I:40D; standardization as aid to metal conservation, II:198A, 200A; use in reducing metal corrosion, II: 212B
- Alluvial soils, *see* Soils, alluvial
- Almond trees: Tunisia, VI:610C
- Aloe waste, Haiti, I:361B
- Alpha-cellulose, I:140D, 141D
- Alps: torrent control, V:155-61
- Alsace: potash mines, II:121A, 124-27
- Altitude: effect on livestock, VI:433C
- Altus Dam, Oklahoma (U.S.A.), IV:249A
- Alumina, abundant supply, I:42C; from clay, II:149B
- Aluminium: amount in earth's crust, I:39B; annual requirements, I:39n; approximate distribution, II:249C (*tab.*); as alloying element, II:232C; as metal coating, II:224C; as substitute for steel, II:254D-255A; base materials, II:31(*tab.*); bauxite ore as source of, I:120, 124D; comparative prices in UK, II:249 (*tab.*); depletion, I:407A; estimated world production, II:248C, 249A(*tab.*); extraction methods, II:246D-247D; fundamental to civilization, I:38C; future of, II:246B-249C; in cathodic protection of metals, II: 230A; increased use, I:412C; increasing durability through alloying, II:232D;
- India, I:114C, 115D; production in Pacific Northwest, III: 329A; production since 1900, I:39D; production uneconomical in England, I:160B; prospective world demand, I:40C; raw material for, I:407B; reduction, II:149A; substitute for steel and copper, I:41D; use for complete constructions, II: 200D; use in castings industry, I:42A; use of clays or other silicates, I:127C; uses, II:248, 265
- Aluminium alloys: as substitutes for copper, II:256A; as substitute for tinplate, II:256C; basic structural materials, II:248B; Aluminium industry: rapid wartime expansion, II:247B
- Aluminium phosphate, II:276B
- Aluminum Company of America, I: 124D; II:149B
- Amazonas, Brazil: jute production, VI: 600C
- Amazon River: navigation, IV:339A
- Amazon River estuary, Brazil: reclamation of flood lands, VI:598-602
- Amazon Valley: forest species, V:121B
- Ambato earthquake (Ecuador), I:253C
- Ambigonite: Brazil, II:19A
- American elk, *see* Wapiti
- American Gas and Electric Company, III:234A, 262A; generating plants, high tension transmission lines and principal foreign interconnections, III:237-43 (*maps*); use of heat pumps, II:213B
- American Institute of Mining and Metallurgical Engineers, II:172D

UNSCUR PROCEEDINGS: INDEX

- American Institute of Steel Construction, II:204D
 American Iron and Steel Institute, II: 33B, 173B, 175A
 American Petroleum Institute, I:107B; III:11B
 American Railway Engineering Association, V:288B
 American Society for Quality Control, I:191C
 American Society for Testing Materials, II:226B; test for thermal insulating materials, III:205B
 American Society of Heating and Ventilating Engineers, III:214C; standardization of insulating materials, III:205C
 American Society of Refrigerating Engineers, III:214C; standardization of insulating materials, III:205C
 American Standards Association, I:191B
 American Wood Preserver's Association, V:288B
 Amino acids: by-products from fish waste, VII:88B; effect on reproduction of yeast, I:156B; in *Rhodotorula*, I:147D
 Ammonia: from natural gas and liquid air, III:74A
 Anaconda Copper Mining Company (U.S.A.), II:144A, 149C; see also Chile Exploration Company; Greater Butte project
 Anadromous fish, see Fish, anadromous
 Anaplasmosis, VI:482B, 482C; control, VI:472B
 Anchovies: Brazilian coast, VII:60C; estimated potential yield of northern, VII:29D; Netherlands, IV:409, 410; resources in Atlantic, VII:32B; west coast of South America, VII:60C
 Ancylostomiasis: Haiti, I:363A
 Andes: sedimentary basins, I:96A
 Androscoggin River, Maine (U.S.A.); pollution control, IV:113C
 Aneurin, see Vitamin B₁
 Angaur (Pacific island): phosphate deposits, II:272B
 Ängermanälven River, Sweden, IV:442A
 Ángico tree, Brazil, VI:73D
 Angling: effect on fish stock, VII:25C
 Angling clubs: New Zealand, VII:153D, 154B
 Anglo-Iranian Oil Company, III:4E; production, III:30-32
 Angostura Dam, Bavispe River, Mexico, IV:389C
 Anhwei, China: fish culture, VII:135B
 Anhydrite: UK, II:46D
 Animal dung: effect on grazing land, VI:519C-520C, 521A
 Animal food in human diet, VI:442-45; vs. vegetable, I:414C; see also Meat
 Animal husbandry, see Livestock breeding
 Animal life: preservation, I:277B, 410C; relation to agriculture, I:291D; surveys, I:173C, 186B; see also Wildlife
 Animal nutrition: value of food yeast protein, I:154A; see also Fodder
 Animal protein factor, see Vitamin B₁₂
 Animals: problems in connexion with imported species, VII:252A; see also Livestock; Wildlife
 Animals, predatory: conservation needed, VII:208C; destruction in UK, VII:250A; destructive to game, VII:193B; function in preserving the balance of nature, VII:255C; killed in Hampshire, England, VII: 193C (tab.); kinds of land needed by different groups, VII:254A; problem of regulating, VII:256B; relationship between herbivorous fauna and, VII:253C
 Animal urine: effect on grazing land, VI: 519C-520C, 521A
 Anjou, France: iron ore deposits, II:9B
 Anodic coating: to protect metals, II: 224C-225A
 Antarctic Ocean: lack of pelagic fish, VII:60C
 Antelope: behaviour when habitat is invaded, VII:219A; effects of blizzards on herds (U.S.A., western) VII:209D; increase in Wyoming and Idaho, VII: 203C; population, U.S.A., VII:239B
 Antelope, pronghorn, see Pronghorn antelope
 Anthelmintics, VI:486D
 Anthrax, VI:468B, 469A
 Anthropology: use in conservation education, I:263B
 Antibiotics, I:137C; possible use as food preservatives, VI:360D
 Anticlinal theory of oil accumulation, III:3A
 Antigonish movement, Nova Scotia (Canada), I:220-26
 Antigua, Guatemala: Experimental Station, I:360D
 Antimony: Burma, I:14C; diminishing reserves, I:113B; export from China, I:114A; export from Far East, I:113D; India, J:115D; Peru, I:124A
 Anti-pernicious-anemia vitamin, see Vitamin B₁₂
 Apatite, II:270C; Chile, II:291D-292A; Sweden, II:278D
 Appalachian coal area (U.S.A.), III:120A
 Appalachian-Eastern Interior, U.S.A.: coal fields, I:120D
 Appalachian Plateau, U.S.A.: errors in settling, I:78D
 Appleby-Frodingham works (England): iron and steel making from low-grade ores, II:152-59
 Apples: preservation, VI:371B; scald prevention, I:86A; storage, VI:343A, 368C, 464A
 Apprenticeship, I:328B, 331A, 348B; see also On-the-job training
 Apricot trees: Tunisia, VI:610C
 Apteryx, see Kiwi
 Aptitude for the job, I:331A
 Aquifers: correlation of data, I:184A; evaluation of, I:184A, 184D
 Arabia: exploratory wildcat oil wells, I:98A; petroleum, I:96C, 108D; reproduction rate, I:17B
 Arabian oil-fields, III:5C
 Arabian Sea: rivers falling into, IV:73B (tab.)
 Arable land, see Land, arable
 Arabs, reproduction rate, I:23C
 Aragua, Venezuela: forestry, V:209C
 Arc process for direct union of atmospheric nitrogen and oxygen, II:275D
 Arcachon Basin, France: oyster spat production, VII:49A
 Arctic Ocean: cod shoals, VII:60B
Arcturus (fishing vessel), VII:103D
 Argentina: accelerated industrialization, I:20B; agriculture, VI:21-34, 66-67, 356-58, 457-58; capital export, I:19C; climate, VI:428A; conservation education, I:267A; economic development, I:247B; forest inventories, V:16-19; forest policy, V:193A; forest valuation, V:189-93; introduction of European hare, VII: 252A; introduction of wild boar, VII:252A; joint river basin project with Uruguay, I:399A; land legislation, I:268A; lead and zinc deposits, I:120C; livestock breeding, VI:399-407, 428-30, 459B, 527E; livestock diseases and pests, VI:477-81, 493-95; livestock imports, VI:422A, 471A; *Nacrocystis Pyrifera*, I:133D; semi-arid region, VI:23-34; soil surveys, VI:139-49; training of workers, I:353A
 — Institute of Soils and Agrotechnics, VI:21B, 23-34, 139B, 155B
 — Ministry of National Economy, VI:356-58;
 — National Commission for Cereals and Grain Elevators, VI:356-58;
 — National Forestry Administration, VI:17D
 Argentina, North-West: physical features, VI:399B-402B
 Argentine Refrigeration Association, VI: 481C
 Argulus, VII:149C

SUBJECT INDEX FOR VOLUMES I TO VII

- Arid regions: fat deposits of animals in, VI:418A;
errors in irrigating, I:78D
- Arkansas, U.S.A.: banxite deposits, I: 120B;
secondary oil recovery operations, III:50D
- Arkansas Oil and Gas Commission, (U.S.A.), III:50D
- Arkansas Power & Light Company (U.S.A.), III:262A
- Arkansas River basin project (U.S.A.), IV:428A, 429(*map*)
- Army ration: effect on work output, I:341C
- Aromatics: from petroleum, III:84A;
ratio to naphthene, III:97D
- Arrowrock Dam, Idaho (U.S.A.), IV: 250A
- Arsenic: use in bark removal, V:248A
- Arsenic, white: Peru, I:124A
- Arsenic compounds: in algae, VII:178D
- Artemia salina*: eggs fed to flounder, VII:52B
- Artemisia: effect of burning on, VI:559C
- Arthropod parasites: losses caused by, VI:489A-D
- Artificial insemination, VI:385B, 411D;
advantages to small breeder, VI:393A;
international exchange of semen, VI: 434B;
of carp, VII:158-60, 163D;
of cattle in Argentina, VI:429A;
of cattle in Denmark, VI:392B;
of sheep in Argentina, VI: 429B;
use in cross-breeding between breeds
of cattle of different countries, V:I
393D;
value, VI:392-94;
value in control of bovine trichomoniasis, VI:466D
- Artificial regeneration, *see* Silviculture –
artificial regeneration
- Artificial silk: manufacture based on
agricultural products, I:157B; *see also*
Nylon; Rayon
- Artisans, *see* Labour, skilled
- Aruba, N.W.I.: nutricultural gardens, I:132B
- Asbestos: India, II:68C
- Ascension Island, British Guiana: United
States Army Air Force nutricultural
gardens, I:132B
- Ascochyllum nodosum*, VII:181A
- Ascorbic acid: preservative for fish, VII:91B-91C
- Ash: from shale oil, III:54C
- Ashburton-Lyndhurst Project (New Zealand), IV:375-78
- Ash content of hydrocarbons, III:277A
- Ashni River, Dochi Dam Site (India):
rainfall run-off, IV:67D (*tab.*)
- Asia: animal food in diet, VI:443A;
capital import, I:19C;
fertility rate, I:24A;
food supply, I:31D, 340A;
improved use of resources, I:214A;
labour supply, 330A, I:347A;
mortality, I:21C;
- Asia (*cont.*):
possible ore deposits, I:41B;
projected population, industrialization
and income, I:209(*tab.*);
protein deficiency in diet, I:340B;
tin deposits, I:120C
- Asia, Southeast: undeveloped land, I:32D
- Asia, Southwestern: grazing-land deterioration, VI:503C
- Aspens, V:172D
- Asphaltic bitumen: as protective coating, II:236B
- Assaf palm tree
- Association of Edison Illuminating Companies (U.S.A.), III:214B
- Association Suisse de Colonisation Intérieure et d'Agriculture Industrielle, VI:62A
- Asswan Dam, Egypt, IV:84A, 293D;
hydro-electric project, I:245A, 390D
- Asswan Reservoir, Egypt: preservation, IV:254-55
- Astragalus*, I:228D
- Aswan Dam, *see* Asswan Dam
- Atg generating station, Egypt, IV:301B
- Athabasca River, Alberta (Canada):
"tar sand" oil deposit, I:98C, 100D
- Atlantic City, New Jersey (U.S.A.):
wind velocities, III:318(*diag.*)
- Atlantic Ocean: percentage of world fish
production, VII:28B
- Atmosphere, as resource, I:55;
as source of nitrogen, II:275C;
harmful effects, I:55C;
types of nuclei in, IV:4A-5B
- Atmosphere, lower: as water reservoir, IV:2B
- Atmospheric and oceanographic circulation: theory of correlation between, VII:25A
- Atmospheric pollution: as cause of metal
corrosion, II:241A
- Atomic chain reactor, I:426D
- Atomic energy: as source of industrial
energy, I:207D; III:271D, 321B;
Finland, III:308D;
for integrated power systems, III:227B;
increases demand for metals, I:40D;
mineral requirements, I:312B;
peace-time application, I:7C;
relation to power generation, III:281D
- Atomic Energy Commission (India), I:
312B
- Australasia: cobalt deficiency in animal
diet, VI:454B
- Australia, VI:613-16;
accelerated industrialization, I:20B;
agriculture, I:18B, 24D, 25A; VI:
344-47;
animal food in diet, VI:443A;
birth rate, I:21B;
capital export, I:19C;
coal fields, I:120D;
copper deficiency in animal diet,
VI:455B;
economic prospects, VI:614D;
effects on wildlife in Africa, VII:226B;
fishery investigation programme, VII:
36A;
- Australia (*cont.*):
fish supply in coastal waters, VII:60C;
forest fire control, V:53-55;
forest policy, V:180D;
geological surveys, II:52A;
gold deposits, II:51B;
grazing land depletion, VI:501B;
grazing research programs, VI:505B;
industrialization, I:60B;
land settlement projects, VI:613-16;
land-use legislation, VI:38D-39B;
Malaya, VI:59B;
metalliferous areas, II:51D-52A;
mineral deposits, I:120B, 170D;
mineral exploration, II:50-54;
mineral reserves, II:54A;
outlook for mineral discovery, II:52D,
55D;
physical suitability, VI:614D-615B;
possible ore deposits, I:41B;
potash deposits, II:277B;
preservation of foodstuffs, VI:374-77;
pulp and paper industries, V:311D;
sheep scab eradication, VI:488A;
standard farm land, I:27C;
Surinam, VI:620D
tuna catch, VII:31D;
water resources, IV:141-47;
wood waste and bark utilization, V:
311-12;
wool maggot control, VI:489C
- Commonwealth Prickly Pear Board, VI:547D
- Division of Forest Products, V:272C
- Meteorological Bureau, V:54B
- Royal Commission on Forest Fires, V:53D
- Soil Conservation Service, VI:615A
- War Service Land Settlement Administration, VI:615D
- Australia, Western, *see* Western Australia
- Australian aborigines: example of hunting community, I:338C
- Australian Council for Scientific and Industrial Research, I:134D
- Australian merino: breeding experiments in Argentina, VI:404C-407D
- Austria: forest protective work, V:154B;
magnesite, II:257B;
river basin projects, I:398C;
soil surveys, VI:130-35;
waterpower, IV:42-45
- Federal Institute of Alpine Agriculture, VI:161D
- Hydrographic Service (Austria), IV:
42B
- Automobiles: streamlining, III:288
(*diag.*);
weights, III:286(*diag.*)
- Avalanches: control, U.S.A., V:173D;
relation to forests, V:153C-154C, 168-
70;
see also Landslides
- Avian leucosis: methods of control, VI:
469A
- Aviation, *see* Aircraft

UNSCCUR PROCEEDINGS: INDEX

- Aviation petrol, *see* Airplane engines - Fuel
- Avocados: introduction into U.S.A., VI: 294B
- Baboon: control needed in eastern Africa, VII:216D; harm done by (Kenya Colony), VII: 219D
- Baby beef: production efficiency, VI:438D
- Baby-fish, VII:121A
- Bacon: export from Canada to UK, VI: 364D; export from Denmark, VI:390B; storage, VI:364B, 364D; transportation in wartime, VI:364C
- Bacteria, nitrifying, VI:161A; use in converting carbohydrates into industrial chemicals, I:157D
- Baghouses, I:41C
- Bagnet fishing: Norway, VII:14C, 15 (*graphs*)
- Bahama Islands: petroleum exploration, III:4C
- Bahia State, Brazil: shale oil resources, III:63B
- Balance of nature: danger of upsetting, VII:253A; in Krueger Park, VII:254A; part of birds in preserving, VII:228D; upset by man, VII:219C-220C
- Balance of trade, I:60B
- Bald eagle, *see* Eagle, bald
- Bali, Indonesia, IV:383B; irrigation, VI:564A
- Ball clay: UK, II:46D
- Balsam fir: bark removal by chemicals, V:248C; transportation to pulp mills, Canada, V:260B
- Balsa wood: export from Ecuador, I: 250D
- Bananas: Jamaica, I:294D; production in British Caribbean Region, VI:252C-253A
- Banana-stem juice: use in ponds, VII: 122D
- Banco Minero de Bolivia, II:114B, 115B
- Banded ore theory, *see* Sulphur - banded ore theory
- Bandjermasin irrigation project (Indonesia), VI:565A
- Bang method of tuberculosis control, VI:474B
- Bangko irrigation project (Indonesia), VI:565A
- Bangkok, Thailand: agriculture, VI:261B
- Bangos, *see* Milk fish
- Banka, Indonesia: iron deposits, I:120B
- Banking laws: suited to growing industrialization, I:233C
- Banks: loans for conservation, I:205C; Banks, state control in Ecuador, I:251A
- Banks, agricultural, *see* Agricultural banks
- Banquette method of soil conservation, *see* Soil conservation - banquette method
- Bantu system of agriculture, VI:256B-257A, 270D
- Baraúna tree: Brazil, VI:73D
- Barberry: eradication, VI:338D; host to *Puccinia graminis avenae*, VI: 321A-322D
- Bardawai, Egypt: fisheries, VII:127B- 130A
- Barents Sea: cod fisheries, VII:9D-10A, 60B, 64D
- Bark beetles, V:61D; control projects, V:56B
- Bark removal, *see* Logging techniques - bark removal
- Bark utilization, V:296-302, 305-12; Australia, V:312A; dependence on development of markets, V:308A
- Barley: artificial induction of mutations, VI:533A; breeding, VI:298A
- Barlow Commission, *see* Royal Commission on the Geographical Location of the Industrial Population
- Barracouta (Snoek, Sierra): South Africa fisheries, VII:32B
- Barro Branco coal field, Brazil, III:129B
- Barytes: UK, II:47B
- Bass, black: culture in U.S.A., VII:139B
- Bass, large-mouth black: stocking of farm ponds with, VII:189C
- Bass, sea: Egyptian delta lakes, VII: 130A; harvesting in Philippines, VII:144D
- Bass, striped: conservation measures needed, VII:30C; transplantation, VII:53A
- Batavia, Indonesia: fishery station, VII: 41C
- Batwa clans (Belgian Congo): studies of, VII:225A
- Baux, France: bauxite, I:120B
- Bauxite: British Guiana, II:247B; Cuba, II:80C; deposits, I:120B, 124D; Dutch Guiana, II:247B; estimated world reserves, II:3C; France, I:120B; II:116B, 117D, 247B; Hungary, II:247B; India, II:67B; Jamaica, I:295B; II:247B; Netherlands East Indies, II:247B; probable reserves, II:266D; threatened exhaustion of rich ores, II:246B; West Africa, II:247B
- Beans: breeding, VI:280B
- Bear: (U.S.A.), VII:198B-198C
- Bear, black, VII:239B
- Bear, grizzly, VII:239B; kind of refuges, VII:254A
- Beasts of prey, *see* Animals, predatory
- Beaver, American: increase in numbers, VII:197D; introduced into Poland, VII:211A; ownership, VII:199A
- Beaver, European: preserved in Norway, VII:210D
- Beef: percentages of gross energy in feed eaten, VI:443D; *see also* Baby beef; Cattle
- Beef, frozen, VI:366B
- Beets: use for fodder, VI:355D; *see also* Sugar beets
- Belém, Para (Brazil): land reclamation, VI:598-602
- Belfast, Northern Ireland: institute for livestock research, VI:386A
- Belgian Congo, *see* Congo, Belgian
- Belgian Socogaz Research Society, III: 151C
- Belgium: capital export, I:19C; consumption of nitrogenous fertilizers, I:61C; sawmill techniques, V:231-33; waterways, IV:339D, 343C; zinc smelting industry, I:103A
- Royal Belgian Institute of Natural Sciences, VII:224B
- Belitang irrigation project (Indonesia), VI:565A
- Bell Telephone System, I:190D, 198B; V:272C
- Belle Fourche Dam, South Dakota (U.S.A.), IV:251C
- Belquas generating station, Egypt, IV: 301B
- Belt Sea, Denmark: transplantation of plaice, VII:55A
- Benelux (German and French coal and steel complex), I:59B
- Bengal: agriculture, VI:246A-249B; fish culture, VII:133D, 134C; forest surveys, V:12C; pond fertilization, VII:123A; ponds, VII:160D
- Fisheries Department, VII:123C, 160A
- Bengal, Bay of: fishery resources, I:311D; rivers falling into, IV:75A(*tab.*)
- Beni Amir, Morocco: agricultural experiments, VI:618A
- Benthonic species of fish, VII:11D-12A
- Benzene hexachloride: as parasiticide, VI:487B, 487D, 489D, 490A; insects resistant to, VI:492D; toxicity, VI:491B
- Benzole: as by-product of coke, III:163A
- Bergeijk, Netherlands: hatchery ponds, VII:146B
- Bergeron's theory of precipitation, IV:5A
- Bergh system of shale oil pyrolysis, III:52B
- Beri-beri, I:340B; effect on productivity, I:336D
- Bering Sea: potential production of Pacific cod, VII:29D; source of yellow-tail flounder ("sole"), VII:30A
- Bermo, India: strip mining, III:117B
- Bermuda grass (*Cynodon dactylon*), VI: 176C
- Berries: in Masai diet, I:339A; storage, VI:369B
- Beryl: Brazil, II:19A
- Beryllium: as an industrial metal, II: 267D; future of, II:250C;
- India, I:114C, 115D; required for atomic energy, I:312B
- Bessemer converter, II:174A

SUBJECT INDEX FOR VOLUMES I TO VII

- Bessemer (or Thomas) process: reintroduction of, II:160
Beta crops, *see* Sugar beets
Bethlehem Steel Company (U.S.A.): sewage reclamation, IV:99D
Beth-Shaan Valley, Israel: fish culture, VII:147D, 148A, 148B
Betty Jean (fishing vessel), VII:104A
Bicarbonate alkali: use in ponds, VII:122D
Biesbosch, Netherlands, IV:399D
Big game, *see* Game
Bighorn sheep, VII:239B, 240A
Bilbao, Spain: iron export, I:120B
Billingham, England: oil refinery, III: 77B
Billiton, Indonesia: iron deposits, I:120B
Bingham Canyon, Utah (U.S.A.), I:123A
Bio-Bio Province, Chile, VI:150-52
Biochemistry: in oil finding, III:7A, 25A
Biodiagnosis, *see* Soil surveys
Biogenic capacity of water, VII:156D
Biological control of noxious range plants, VI:547C
Biological sanctuaries, *see* Wildlife refuges
Biological soil research, *see* Soil research, biological
Biology: application of statistical methods, I:197D;
teaching in Cuba, I:281A
"Biometry," I:197D
Biosphere, as resource, I:56-57
Birch: source of essential oils, V:299A;
source of paper pulp, V:290A
Bird banding, VII:232C, 239C; *see also* waterfowl-banding
Birds: conservation, VII:228-29, 249B;
control of populations, VII:236C;
determination of population levels, VII:230B-231B;
differences in the legal status of wild, VII:236A;
legislation for protection of (UK), VII:209A;
management of resources, VII:229-39, 249A;
management of resources in New Zealand, VII:233-35;
management of resources in Peru, VII:231-33;
predations on herring eggs, VII:7A;
treaties protecting migratory species, VII:231D, 236B;
values to man, VII:228B-228D
Birds, game, *see* Game birds
Birds, predatory: protection needed, VII:208D-209A
Bird sanctuaries, *see* Wildlife refuges
Birsfelden plant, Switzerland, IV:273B
Birth control proposed for Egypt, I: 244B
Birth rate: Egypt, I:244A;
in relation to World Wars, I:16D; *see also* Reproduction rate
Biscuits: storage, VI:365D
Bismuth: Peru, I:124A;
recovery from lead-zinc refineries, I:41C
Bison, North American, VII:197C, 239B
Bituminous coal, *see* Coal, bituminous
Bituminous shale: as source of synthetic fuel, III:93B
Blackbirds: damage to crops, VII:236D
Black diamonds: production in Brazil, II:18C
Black fox, *see* Fox, black
Blackhead, VI:484D
Blackland Watershed Project, Riesel, Texas (U.S.A.), VI:232B
Black spruce: bark removal by chemicals, V:248D;
transportation to pulp mills, Canada, V:260B
Black-tailed deer, *see* Deer, mule
Blanca Iode, (Bolivia), II:114A
Blast-furnace coke, *see* Coke, metallurgical
Blast-furnace gas, III:293D
Blast furnace products: physical output per worker, I:61C
Blast furnaces: acid burdening practice, II:160-162;
alternative smelting processes, III: 186B;
Appleby-Frodingham practice, II:159 (*tab.*);
coal preparation for, III:129A;
coke supply, III:164D;
factors affecting coke consumption, III:176B;
fuel, III:267C;
high-top-pressure practice, II:172D;
historical importance, I:117B;
operations, III:185/*illus.*;
pelletizing, III:178D;
principles of operation, II:162A;
production costs, III:188(*tab.*);
reduction of coke consumption, III: 176-83, 184C-186B;
techniques, III:183D-186B;
use of oxygen in, II:179A, 181B
Blast furnaces, electric, III:179C-180A;
Tysland-Hole furnace, III:188C, 194B;
use of oxygen in, II:178D
Blast furnaces, low-shaft, II:181C; III: 179B, 193/*diag.*
Blasting: in mining, II:111D
Blind seed disease (*Phialaea temulenta*), VI:536A
Blizzards, IV:91C
Bloating in cattle, VI:557C
Blow flies, VI:489C
Bluegill, *see* Sunfish
Blue grama, VI:548A
Blue-grass, VI:559C
Blue Nile River, Sudan, IV:297D;
water volume, IV:81C
Boars, *see* Swine
Boengie irrigation project (Indonesia), VI:565A
Bog-lands: utilization, VI:46B
Boise Project (U.S.A.): Arrowrock Division, VI:603D
Boliden Mining Company (Sweden), II:62B;
ore dressing technique, II:112B
Bolivia: mineral deposits, II:82;
petroleum, II:16C;
tin deposits, I:120C;
tin-mining methods, II:113D-115D;
tin reserves, II:114B
Boll weevil: control, VI:317B
Bolti: Egyptian delta lakes, VII:129C
Bombay, India: deep-sea pilot fishing station, VII:172D
Bombay Deccan, India, VI:126D, 127A, 128D
Bombay Natural History Society (India), IV:446D, 447D
Bombay province, India: Land Improvement Research Project, VI:127A
Bomi Hills iron deposit, Liberia, II:75B, 76B, 77C
Bonnieville (Utah): potash deposits, II: 273C
Bonnieville Dam, Washington (U.S.A.), III:301D; IV:455D
Bonnieville Power Administration (U.S.A.), I:392A; III:301B;
federal transmission system, III:302 (*map*);
revenue, I:393B
Boots and shoes: employment of refugees for, I:330A
Boreholes: in prospecting, III:7D
Borneo: customary laws, I:321C;
fish culture, VII:163B
Boron: in algae, VII:178C
Bot flies, VI:489C
Botanical exploration, VI:294D-295B
Bottom-silt: use as manure, VII:120C
Botulism (or western duck sickness), VII:238C
Boulder Dam, Colorado River (U.S.A.), I:311A; IV:221C, 455B
Boundaries, National: relation to distribution of resources, I:59B
Bouri: Egyptian delta lakes, VII:129D;
Lake Karoun, Egypt, VII:130C
Boussarole (disease), Haiti, I:363C
Bovines: breeding, French West Africa, VI:407;
see also Cattle
Bracken fern, *see*, Fern, bracken
Brackish water, *see* Water, brackish
Braden Copper Company, Chile, I:119B
Bradford oil field, Pennsylvania, III: 43D, 47B, 50C;
secondary oil recovery operations, III:50D
Brahmani river, India, I:199B
Brahmaputra River, India: run-off, IV: 76B(*tab.*)
Brakes (fern), *see* Ferns, bracken
Branchiomycetes, VII:149C
Brassica: breeding, VI:281A
Brazil: age distribution, I:22C;
agriculture, I:25A; VI:598-602;
ambigonite, II:19A;
anchovies, VII:60C;
beryl, II:19A;
cassiterite, II:19A;
cattle breeding, VI:422B;
cement industry, II:17D;
coal industry, III:129B;
coal resources, I:117D; II:17D;
cobalt, II:19D;
diamond production, II:18C;
electric power industry, I:250A;
fertility rate, I:17B, 23A;
forest areas, V:315A;

- Brazil (*cont.*) :
- forest products, V:312-17;
 - forests, V:312-17;
 - gold production, II:18C;
 - grassland development, VI:525D;
 - importation of cattle from India, VI:422B;
 - industrial development, I:234C;
 - iron deposits, I:56A, 117D, 120B; II:16C;
 - iron industry, II:17B;
 - iron ore reserves, II:7C, 49B;
 - manganese deposits, II:16B, 18D;
 - manganese production, I:120A;
 - magnesite, II:19B;
 - mineral deposits, II:20(*map*); mineral exploration, II:49D, 83-84, 101B;
 - mineral resources, II:17-21;
 - nickel, II:19D;
 - petroleum reserves, II:18B;
 - phosphate deposits, II:272B;
 - possible mineral reserves, II:84B;
 - quartz, II:19A;
 - Rio San Francisco project, I:57D;
 - semi-arid region, VI:70-75;
 - semi-precious stones, II:19B;
 - shale oil resources, III:62-64;
 - soils, VI:136-38;
 - tantalum, II:19A;
 - tungsten, II:19A
- United States Technical Commission, I:234C
- Bream, *see* Sunfish
- Breeding season, *see* Livestock breeding — breeding season
- Bricks: from shale ash and lime, III:55A; *see also* Clay products plants
- Brine: evaporation by use of solar energy, II:261-64
- Britain, *see* United Kingdom
- British Caribbean Region: agriculture, VI:250-55
- British Coke Research Association, III: 160C, 160D
- British Colonial Dependencies: land-use legislation, VI:40B
- British Colonial Products Research Council, I:134D
- British colonies: agriculture, I:91A
- British Columbia, Canada: brown algae, VII:185D;
- cropping systems, VI:229C;
 - forest policy, V:180B;
 - water supply, IV:100C
- Forest Service, V:180B
- British Commonwealth of Nations: forest policy, V:178-81
- British dependent territories, Africa: soil conservation, VI:109A
- British East Africa, human population, VII:215C;
- increased food production, I:32D;
 - inter-territorial consultation on game and fauna administration, VII:217C;
 - land organizations, I:218C;
 - territorial game departments, VII: 216D
- British Electricity Authority, III:244C
- British Guiana: agriculture, VI:269A; bauxite, I:120B; II:247B;
- forest policy, V:179D
- British Honduras: agriculture, VI:269A; forest policy, V:179D
- British Investigational Teams, III:161C
- British Iron and Steel Research Association, II:221B; III:160D;
- British Iron and Steel Research Association: Corrosion Committee, II:226B
- British Phosphate Commission, II:284B
- British Railways: diesel-electric locomotives, III:265D
- British West Africa: game ordinances, VII:217A
- British West Indies: livestock breeding, VI:432D
- Brittany: iron ore deposits, II:9B;
- seaweed, VII:180-83;
 - seaweed as fertilizer, I:57D
- Broadcasting: use in adult education, I:221B;
- use in conservation education, I:260A, 276D, 288B
- Broken Hill (Australia) lode, II:52C
- Brome grass: inbreeding, VI:532D
- Bromine: from Dead Sea brine, II:262A
- Bronze: conservation, II:200C
- Brosimum*, VI:593C
- Brown algae, I:134A; VII:175A, 176A, 181B, 186C;
- chemical composition, VII:177D-180A, 181C, 186B;
 - efforts at commercial exploitation, VII:174B;
 - geographical distribution, VII:185D;
 - harvesting methods, VII:186B;
 - organic constituents, VII:175D;
 - quantitative estimates, VII:185D
- Brown Swiss cattle, VI:433C
- Brownsville, Texas (U.S.A.), III:87D
- Brucellosis, VI:393B;
- control in Denmark, VI:474D-475D;
 - methods of control, VI:464D-465A;
 - prevention in Argentina, VI:494B
- Brullos: fisheries, Egypt, VII:127B-130A
- B thiamine deficiency, I:341B
- Budgets, farm: in agricultural settlement, VI:615C
- Buenos Aires, Argentina: Quarantine Lazaret, VI:493B
- Buffalo: behaviour when habitat is invaded, VII:219A;
- destroyed to check tsetse fly, VII: 221D-222A;
 - diseases, VI:469B
- Buffalo, New York (U.S.A.): wind velocities, III:318(*diag.*)
- Bugunda, Uganda: agricultural education, I:297D
- Building board, I:141A; from straw and sugar-cane bagasse, I:134B
- Building industry: aluminium alloys in, II:248B
- Building materials, I:312D;
- Canada, III:201D;
 - Building materials: conservation, II: 203B;
 - prices in UK, II:249C(*tab.*)
- Building Research Station (UK), III: 207C
- Building stone: decreasing importance, II:123A;
- India, II:68C
- Bulgaria, steel consumption, I:61C
- Bulldozers: land reclamation with, VI: 613A
- Bulletin de l'Enseignement Professionnel et Technique des Pêches Maritimes*, VII:111D
- Bullocks: yoking, VI:468D
- Bulls, *see* Cattle breeding
- Bull Shoals project (U.S.A.), IV:428C
- Bunding of fields: Punjab, VI:8A
- Burbot, VII:13B
- Burma: agriculture, VI:13-16;
- forest reservations, V:200C;
 - forestry, V:117-20, 199-202;
 - forests, I:79C;
 - ingot-lead production, I:116A;
 - iron deposits, I:120B;
 - metal exports, I:113D;
 - metal resources, I:114C, 114D;
 - nickel production, I:116B;
 - tungsten production, I:120A
- Burning: effect on soil, VI:262B, 559D, 560B;
- of grasslands, VI:502D;
 - of noxious plants, VI:559C, 560A, 560D;
 - of paddy seed beds, VI:328C;
 - use on range lands, VI:547C
- Bush fires, *see also* Forest fires
- control needed in eastern Africa, VII:216D;
 - harm done by (Kenya Colony), VII: 219D
- Business cycles, I:203C, 212D, 426A
- Butadiene: chemistry, III:83D
- Butte, Montana (U.S.A.): copper mining, I:123C
- Butter: storage, VI:364B
- Butter fat: measurement, VI:434A
- Butylene: chemistry, III:83D
- B vitamins, in *Rh. gracilis*, I:147D
- By-products: of agricultural industries, I:305D;
- of minerals, II:16A;
 - wider use of, I:59C;
- Fish — by-products; Iron and steel industry — by-products *see also* Wood residues;
- Caatingas*: definition, VI:71A
- Cabbage aphids, VI:311A
- Cabbages: preservation, VI:371D
- Carbernardini mine (Italy), II:92C
- Carbernardini-Fercozzone sulphur deposits (Italy), II:90D-92B
- Cable sheaths: economizing lead in manufacture of, II:194C
- Cableways: use in logging, V:265C, 266A
- Cacao, export from Ecuador, I:250B;
- planting, Nigeria, I:302A;
 - production British Caribbean Region, VI:252A-C
- Cacao plant: diseases, VI:338C
- Cactus insects: use to destroy prickly pear, VI:547D

SUBJECT INDEX FOR VOLUMES I TO VII

- Cactus plantations: Tunisia, VI:610D
 Cadastral maps, I:186C;
 required for resource conservation and utilization, I:178B
 Cadmium: new uses, I:40C;
 Peru, I:124A;
 recovery from lead-zinc refineries, I:41C
 Caisson foundations: in oil-well drilling, III:15A
 Calabash tree, VI:591B
 Calamuchita, VI:402B
 Calchaquies valleys, Argentina, VI:400C
 Calcium: deficiency in diets of primitive agricultural communities, I:339B;
 for human diet, VI:439A;
 new uses, I:40C
 Calcium arsenate, Peru, I:124A
 Calcium carbide, Peru, I:124A
 Calcium in soils, *see* Soils, calcium content
 Calcium lignosulphonate, V:295A
 Calcium phosphate, II:276B
 Calco Chemical Company (Virginia), II:151B
 Calcutta, India: inland fisheries research station, VII:173A;
 pond fertilization, VII:123A
 Calibration trials, VI:549B, 550D
 Calicut, India: fishery research station, VII:173B, 173C
 California, U.S.A.: brown algae, VII:185D;
 forest fire fighting, V:38A, 39B;
 forest survey, V:7C, 26C-27A;
 gold rush (1849), II:13C;
 interior valley, VI:541B;
 limitation on excessive abstraction of water, IV:92D;
 sardine catch, VII:64C
 Division of Water Resources, IV:361C
 California, Southern: groundwater over-drawing, I:389A
 California Agricultural Experimental Station (U.S.A.): nutricultural research, I:132B
 California Debris Commission (U.S.A.), IV:308C
 California Institute of Technology, I:344A
 Calorie content of food, *see* Food supply
 Caloric content
 Calves: nutritional diseases, VI:452D;
 twins, VI:386C
 Cambodia: forest fire control, V:43-49
 Forest Service, V:46A
 Cambridge, England: institute for livestock research, VI:386A
 Camel: fat deposits, VI:418A
 Cameroons, West Africa: commercial timber, V:279B;
 forests, V:114B, 116B;
 reclamation areas, VI:579A
 Canada: agriculture, I:25B; VI:196-98, 225-30, 286-89;
 capital export, I:19C;
 children's broadcasts on conservation, I:260A;
 coal industry, III:124A, 142C;
- Canada (cont.):
 employment service organization, I:331A, 348D;
 energy resources, III:200B-201C;
 experiments in rainmaking, IV:27-36;
 forest policy, V:180B, 212A;
 forest protection, V:4043, 55-59;
 forests, V:130B;
 game management, VII:210B-210C;
 heating requirements, III:200-203;
 herring production, VII:29D;
 immigration of workers, I:330A, 331C;
 importation of livestock from northern Europe, VI:422A;
 iron and steel industry, III:183-95;
 iron ore reserves, II:7C;
 iron smelting, III:192(*map*);
 irrigation, IV:417D;
 land classification in, I:80A;
 laws protecting birds, VII:236A;
 log transportation, V:260-63;
 mineral exploration, II:49D;
 nickel production, I:120A;
 petroleum reserves, I:100C, 108D;
 III:5C;
 possible ore deposits, I:41B;
 potash deposits, II:277D;
 safety measures in industry, I:329B;
 salmon stock, VII:170C;
 sedimentary basins, I:96A;
 soil surveys, VI:120-22;
 standard farm land, I:27C;
 temperatures, III:200B(*tab.*);
 uranium deposits, I:120C;
 uranium-silver deposits, II:16C;
 wood preservation, V:284-86
 — Biological Board, VII:64D
 — Cereal Division of the Department of Agriculture, VI:286-89
 — Dominion Forest Service, 40-43
 — Dominion Wildlife Service, VII:230D
 — Fisheries Research Board: investigation of herring of British Columbia, VII:5B
 — Forest Insect Control Board, V:57A
 — Forest Products Laboratories, V:247B
 — Meteorological Division of the Department of Transport, V:42A
 Canada, French: fertility rates, I:23C
 Canada-U.S.A. boundary: water questions, I:399C
 Canadian Committee on Food Preservation, VI:363B
 Canaigre: tannin content, I:134C
 Canal linings: report by U.S. Bureau of Reclamation, IV:314-17
 Canals: Alsace, IV:346A, 350A;
 China, I:226D;
 Egypt, IV:168C;
 India, I:310C;
 proposed for South America, IV:349B;
 U.S.A., IV:338D
 Canals, irrigation: costs and benefits of linings, IV:314-17
 Canals, running-water, IV:223B-D
 Canals, still-water, IV:222D-223B
 Cane, sugar: *see* Sugarcane
 Canned foods, VI:376C-377A; *see also*
 Fish, canned
- Canning: of food, VI:343B, 360B;
 technological methods, VII:98C;
 Canso, Nova Scotia (Canada), I:224B
 Canutillos mine (Bolivia), II:115A
 Cape of Good Hope Province, Union of South Africa: brown algae, VII:185D;
 fish culture, VII:155A
 Cape Verde Islands: tuna canning, VII:62D
 Capillarity: factors in efficiency of secondary oil recovery, III:50A
 Capital: Egypt, I:245C, 246B;
 for international investment, I:19B;
 for less-developed countries, I:233D, 311B;
 importing countries, I:19C;
 U.S.A., I:249D
 Capital, low cost, I:207B
 Caplin (fish): potential development, VII:30B
 Caraó, *see* Scenna tree
 Carbohydrates: conversion into industrial chemicals, I:157-58;
 from micro-organisms, I:132D, 148B;
 in maize hybrids, I:85B;
 in seaweed, I:134B;
 photosynthesis, I:414D;
 sources, I:133A
 Carbolux: adoption of technique to metallurgical coking, III:171A
 Carbonados, *see* Black diamonds
 Carbon blanco, VI:593A
 Carbon dioxide: from natural gas, III:73A;
 photosynthetic fixation, I:133D
 Carbon negro, VI:593A
 Carbon tetrachloride: in treatment of liver fluke, VI:487A
 Carborundum, I:42C
 Caribbean area: dairy cattle, VI:423B;
 petroleum production, III:85A;
 potential fisheries development, VII:164C, 33C;
 sedimentary basins, I:96A;
 see also British Caribbean Region
 Caribou: population counts, VII:240D;
 U.S.A., VII:239B, 240A
 Caribou, woodland, VII:239D
 Carling coking plant (Lorraine), III:171C
 Carlsbad, New Mexico: potash deposits, II:273B, 284A
 Carnallite, II:263D
 Carnaubeira, Brazil, VI:71B-72A
 Carnegie-Illinois Steel Corporation (U.S.A.), II:172D
 Carnegie Steel Company (U.S.A.): Homestead, Pa., works, II:174B
 Caróa plant, Brazil, VI:72B-D
 Carolina Power & Light Company (U.S.A.), III:262A
 Carp, VII:122A, 122C;
 artificial insemination, VII:158-60, 163D;
 artificial insemination compared with natural spawning, VII:159B;
 culture, VII:132C, 149B, 161B, 161C;
 culture in Bengal, VII:133D;
 culture in China, VII:133B;
 culture in Formosa and Japan, VII:133B;

- Carp (cont.):
culture in India, VII:121C;
culture in Indonesia, VII:138B;
culture in Israel, VII:147D;
culture in Japanese paddy fields, VII:
124-26;
culture in Philippines, VII:143C;
culture in Yugoslavia, VII:158-60;
density, VII:126B;
diseases, VII:149C;
food, VII:126C, 134D, 158B;
pond culture, VII:131A, 135C;
possible culture in Philippines, VII:
144D;
price, VII:125C;
relation to rice yield, VII:125D;
rice-field culture, VII:135C;
use for hatching and stocking, VII:
145D-146D
- Caragheenin, VII:178C;
production from seaweed, VII:178A
- Carreto, *see* Rain trees
- Carthage Hydrocol, Incorporated (U.S.A.), III:87D
- Cartilaginous fishes: exploitation of Egyptian, VII:44-46
- Cartography: definition, I:173D
- Cascade Mountains, Washington and Oregon (U.S.A.): effect of wind direction, VII:196C
- Casing: in oil-wells, III:18D
- Cassava: use in Nigeria, I:302A
- Cassia grandis*, *see* Senna tree
- Cassiterite: Brazil, II:19A;
flotation, II:115A
- Castano, *see* Chestnut trees
- Castings industry: use of aluminium and magnesium in, I:42A
- Cast iron, nodular, II:210A
- Castor oil plant: harmful as field crop in teakwood plantation, V:110C
- Castor tree: industrial uses, I:157B,
158C
- Catalonia, Spain: potash deposits, II:
273D
- Catchment basins, *see* Flood run-off
- Catchment boards, I:289A;
New Zealand, I:286B
- Catfish, VII:133D;
possible culture in Philippines, VII:
144D
- Cathodic coating to protect metals, II:215D-216C, 224B
- Catla (fish), VII:122A, 133A;
culture in India, VII:133D
- Cattle: danger from thorny shrubs, VI:
419B;
disease resistance, VI:496D;
diseases, VI:393B, 428C, 429C, 464D-
466B, 466D, 471D, 472B, 473-81 (*see*
also Anaplasmosis; Brucellosis; Dumb
rabies; Foot-and-mouth disease;
John's disease; Mastitis, bovine;
Rinderpest; Tuberculosis of cattle);
diseases caused by parasites, VI:482A-
483A;
effect of heat on, VI:416D;
effect of low temperature on, VI:415C;
effect of nutrition on, VI:419B;
- Cattle (cont.):
export from Argentina, VI:479D;
fodder, VI:591B-593C (*see also* Forage
plants);
grazing, VI:593D (*see also* Grassland;
Grazing land);
production of human food, VI:430B;
tolerance of parasites, VI:497D;
weight gain, VI:515C, 516B;
see also Bovines; Calves; Cows
- Cattle breeding: Argentina, VI:428A-
429B;
breeds of dairy cattle, VI:386C;
Denmark, VI:391C;
French tropical Africa, VI:576A;
New Zealand, VI:540B;
pedigreed stock, VI:393D;
progeny testing, Denmark, VI:391C;
selection, VI:395C, 432C;
U.S.A., VI:434C;
see also artificial insemination
- Cattle ticks: campaign against in Argentina, VI:494C;
eradication, VI:492C
- Caulote, VI:591D
- Cauvery River, India: fish, VII:133D
- Caving methods, *see* Mining - caving methods
- Ceará State, Brazil: shale oil resources, III:62D
- Cedar: source of essential oils, V:299A
- Celebes, Indonesia: rice production, IV:
383B
- Celery: storage, VI:364B
- Celestite: in association with sulphur-bearing limestone, II:93C
- Celluloid, I:141B
- Cellulose: component of wood fibre, I:
140A;
manufacture based on agricultural products, I:157B;
molecules and chains, I:141D;
starting material from methane fermentation, I:158B;
utilization, I:141B
- Cellulose acetate products, I:141C
- Cellulose industry, I:139D
- Cellulose nitrate, I:141B
- Cement: from shale ash, III:55B;
use for dams, IV:320A;
use in preventing corrosion of steel, II:225B;
see also Building materials
- Cement industry: Brazil, II:17D;
Chile, I:237B,
E-cement, II:204A;
geographical basis, II:21-24;
India, II:23(*tab.*);
Pakistan, II: 23(*tab.*);
Philippines, I:242D;
- Cementing practices in oil-well drilling, *see* Petroleum wells-cementing
- Central African Council, VII:217C
- Central America: agriculture, I:339B;
projected population, industrialization and income, I:209(*tab.*);
unification of industry, I:214D
- Central Fisheries Research Institute (Shanghai), VII:135B
- Central heating, *see* Heating, central
- Central Institute for Research on Materials (Netherlands), II:234B
- Central Plains Experimental Range, Colorado, VI:503D
- Central Provinces, India, VI:469A;
water control, IV:212C
- Central States Forest Experiment Station (U.S.A.), V:25C, 25D
- Central Valley of California project (U.S.A.), I:402B;
river development, IV:137-41, 167A,
167C, 373C;
salinity control work, IV:361D-362A;
sediment flow from hydraulic mining operations, IV:308A
- Ceramics, *see* Clay products
- Cereals, *see* Grain
- Cerebrospinal meningitis: Haiti, I:363C
- Cerro de Pasco Copper Corporation, Peru, I:123D, 126D
- Ceylon: forest policy, V:179B;
graphite reserves, and exports, I:114A,
114D;
land-use legislation, VI:40A;
trawling fishery, VII:32D
- Chaco Park, Argentina: forests, V:16-19
- Chad, Africa: reclamation areas, VI:579A
- Chad, Lake, Africa: fish culture, VII:
162C
- Chain saws, *see* Saws, chain
- Chambers of commerce (Decatur, Alabama), I:377B
- Chamonix Valley, Haute-Savoie (France), V:160D
- Channel Islands: eradication of ox warble fly, VI:487D
- Char, VII:13B
- Char, arctic, VII:13B
- Charbonnages de France: research into underground gasification, III:151C
- Charcoal: consumption, Colombia, V:
127A;
production from wood residues, V:
299C, 321A;
use for absorbing odors in food storage, VI:343A;
use for motor fuel, I:106D
- Chatelard Landslide, Savoie (France), V:160B
- Chatou, France: hydraulic laboratory, IV:275D
- Chattanooga, Tennessee (U.S.A.): flood prevention by TVA, I:371A
- Chekiang, China: fish culture, VII:135B
- Chemical analysis: use in oil finding, III:24D
- Chemical compounds: use against crop damage, I:85B
- Chemical Construction Corporation of New York (U.S.A.), II:115B
- Chemical industry: lead economizing in, II:196A;
minerals important to, I:38C;
Philippines, I:242D;
reliance on petroleum and natural gas, III:99D;
use of agricultural products, I:157;
utilization of metallic compounds, II:
199C

SUBJECT INDEX FOR VOLUMES I TO VII

- Chemical Research Laboratory (UK), II:221B
 Chemicals: production from petroleum and natural gas, III:72D, 78A, in Netherlands, 79-81;
 use in controlling noxious range plants, VI:547A;
 use in eradicating aquatic plants, VII:164A;
 use in forest protection, V:56B;
 use in logging, V:247-49, 265A, 265B, 279-82 (*see also* wood preservatives);
see also Insecticides
 Chemicals, inhibitive: use for preventing metal corrosion, II:223B
 Chemurgy, I:131C, 134B;
 contribution to conservation of agricultural resources, I:135-38;
 definition, I:135B;
 objectives, I:136A;
 technician training, I:138A
 Chenab River (India), I:402C
 Chengtu Plain, China: irrigation system, I:227B
 Cheshire, England: coal fields, II:45A
 Chesterhill oil field, Ohio (U.S.A.), III: 47A
 Chestnut blight, V:56A
 Chestnuts: source of tannin, V:299B
 Chestnut trees, VI:592B
 Chestnut trees, Chinese: introduction into U.S.A., VI:294B
 Cheurfas Dam, Algeria, IV:231A, 234A
 Chile: Mexico, V:90D
 Child labour: economic foundation of family farming, I:216D;
 Haiti, I:362C
 Children: experiments in use of food yeast, I:154C;
 malnutrition, I:339B-339D;
 nutrition in wartime England, I:341A
 Chile, I:237D apatite deposits, II:291D-292A;
 brown algae, VII:185D;
 calcium deposits, II:292B;
 coal and iron resources, I:117D;
 combined improvement techniques, I: 86B;
 conditioning, VI:201A;
 copper deposits, I:120C;
 development of fishery resources, VII: 41-44;
 economic and industrial development, I:235-39;
 effect of irrigation on, VI:603C;
 fertilizer consumption, II:293B-294;
 fertilizer production, II:291-94, 292B (*tab.*);
 fertilizer research, II:293A;
 fishery resources studied by mission from US Dept. of the Interior, VII:42B-44C;
 guano beds, II:291B, 291D;
 importation of livestock from northern Europe, VI:422A;
 increased by improved technology, I: 84C;
 insect-resistant varieties, VI:317B;
 iron deposits, I:120B;
 marginal or waste lands, I:134C;
- Chile: apatite deposits (*cont.*):
Nacrocystis Pyrifera, I:133D;
 national income from copper and nitrates, I:119C;
 nitrate deposits, II:275C;
 nitrate industry, II:122D, 284C;
 nitrate reserves, II:293A;
 petroleum, II:16C;
 phosphate deposits, II:276C;
 phosphate reserves, II:293A;
 potassium resources, II:292A;
 precision of production operations, I: 85C;
 preservation, I:85D;
 production systems, VI:225-232;
 protection, VI:309-39;
 protection against insects, VI:310-18;
 relation to livestock feeding, VI:457-58;
 salt tolerance, IV:360D;
 sanitation measures, VI:328C;
 sodium nitrate deposits, II:291B;
 soil conservation, VI:150-52;
 source of nitrate, I:42B;
 steel industry, I:309A;
 storage, VI:201A;
 sulphide copper ore, II:16B;
 surveys, I:194C;
 trials of different varieties, I:195C;
 UK, I:68D;
 training of workers, I:353A;
 wastage of human life, I:336A;
 water supply, IV:263-67
 yields, VI:237A, 281-84;
- Department of Agricultural Research, II:293A
 — Ministry of Agriculture, VI:150B
 Chile Exploration Company, I:236D
 Chilean Development Corporation, I: 235B; VII:42A
 China: agriculture, I:25B, 226B, 417; IV:310A; VI:262C;
 ancient conservation, I:14D;
 coal fields, I:120D;
 conservation and land-use practices, I:226-29;
 effects of forest destruction, V:135C;
 fat deficiency, I:132D;
 fertility rate, I:17B, 23A;
 fish culture, VII:133B, 133C, 133D- 134C, 161C, 162B;
 fish culture in ponds, VII:120D, 121D, 122C, 131A;
 fish culture in rice fields, VII:123B;
 fishery practices, I:312A;
 food supply, I:31D, 340A;
 grazing land deterioration, VI:501A, 503C;
 iron reserves, I:114C, 116A;
 irrigation, IV:370D;
 land classification, I:80A;
 metal resources and exports, I:113D, 114D;
 mortality, I:21D;
 phosphate deposits, II:276C;
 pond fertilization, VII:123A;
 population, I:17C, 20D, 105C;
 potash deposits, II:277B;
 prospects of fisheries expansion, VII: 33B;
- China (*cont.*):
 standard farm land, I:27C;
 total area of fish ponds, VII:135B;
 tungsten production, I:120A;
 wastage of human life, I:336C
 China, North-west: land-use errors, I: 78B
 China, South: fish production in ponds, VII:120D
 China clay: UK, II:46C
 Chinchilla: parasites, VI:498A .
 Chinese National Research Bureau of Animal Industry, VI:472A
Chirikof (fishing vessel), VII:104C
 Chlordane: insects resistant to, VI:492D;
 toxicity, VI:491B;
 use against animal parasites, VI:489D, 490B
Chlorella pyrenoidosa, I:133B
Chlorella vulgaris, I:133B
 Chlorinated hydrocarbon insecticides, VI: 491D
 Chocolate: Haiti, I:361B
 Cholesterol: from sardine oil, VII:88C
Chondrus crispus, VII:181B
 Christian missions: Nigeria, I:302B
 Chromite, I:120A;
 depletion, I:407A;
 estimated world reserves, II:2D;
 India, II:67C;
 Philippines, I:242B
 Chromium: as alloying element, II:232B;
 essential to steel industry, I:38C;
 from low-grade ores, II:149D;
 India, I:114a, 115D;
 Philippines, I:242B
 Chromium compounds: as inhibitors of metal corrosion, II:229B
 Chromosome doubling, *see* Chromosomes — polyploidy
 Chromosomes: polyploidy, VI:277D, 532B
 Chuntop Araryabal, V:46C
 Chuquicamata, Chile, I:236D
 Cigarette paper: from seed flax, I:134B
 Cinema, *see* Motion pictures
 C.I.O., *see* Congress of Industrial Organizations
 Citrus fruits: production in British Caribbean Region, VI:253D-254A
 Civics: teaching, I:274A, 315C
 Civil engineering: equipment, IV:224D- 227B
 Civilian Conservation Corps (U.S.A.), VI:108D
 "Clairon silt loam-Webster silty clay loam", I:182D
 Clare Island, Ireland; eradication of ox warble fly, VI:487D
 Clay, China: *see* China clay
 Clay products manufacture in Philippines, I:242D
 Clays: India, II:68C
 Cleveland-Cliffs Iron Company (U.S.A.), II:151B
 Cleveland Iron Field, Yorkshire (England), II:45D
 Climate: Argentina, VI:428A;
 as factor in mineral utilization, II: 15B;

- Climate (*cont.*):
 Colombia, V:123C;
 conquest of, I:318A;
 Cyprus, VI:10B;
 effect of change on fish population, VII:8-10;
 effect of forests on, V:134B-135B;
 effect on grasslands, VI:534B;
 effect on human beings, I:317B;
 effect on livestock, VI:440D;
 effect on livestock disease, VI:468D;
 effect on productivity, I:336D;
 French tropical Africa, VI:570B;
 Greece, IV:381B;
 importance, IV:167D;
 Israel, IV:105D-106C;
 Jamaica, I:293B;
 Malaya, VI:588B;
 Mexico, IV:167D;
 New Zealand, VI:540A-D;
 Punjab, IV:212B
- Climax Molybdenum Company (U.S.A.), II:150B, 151B
 "Climax" vegetation, VI:528D
- Cloning, VI:542C
- Clothing: manufacture in Philippines, I:242D
- Clouds, IV:2B-23D;
 apparent limitations on modification, IV:21D-23D, 34B-C;
 stabilization, IV:91C;
 suitability for induced precipitation, IV:91B;
 turbulence and convection, IV:3D-4A;
 types, IV:3A
- Clouds, orographic, IV:15D-16B
- Clouds, stratus, IV:16D
- Clouds, supercooled, IV:8C-9A, 28C-32C
- Cloud seeding, *see* Precipitation, induced
- Clover, VI:460A, 530D;
 bloat in cattle from grazing on, VI:557C;
 breeding for high chromosome strains, VI:532C;
 mixed with grass, VI:507D, 518A-519B
- Clover, ladino, 557B, 557D; introduction into U.S.A., VI:294A
- Clover, red, VI:531B;
 mixed with rye, VI:536B;
 New Zealand, VI:538C
- Clover, white, VI:211A;
 commercial grades of seeds, VI:533B;
 mixed with rye, VI:535D;
 New Zealand, VI:537D-538B;
 nitrogen fixation, VI:555A
- Clupeids: fishing, VII:62C;
 India, VII:60D;
see also Herring; Sardine
- Coal: ash content, III:257A;
 as reducing agent in production of iron, II:181A;
 blending, II:139A;
 blending for coke production, III:165B, 166D;
 Brazil, II:17D;
 caking property, III:158D;
 carbon content, III:136B;
 carbonization, III:157-98;
 chemistry, III:82B;
- Coal (*cont.*):
 Chile, I:236B;
 classification, III:159A;
 classification by size, III:136D-137D;
 coking, I:55D;
 coking capacity, III:136B, 137C;
 conservation in Poland, III:104-15;
 consumption, I:101D;
 cost of conservation, I:204B;
 cost of production, I:110D;
 cyclone washers (*see* Coal-washing with cyclone washers);
 dedusters, III:137B;
 economy necessary, I:59D;
 estimated world reserves, II:4C;
 export, I:47D;
 filtration, III:134C;
 froth flotation, III:134D;
 hydrogenation process, III:89D-91D, 96B;
- Lorraine, III:169D;
 losses, III:142A;
 oil conversion, III:144B;
 Pakistan, II:22C;
 petrographic constituents, III:136A;
 Philippines, I:242B;
 physical and chemical tests, III:165C;
 preparation, III:135-39;
 preparation in Canada, III:142C;
 preparation in UK, III:133-35;
 preparation in U.S.A., III:128-30;
 properties in UK, III:158C;
 recovery by flotation, II:150C;
 removal of inorganic impurities, III:138A-138D;
 reserves, I:47B, 407A;
 reserves in Chile, I:235D;
 reserves in U.S.A., I:59n;
 screening, III:134C;
 segregation by technological types, III:136A-136C;
 sizes, III:160A;
 source of synthetic fuel, III:85D, 93D;
 tests for coking properties, III:158D, 170D;
- underground gasification in France, III:151-153;
 underground gasification in U.S.A., III:144-50;
 use for space heating in UK, III:206B;
 use in place of liquid fuels, III:273A;
 utilization, III:135-39;
 utilization in electric power generation, I:106c;
 utilization in UK, III:133C;
 washing, I:55D; II:139C; III:128B, 129A, 165A, 166C;
 washing by centrifuging in dense liquid, III:132A;
 washing in France, III:130-33;
 washing with cyclone washers, III:141C;
 world production, I:48A(*tab.*)
- Coal, bituminous: carbonization by electric process, III:173-75;
 salvaging, III:128B
- Coal, coking, *see* Coking coals
- Coal, fine: salvaging, III:128B, 134B;
 utilization, III:137A, 139A
- Coal, fuel: preparation, III:129C
- Coal, large: separation processes, III:133D
- Coal, low-grade: use in mine-mouth power stations, III:256-59
- Coal, low-volatile: preparation, III:129A
- Coal, pulverized: use for gas turbines, III:276D
- Coal ash, III:138B
- Coal beds: varieties, III:136A
- Coal industry: decentralization, III:129B;
 France, III:256B;
 India, III:124D
- Coal mining, III:135B;
 advanced mechanical equipment, II:138A;
 Canada, III:124A;
 causes of reduced productivity, I:47D;
 continuous system, III:115-17, 121B;
 cycle, III:120A-121B;
 France, III:123C;
 human effort involved, I:48C;
 India, III:117-19;
 longwall methods, III:105C-110C, 115A
 losses, II:104B-105A, 128A, 128D
(tab.)
 mechanization, III:115C, 117B, 120A, 128C (*see also* Strip mining);
 mechanization in UK, III:115B;
 methods, II:135B-136D, 137-40;
 physical output per worker, I:61C;
 Poland, III:104-15;
 relation to living standard, I:117D;
 room and pillar method, III:108A-
 110C, 116A, 119-22;
 sand stowing, III:111A;
 seam thickness, III:110D;
 shortwall system, III:114A-115A;
 systems, II:105A;
 UK, III:115B, 124C;
 U.S.A., III:119-22
- Coal production, I:47B;
 Europe, I:62D;
 France, III:169A;
 India, II:22C, 67B;
 UK, III:162(*tab.*)
- Coal reserves: UK, estimated for 1942-2042, III:162(*tab.*);
 Western Europe, III:264B
- Coal Survey organization (UK): appraisal of reserves of coal in UK, III:159C;
 coal classification, III:159A, 161D
- Coal tar: as by-product of coke, III:163A
- Cobalt: Brazil, II:19D;
 essential in animal diet, VI:451B-455A;
 essential to jet engine, I:40D;
 India, I:115D;
 plant nutrient, I:85D;
 recovery from copper-nickel ores, I:41C;
 scarcity in India, I:114C
- Coccidioides, VI:482B, 482C, 483D, 486A, 487C;
 in poultry, VI:484B
- Cochinoca, VI:402A
- Cocksfoot, VI:515B, C;
 inbreeding, VI:532D;
 New Zealand, VI:537B
- Cocoa, *see* Cacao
- Coconuts: production, VI:263A;
 production in British Caribbean Region VI:253A

SUBJECT INDEX FOR VOLUMES I TO VII

- Coco-palm, fat from, I:148A
 Cod: annual yield, VII:29D;
 Atlantic population, VII:60B;
 Barents Sea, VII:64D;
 distribution area increased owing to,
 temperature rise in northern waters,
 VII:9B;
 fluctuations in Arctic-Norwegian stock,
 VII:2B-4C, 10A;
 fluctuations in catch, VII:3A-4C;
 investigations of survival of eggs (Norway), VII:58D-59B;
 mesh size of fishing net restricted (Norway), VII:26B;
 migration, VII:2C;
 Murman coast, U.S.S.R., VII:9D-10A;
 North Sea, VII:166A, 167C, 185A;
 Norwegian fishing periods, VII:2B-4B;
 potential increased exploitation, VII:
 65A;
 potential production of Pacific, VII:
 29D;
 price in Norway, VII:88D(*tab.*);
 propagation experiments (Norway),
 VII:58A;
 statistics of catch (North Atlantic),
 VII:9C;
 transplantation in the Limfjord (Denmark), VII:56D
 Cod, Arctic: Norwegian catch, VII:4B
 Codfish fillet: Denmark, VII:115A
 Cod fishing: economic aspects, VII:117D
 Codling moths: control with DDT, VI:
 314A
 Cod liver oil, VII:87D
 Coercion of workers, I:331D, 348B
 Coffee: disease control, VI:335A
 Coffee Planters' Association (Colombia),
 VI:560A
 Coffee production: British Caribbean
 Region, VI:254A;
 Colombia, VI:89-94;
 East Africa, I:315B;
 Jamaica, I:294C;
 Uganda, I:297A
 Cofferdams: scale model designs, IV:
 281A
 Coke: abundant supply, I:42C;
 by-product recovery, III:163A;
 conservation, II:206B; III:176-95, 197C;
 conservation by modifying present
 standard blast-furnace practice, III:
 194A;
 consumption in small blast-furnaces,
 III:188(*tab.*);
 nitrogen fertilizer as by-product, II:
 275B;
 physical and chemical tests, III:165C;
 quality, III:160C-161A, 196D;
 quenching and dry cooling, III:162C;
 see also Coal
 Coke, metallurgical: characteristics
 required, III:169B;
 conservation, III:166D;
 formulae, III:172A;
 production, III:164-68;
 production in France from coals of
 poor coking quality, III:168-72;
 shortages, III:166A-167D;
 supply in U.S.A., III:186A;
 cont.:
 use of dry coals and semi-coke as
 thinning agent, III:171A
 Coke, non-metallurgical: conservation,
 III:167B
 Coke combustion plant in shale oil re-
 covery, III:53B
 Coke ovens: control of bulk density of
 the coal mix, III:165C;
 design, III:161A-162C;
 doors, III:161D;
 gas as fuel, III:293D
 Coke ovens, beehive, III:164B
 Coking: tamping method, III:171C
 Coking coals, III:136B;
 Brazil, III:129B;
 conservation, III:166B;
 expansion tests, III:165B;
 exploration, III:166B;
 mining methods, III:166C;
 preparation, III:128D;
 quality needed in blast furnaces, III:
 184A;
 supply in France, III:168-72;
 survey of reserves and production in
 UK, III:159C-160C;
 term, III:163B;
 U.S.A., III:197B
 Coking industry: coal requirements, III:
 160A;
 control of residual volatile matter, III:
 165D;
 electric carbonization of non-coking
 coal, III:173-75;
 relative sizes in UK, Germany and
 U.S.A., III:158B(*tab.*);
 UK, III:158-64
 Colchicine: use in plant breeding, VI:
 282A, 532B
 Cold: effect on plaice, VII:52D
 Cold storage: Eastern Cooperative Services,
 I:225A
 Collective bargaining: not a sufficient
 basis for human productivity, I:335A
 Collective farming: Africa, VI:583D
 Colloidal instability of clouds, IV:3A
 Colombia: agri distribution, I:22C;
 agriculture, VI:89-94;
 beef cattle, VI:422D;
 cattle breeding, VI:422B;
 climate, V:123C;
 forests, V:20-28;
 grasslands, VI:525D, 527D, 528C,
 559D;
 livestock breeding, VI:431D;
 nutrition, I:345B;
 social development, I:345B;
 soil conservation, V:174C; VI:51D;
 water supply, IV:128C
 Soil Conservation Service, VI:89-94
 Colonial Food Yeast Ltd. (Jamaica,
 B.W.I.), I:132c
 Colorado, U.S.A.: hunting and fishing
 rights, VII:199A
 Colorado Big Thompson project, I:
 402B
 Colorado River (U.S.A.): extremes in
 elevation, VII:196B;
 sedimentation, IV:213B
- Colquiri Mining Company, (Bolivia),
 II:114C
 Columbia River, U.S.A., I:402D; IV:
 455C-D;
 development, I:384A, 400B;
 multiple-purpose dams, III:301;
 silt conditions, IV:293D
 Columbia River Basin, U.S.A., III:303C;
 comprehensive development, IV:170B;
 recreation studies of, IV:437A;
 water storage, V:173A
 Columbium: as alloying element, II:
 232A;
 essential to jet engine, I:40D;
 new uses, I:40C
 Commercial guilds: as labour recruiting
 agencies, I:348A
 Commercial interchange, in community
 of growing industrialization, I:233D
 Committee for Electro-chemical Thermodynamics and Kinetics (University of Brussels): researches on corrosion work, II:238-40
 Committee on Land Utilization in Rural Areas (UK), I:66C
 Commonwealth Potato Collection, Cambridge (UK), VI:275C
 Commonwealth War Service Land Settlement Scheme (Australia), VI:513-16
 Communal ownership of land, I:217A
 Compagnie cotonnière du Congo, I:270A
 Compagnie des Mines de Bruay: adoption
 of technique to metallurgical coking,
 III:171A
 Compagnie Nationale du Rhône, I:
 389C, 390B, 390C, 394A; III:298C-
 300B; IV:137B
 Compañía de Acero del Pacífico, I:236B
 Compensatory plantations, *see* Silviculture - theory of compensatory plantations
 Competitions: use for conservation education, I:288D
 Competitive system: conservation in,
 I:203B, 213B
 Compost, VI:236C-237A, 241A;
 China, VI:262C;
 Formosa, VI:263A
 Compression-ignition engines, III:287D,
 289(*diag.*)
 Compulsory education: abolition of
 illiteracy, I:349A;
 resistance to, by peasant farmers,
 II:216D
 Conacaste tree, VI:591B
 Concentration camps: starvation in,
 I:340C
 Conception rate: in cattle, VI:394A
 Conchos River, Mexico, IV:389B
 Concrete: from shale ash and lime, III:
 54D;
 see also Building materials; Cement
 Condensation in buildings: preventive measures, III:206A
 Condensation nuclei, *see* Nuclei - types in atmosphere
 Congo, Belgian: agricultural education,
 I:299C;
 agriculture, VI:153-55, 255-58, 594-96;

UNSCCUR PROCEEDINGS: INDEX

- Congo, Belgian (*cont.*) :
 commercial timber, V:279B;
 compulsory cultivation and reafforestation, I:270B;
 copper deposits, I:120C;
 education for conservation, I:257D, 258C, 260C, 269D;
 fish culture, VII:162C;
 game administration, VII:217A;
 handbook on animals protected, VII: 226A;
 inventory of the fauna and flora of the reserves, VII:224A-224C;
 national parks, VII:216A;
 reafforestation, I:270B;
 school system, I:299D;
 temporary clearing of forests, I:79C
Institut national pour l'étude agronomique, VI:153n
 National Parks Institute, VII:222-26, 224D, 233B
- Congo, French Middle: forests, V:114B; VI:579B;
 research on log protection against insects and fungi, V:279C-282;
 timber resources, V:279D
- Congo River: navigation, IV:339A
- Congo River basin, VI:572A;
 reclamation areas, VI:579A;
 regulation, VI:581A
- Congress of Industrial Organizations: interest in conservation, I:420D
- Conifers: danger to soils from exclusive planting, I:57A;
 Mexico, V:90B;
 source of essential oils, V:299A
- Conseil Supérieur de la Chasse pour la France d'Outre Mer, VII:248C
- Conservation: coupling with industrial development, I:208D;
 economic considerations, I:202-15;
 human and political implications, I:319D;
 political and administrative problem, I:15C;
 public relations and education in, VII:217D;
 relation to peace, I:206B, 319B;
 statistical control, I:188-92;
 unity with resource use, I:208C;
see also Fishery conservation; Forest conservation; Fuel conservation; Game conservation; Land conservation; Soil conservation; Water conservation; Wildlife conservation
- Conservation education, *see* Education for conservation
- Conservation farming, VI:79-85
- Consolidated Mining and Smelting Company of Canada, Ltd., II:144B
 "Constitution" in animals, VI:414B
- Consumer co-operative business: Antigonish Movement, I:222D, 223D
- Consumers: conservation education, I: 260C
- Consumers' goods: as work incentive, I:348D
- Consumption: balance in relation to production, I:51C;
 predictions of trends in, I:191C;
- Consumption (*cont.*):
 relation to production, I:207D
 Consumption standards, *see* Standards of living
- Contagious abortion, *see* Brucellosis
- Continental shelf: areas, I:97(*map*); definition, III:21B;
 difficulty of operating under water, I:97C;
 petroleum production from, III:5D, 21-23;
 petroleum reserves in, I:97A, 109D
- Contour cultivation, I:57A, 75B, 284C, 288C; VI:27C;
 Burma, VI:15A;
 China, I:228C;
 El Salvador, VI:17B;
 Nyasaland, I:283D;
 Uganda, I:297A
- Contour hedges, I:294C
- Contour method of making sedimentation survey, IV:293B
- Contour strip-cropping, VI:4B;
 Kenya, VI:103A
- Contour-trenching: Pakistan, VI:8B
- "Controlled area" system: in relation to game management (Northern Rhodesia), VII:220-22
- Conventions for preservation of deep-sea fishery, VII:18A, 18D
- Cooking: fuel for, III:269B
- Cooling methods: improvements, I:7C
- Cooling of buildings: by heat pumps, III:213-14; *see also* Air conditioning
- Co-operation economic: Africa, VI:582C;
 Antigonish movement, I:221D-226A;
 important to resource conservation and utilization, I:220B;
 producer and consumer organization under single management, I:224B
- Cooperation in soil conservation work, I:82D;
 New Zealand, I:288D
- Co-operative Better Farming Societies, Kenya, VI:103C
- Cooperative extension work in agriculture and home economics (U.S.A.), I:265C
- Co-ordination between services for conservation, Africa, I:278A
- "Coordination of Cartographic Services of Specialized Agencies and International Organizations" (report of Secretary-General), I:173D
- Coosa River, Alabama and Georgia (U.S.A.), IV:426C
- Copper: annual requirements, I:39n;
 as alloying element, II:232B;
 as cathodic coating, II:224B;
 base materials, II:30(*tab.*); Chile, I:119B;
 conservation, II:201A;
 cost of producing, I:127B;
 depletion, I:13D, 407A;
 deposits, I:120C, 123B;
 diminishing reserves, I:113B;
 essential in animal diet, VI:455A-D;
 estimated world reserves, II:3A;
 exports, I:309B;
 fundamental to civilization, I:38C;
- Copper (*cont.*):
 history, I:56A;
 India, I:115D;
 Katanga Northern Rhodesia, I:170D;
 low-grade ores, I:123A; II:144A, 147A;
 Peru, I:123D;
 possible undetected deposits, I:171C;
 production increases, I:13D;
 production since 1900, I:39D;
 prospective world demand, I:40C;
 relative scarcity, I:39B;
 reserves in U.S.A., I:59n;
 scarcity in India, I:114C;
 scrap used in, I:41D;
 sources, I:121A;
 stock ownership by American, British and Belgian interests, I:126B;
 taxation in Chile, I:119C
- Copper deposits: India, II:67D;
 Rhodesia, II:97D-98A
- Copper industry: Chile, I:235D, 236D
- Copper-in-use: U.S.A., II:34(*tab.*)
- Copper therapy, VI:452D
- Coppice system, *see* Silviculture - coppice system
- Córdoba, Argentina, VI:402B
- Cormorants: guano producers, VII:235A;
 population estimates, New Zealand, VII:235A
- Cormorants, guanay, *see* Guanay
- Corn, *see* Maize
- Corn steepwater, I:137C
- Cornwall, England: tin, II:47C;
 tungsten, II:47D
- Corriedale sheep: breeding experiments in Argentina, VI:404C-407D
- Corrosion of metals, *see* Metal corrosion
- Corrugated farming: Burma, VI:15A
- Corundum: India, II:68C;
 substitutes for, I:42C
- Cost: in relation to market, I:236A
- Costa Rica: conservation education, I: 322D;
 control of parasites, VI:496C;
 grassland, VI:557C;
 Inter-American Institute of Agricultural Sciences, I:354-56
- Cost-benefit ratio in plant breeding, VI: 274B
- Cotton: cost of production and price (*chart*), I:210;
 harvesting machinery, VI:188D;
 imports from Mexico and Guatemala to U.S.A., VI:295A;
 marketing, I:218B;
 sample conservation investments (*chart*), I:210;
 weed control, I:85B
- Cotton jassids, VI:315A
- Cotton production, VI:82B;
 British Caribbean Region, VI:253B-D;
 Egypt, I:244C;
 Morocco, VI:617D-618D;
 Nyasaland, I:284C;
 Sudan, I:217C;
 Sukumaland, VI:587D;
 Tennessee Valley, I:369D, 376B;
 Western Pakistan, VI:240B, 244D
- Cottonseed: chemurgy, I:137B

SUBJECT INDEX FOR VOLUMES I TO VII

- Cotton-seed oil industry: by-products, VII:150C
 Cotton stalks: ploughing under, VI:317B
 Cotton textiles: employment of refugees for, I:330A;
 manufacture based on agricultural products, I:157B;
 physical output per worker, I:61C
 Couch-grass, VI:595B
 Coulee Dam National Recreational Area, Washington (U.S.A.), IV:437D
 Coumarone: as metal-coating material, II:223D
 Council for Scientific and Industrial Research in 1933 (Australia), VII:36A
 Council for the Study of the Sea in the South West Pacific and the Indian Ocean, VII:41B
 Council of the Organization of the American States, I:354B
 County agents, I:265A
 County extension workers, I:265D
 Courbaril trees, VI:593A
 Cover crops, I:75C;
 Burma, VI:16A
 Cowbirds: damage to crops, VII:236D
 Cows: competition with man for food, VI:444B;
 efficiency in feed use, VI:439C;
 milk recording, VI:384D;
 milk yield, VI:441D;
 production efficiency, VI:438D;
 roughage feeding, VI:444D;
 tests of effect on grasslands, VI:520C;
 winter shelter, VI:441A;
 see also Cattle breeding
 Coyol, VI:592D
 Cozzo Disi mine (Italy), II:87C
 Crabs: harvesting in Philippines, VII:144D;
 Indonesia, VII:137C;
 Yugoslavia, VII:160C
 Cracking in gasoline production, III:70C
 Crawler tractors, see Tractors, crawler
 Creatable resources, I:129-65;
 development by applied technology, I:131-35;
 economic aspects, I:159D;
 possibility of replacing metals, I:161B;
 see also Renewable resources
 Credit: for under-developed areas, I:60D;
 Israel, I:322B
 Credit, agricultural, see Agricultural credit
 Credit, governmental, I:213A; relation to conservation, 204D
 Credit, international: necessary to creation of resources, I:162C
 Credit regulation: suited to growing industrialization, I:233C
 Credit unions: Eastern Canada, I:221D, 223A, 225D
 Creole Petroleum Corporation, III:14B, 14D, 38B, 38D
 Creosote: use as wood preservative, V:269D, 287B
 Crescentia cujete, see Calabash tree
 Crested wheatgrass: adaptation to sage-brush zone, VI:542A
 Cretaceous oil fields, Venezuela, III:37D
 Cricket-bat willow, V:61D
 "Criollo" cattle, VI:428A
 "Criollo" sheep, VI:404C
 Crises: relation to public undertakings, I:392B-292D, 293C
 Croatia: Institute of Forestry, V:67A
 Crop land: game conservation (UK), VII:190-95;
 margins: used for wildlife, VII:188D;
 Italy, IV:178C-179A;
 predators (UK), VII:193C;
 wildlife on, VII:188-89
 Crop policy, VI:437-62
 Crop production: Belgian Congo, VI:255-58;
 relation to soil conservation, VI:83D
 Crop residues, VI:236C-237A, 241D
 Crop rotation, I:75C, 218B, 305A, 339A;
 VI:4C, 154D, 165A, 210D;
 Africa, VI:575B;
 Burma, VI:15D;
 China, I:228C, 228D;
 effect on soil fertility, VI:234D;
 Indonesia, VI:564A;
 in insect control, VI:317A;
 in parasitic fungi control, VI:334D;
 in plant disease control, VI:323C, 326D, 328B;
 Nyasa land, I:284D;
 Scotland, VI:507C;
 tropics, VI:563D, 564B;
 use in replenishing soil, I:85C;
 see also Bantu system of agriculture
 Crops: adaptation to environment, VI:292-96, 307B;
 agro-ecological suitability, VI:139-49;
 see also Plants
 Crop surpluses: marketing, VI:620A;
 utilization for animal feed, VI:440A
 Crossbreeding, see Hybridization; Livestock breeding - crossbreeding
 Crustacea: culture of, VII:163A
 Cryolite, artificial, I:42C
 Crystals, artificial, I:42B
 Cuba: conservation education, I:279-82;
 depletion of resources, I:279D;
 iron deposits, I:120B;
 manganese, production, I:120A;
 mineral resources, II:79-81;
 nickel, II:16C;
 possible mineral reserves, II:79D-80C;
 school system, I:280-82;
 training of workers, I:353A
 — Supreme Mining Board, II:80
 Cultivation, see Tillage
 Cultivators, VI:176D
 Cultural institutions: conservation propaganda, I:277A
 Cultural patterns: as block to education, I:263A, 263C;
 often adapted to ecological conditions, I:269C
 Cultural synthesis: in history, I:280B
 Cumulus, towering, IV:20B-21B
 Curaçao, Netherlands West Indies: nutritional gardens, I:132B;
 phosphate deposits, II:272B
 Cyanide process for extracting gold, I:41B
 Cyanamide process of nitrogen fixation, II:275D
 Cycling method to prevent oil waste, III:42C
 Cyclone process, see Ore concentration - cyclone process
 Cyprus: agriculture, VI:10-12;
 climate, VI:10B;
 eradication of ox warble fly, VI:487D;
 forest policy, V:140-42, 179D;
 forestry, V:171A-B;
 water rights, I:217C
 — Soil Conservation Service, VI:11C
 Czechoslovakia: agreement with Poland on development projects I:59A;
 coal fields, I:120D;
 forest protection, V:63-66;
 heating of buildings, III:218-19;
 irrigation, IV:122B;
 water resources, IV:78-80
 — Commission for Purity of Water, IV:120D
 Dacca University (India): laboratories, VI:126D, 128D
 Dahomey, French West Africa: reclamation areas, VI:579A
 Dairy cans, see Tin cans
 Dairy cattle, see Cattle; Cows
 Dairying, VI:395C, 441A;
 Hawaii, VI:194D;
 New Zealand, VI:412A-413A;
 see also Cows
 Dairy products: Egypt, I:245B
 Damodar Valley Authority (India), I:408A
 Dams: as source of power, I:57B;
 construction, IV:219D-222B, 224-43;
 criteria for construction (U.S.A.), IV:319B;
 deterioration, IV:247-54;
 effect on fish, VII:152B;
 effect on fish, in India, IV:448D;
 effect on salmon, VII:152C;
 India, I:310D;
 relation to hydroelectric power, navigation, flood control and irrigation, 388B;
 Rio Negro, I:394C;
 selection of sites, IV:243-46;
 source of fish supply, VII:123C;
 spillways, IV:229B-D;
 Sweden, IV:440D-442C;
 TVA, I:371A, 374C, 374D, 381A;
 U.S.A., I:310D;
 use for dividers and for measures, IV:263-67;
 use for various purposes, I:389C, 391A;
 Yugoslavia, IV:261D
 Dams, arch, IV:319C, 320A
 Dams, concrete: deterioration, IV:247C-251B, 320B
 Dams, earth, IV:320A;
 deterioration, IV:251B-254A
 Dams, gravity: U.S.A., IV:319B
 Dana (Danish research vessel), VII:9B
 Danish Biological Station, Charlottenlund, Denmark, VII:53D, 55C
 Danube River: carp stocking, VII:159D;
 development project, IV:257C

UNSCCUR PROCEEDINGS: INDEX

- Danube-Tisa-Danube Canal (Yugoslavia), IV:396B-397C
 Darjeeling, India: strip-cropping in, VI:8C
 Darkness: effect on fecundity, VII:163D; effect on livestock breeding, VI:414C-415C
 Darwinian theory of natural selection, VI:414A, 430A
 Dates: introduction into U.S.A., VI: 294B
 Daughter-dam comparisons in cattle, VI:391C
 Davis Dam, Colorado River (U.S.A.), IV:251B
 Daylight: effect on livestock breeding, VI:414C-415C
 DDT: airplane application against tsetse flies, VI:482B; as parasiticide, VI:487B, 487D, 489D; effects on milk, VI:491C; in malaria control, I:337A, 343A; penetration through fatty tissue of cows, VI:497B; relative harmlessness, VI:491B; resistance of flies and mosquitoes to, VI:492D; use in insect control, VI:317D
 Dead Sea: desalinating, IV:414A; drainage, VII:163D; evaporation, I:392D; mineral wealth, II:261-64; potash deposits, II:263B, 273D;
 Dead Sea Plain: fish culture, VII:148C
 De-aeration: to prevent metal corrosion, II:228C
 Death rate *see* Mortality
 Death Valley, California (U.S.A.): elevation, VII:196B; temperature, VII:196C
 Decatur, Alabama, *see* Tennessee Valley Authority - industrial development under
 Deccan Plateau, India, *see* Bombay Deccan
Deep Sea (fishing vessel), VII:104C, 105A(*illus.*)
 Deer: conservation from the ecological point of view, VII:210A; ecological aspects of production on forest lands, VII:205-7; effect on their own range, VII:206C-207B; effects of different degrees of deer-use on carrying capacity of forest lands, VII:205D(*graph*); hunting in Scotland, VII:210B; management, VII:207B-207D; number in Scotland, VII:256C; overpopulation of ranges, VII:206B-207B; reduction of herds to prevent over-population, VII:241A; relation to plant successions, VII: 205B-206A; study of stocking capacity essential to conservation, VII:251C
 Deer, black-tailed, *see* Deer, mule
 Deer, mule (*Odocoileus hemionus*), VII: 205A, 239B; increase in numbers, VII:197D, 202B; population (U.S.A.), VII:239B; population counts, VII:240D; preserved in U.S.A., VII:255C
 Deer, red (*Cervus elaphus*): Scottish Highlands, VII:251A; shooting code in Scotland, VII:250B-250C; status in UK, VII:250-52
 Deer, white-tailed (*Odocoileus virginianus*), VII:205A; population (U.S.A.), VII:239B; preserved in U.S.A., VII:255C
 Defence: land-use in United Kingdom, I:54D
 Deficiency diseases: in primitive agricultural communities, I:339C
 Deforestation, *see* Forests-depletion
 Dehydration of food, VI:343B, 361C, 364A, 377A; *see also* Fish, dehydrated; Food processing; Vegetables, dehydrated
 Dehydrofrozen foods, I:136D; VI:362B
 Delaware-Childers oil field, Oklahoma, III:43D
 Deltas: pond culture in, VII:132A
 Demand, in relation to prices, I:20C
 Demersal fish, VII:167C, 184A
 Demonstration work in agriculture, I: 88D; VI:109A; Argentina, I:267C; as method of education, I:260B, 264C; New Zealand, I:288C
 Denmark: agricultural education, I: 317B; agriculture, I:25B; VI:204D, 267D, 289-92; capital export, I:19C; control of livestock diseases, VI:473-77; dairying, VI:395C; fish catch (1947), VII:90A; fish processing industry, VII:115A; fish-transplantation experiments, VII: 53D-57C; grain yield, I:32C; grassland, VI:525B; livestock breeding, VI:390-94; potash deposits, II:277D; standards of living, I:118A; — Fisheries Inspectorate, VII:54C, 55C
 Denver, Colorado (U.S.A.): hydraulic laboratory, IV:275D
 Dependent areas: export of food and raw materials, I:61A; unfavorable trade terms, I:60A; *see also* Under-developed areas
 Depletion: term, I:211D
 Depression, economic, *see* Economic depression
 Derricks: for oil well drilling, III:11B
 Derris as parasiticide, VI:487D
 Desert Plains Grassland, U.S.A., VI: 510B
 Deserts: irrigation, I:57B; irrigation and crop production (Saudi Arabia), IV:385-88
 Desiccation of food, *see* Dehydration of food
 Design, experimental, I:189B, 193A, 196C, 198B
 Design, structural: as factor in conserving structural steel, II:204C; as a factor in mineral conservation, II:203-4; as factor in metal corrosion, II:213D-214A, 230D-231D; as factor in saving raw materials, II:203B
 Desilting basins: new plan for North China plain, IV:312D-314C
 Desilting works, IV:223B-D
 Desulphurization: of iron ore, II:162D
 Detergents: from petroleum, III:74B, 78A, 79D
 Development of resources: economic considerations, I:202-15
 Devon, England: cassiterite, II:47D; tin, II:47D
 Dew: as source of moisture, IV:2B; utilization, IV:45-47, 93D
 Dew Research Station (Israel), IV:45D
 Diamond coring: in oil-well drilling, III:12C, 17(*tab.*), 18B
 Diamond drilling: use in oil prospecting, I:41A
 Diamonds: Belgian Congo, I:169A; Brazil, II:18C, 84A; Gold Coast, I:169A; India, II:68D
 Diesel engines, III:270D, 274D, 281D; efficiency on railroads, III:284(*diag.*); for integrated power systems, III: 226D; fuel, III:72A, 175A, 267D; use for motor vehicles, III:265B; use in oil-well drilling, III:11D; use on ocean vessels, III:265D; use on railways, III:85C, 265C
 Diet, local: rations should be built around, I:342B
Digitaria, VI:595A
 Diminishing returns: in agriculture, I: 25A
 Dinara Mountain system, Yugoslavia, IV:260D
 Dip needle: use in oil prospecting, I:41A
 Direction-finder: use in fishing, VII:99B
 Discussion groups: Antigonish movement, I:220D
 Disease: conquest of, I:317C; *see also* Cattle - diseases; Livestock diseases; Plant diseases; Sheep - diseases
 Diseases, epidemic and endemic: effect on productivity, I:336D
 Diseases of animals, *see* Livestock diseases
 District heating, *see* Heating, district
 Diversified farming: Tennessee Valley, I:382A
 Djerada anthracite field (Morocco), III: 151A
 Djerada Gasification Committee, III: 151C
 Dnieper river-development project (U.S.S.R.), IV:257C
 Documentary films, I:287C
 Dogfish: North Sea, VII:166A

SUBJECT INDEX FOR VOLUMES I TO VII

- Dogs: treatment for parasites, VI:494D
 Dollard basin, Netherlands, IV:399D
 Dolomite: India, II:68D
 Dominican Republic: iron deposits, I: 120B
 Domnarfvet, Sweden: blast furnace, III: 177A-178C
 Donets basin: U.S.S.R.: coal fields, I:120D
 Donkeys: effect of heat on, VI:417B
 Don Martin, Mexico, IV:389B, 389D
 Donzére-Mondragon, France: development, I:390C; IV:136B
 Douglas fir: wood pulp source, V:293D
 Dover, England: coal field, II:45B
 Dover, Massachusetts: experiment in solar heating, III:217A
 Drainage, I:75C; IV:353-419; benefits (U.S.A.), IV:407B; Brazil, VI:601B; Egypt, IV:297-305; Netherlands, IV:129A, 399-405; of agricultural land (U.S.A.), IV:405-407; relation to soil conservation, VI:5D; U.S.A., VI:604A-605A
 Drainage, agricultural, VI:186C, 209D
 Drainage basins: effect of deterioration, IV:213B; effect on water clarity, IV:212D; management, IV:173-215; see also River basins
 Drainage ditches: maintenance (U.S.A.), IV:406D
 Drainage of land, see Land drainage
 Drainage projects: effects on wildlife, IV:452D-453A; planning in relation to wildlife conservation, IV:454D-455A
 Drakensberg range, South Africa, VII: 155B
 Drake oil well, Pennsylvania, III:2C
 Drava River, Central Europe: carp stocking, VII:159D
 Drayer-Hansen Company (Los Angeles, California), II:214C
 Dried eggs, see Egg powder
 Drilling in mining, II:128B; with hard metal bits, II:111B
 Drilling of oil wells, see Petroleum well drilling
 Drottningholm, Sweden, IV:443D
 Drought: effect on fish supply, VII:139B; effect on grazing land, VI:502B
 Drought Investigating Committee (Africa), VI:501B
 Dry-farming, VI:543B
 Dry ice system of rain-making, IV:7A, 13C, 28A
 Drying, mechanical, I:86A
 Dubisch method, see Fish culture - Dubisch method
 Ducks: damage to crops, VII:236C; decline of native species in New Zealand, VII:235C; hunting, VII:238D-239A
 "Duck stamps" (U.S.A.), VII:236D-236A
 Dumb rabies: control in Argentina, VI: 493D
 Dura: cultivation in Sudan, I:217C
 Durra, see Dura
 "Dust Bowl", I:32C
 Dust precipitators, I:41C
 Dutch East Indies, see Netherlands East Indies
 Dutch elm disease, V:56A, 60D
 Dutch Guiana, see Surinam
 Dutch State Mines, II:143B, 151A
 Dykes, IV:345B
 Dyking: China, I:227D
 Eagle, bald: protection by federal law (U.S.A.), VII:209A
 Eagle, golden: protection by law (UK), VII:209B
 Eakring oil field UK, III:77C
 Eala Botanical Garden and Agricultural Testing Station, Belgian Congo, I:299C
 Earthquakes: Ecuador, I:316D, 428C
 Earthworms: weights in relation to weight of herbage, VI:518D
 East Africa, see Africa, East
 East Africa High Commission, VII:217C
 East African Groundnut Scheme, I:196A; III:80C
 East African Meteorological Service, IV: 83B
 Eastern Co-operative Services, I:223-26
 East Indies: pond fertilization, VII:123A; population, I:105C; sedimentary basins, I:96A; see also Netherlands East Indies and names of countries in Southeast Asia
 East Texas oil field, III:3B, 44D, 50D
 E-cement, II:204A
 Echo ranging: detection of dangers to fishing vessels, VII:96D; detection of fish by, VII:96B-96C, 99C
 Echo sounding: detection of depth of fish shoals by, VII:96C; detection of fish by, VII:99B
 Ecological management (U.S.A., Western): public ignorance of, VII:199D
 Ecological surveys: New Zealand, V:29A
 Ecology: importance of, I:426D; need of education in, VII:255B; use in appraising grazing land, VI: 509-14
 Ecology, forest: understanding of necessary to game manager, VII:205A
 Economic and Social Council of the United Nations, I:323B, 425B; cooperative programme of technical aid for economic development, I:309C
 Economic Commission for Europe, (UN), I:58D, 398C; work of, I:61D-62D
 Economic depressions, I:49D; Tennessee Valley, I:376A
 "Economic factors", of creating resources, I:164C
 Economic planning, I:250-53
 Economic planning, international, I:308B
 Economic planning, national, I:59B
 Economists: need of co-operation with technicians, VI:622C
 Ecotypes, VI:531A, 531C, 534D, 535B, 535C; definition, VI:541C
 Ecto-parasites: diseases due to, VI:468C
 Ecuador: earthquake, I:316D, 428C; economic planning, I:316D; economy, I:250B; soil conservation, IV:215A; wastage of human life, I:336A
 — National Economic Council, I:251B
 Edinburgh, University of, Scotland, VI: 386B
 Edison Electric Institute (U.S.A.), III: 214B
 Edkou, Egypt: fisheries, VII:127B-130A
 Edmonton, Alberta (Canada): oil deposits I:96D
 Education: as work incentive, I:348D; Egypt, I:244B; under-developed countries, I:315B
 Education, compulsory: see Compulsory education
 Education for conservation, I:255-306, 354A; Africa, I:298-301, 314B; British colonies, I:314B; courses for teachers, I:270D; Cuba, I:279-82; French Equatorial Africa, I:275-78; importance in applying measures, I: 257A;
 Jamaica, I:293-96; Nigeria, I:301-4; Nyasaland, I:284A; out-of-school activities for young people, I:259A; school courses, I:258B
 Eels, VII:133D;
 Egyptian delta lakes, VII:130A; Netherlands, IV:409, 410-11; New Zealand, VII:150B, 152C; transplantation, VII:145D
 Eerste River, South Africa, VII:157B
 Egg powder, VI:362A, 365A
 Eggs: export from Canada to UK, VI: 363A; percentages of gross energy in feed eaten, VI:443D; preservation, VI:367B-368B, 375C; production, VI:387A; storage, VI:343A
 Eggs, hatching: licensed producers, VI: 389A; tests, VI:387D; weight, VI:388B
 Egypt: agriculture, I:25B; cultivable areas, IV:303D-305C; exploitation of Elasmobranchii (cartilagenous fishes), VII:44; fertility rates, I:23A; industrialization, I:20A, 243-46; industries (tab.), I:245; irrigation, IV:297-305; lake fisheries, VII:126-30; livestock breeding, VI:409B; map, VII:128;
 Nile basin development, I:390D; phosphate deposits, II:272B, 276C; power scheme on Lake Victoria, IV:84D; sea-fisheries, VII:127A; social and economic problems, I:246B; water control, IV:254-55; water resources, IV:81-84
 — Fisheries Service, VII:130D

UNSCCUR PROCEEDINGS: INDEX

- Eire, *see Ireland*
Ejido system (Mexico), VI:109B
Elasmobranchii, *see Cartilaginous fishes; Shark*
 Electrical precipitation method for treating factory gases, II:186D-188C
 Electric appliances: market in Tennessee Valley, I:372B
 Electric cables: aluminium in, II:256A
 Electric current: charges in Norway, III:209B
 Electric energy, *see Electric power*
 Electric furnaces, *see Blast furnaces, electric*
 Electric heating: Norway, III:209-12
 Electricity: installed capacities, I:49D;
 Electricity: Norway, VI:48D
 production, I:102D;
 use for lighting, III:269B;
 world production, I:48A(*tab.*)
 Electric lighting: use in poultry breeding, IV:388D
 Electric logging in oil-well drilling, III:13A, 26C, 30C
 Electric methods in oil finding, III:4C, 7C, 24B
 Electric power, I:55D, 415B;
 Egypt, I:244D;
 Finland, III:309A;
 France, III:256-59;
 future consumption requirements in Europe, III:251A;
 generators, III:295B;
 nationalization in UK, III:246B;
 necessary for agricultural settlement, I:82B;
 production, III:296-300;
 public utility output in U.S.A., III:273C;
 sale at market price in Rhône basin project, I:390B;
 Scandinavia, III:253C;
 shortage in Europe, III:250A;
 Sweden, III:247-49;
 transmission (*see Electric transmission*);
 UK, III:244-47;
 Uruguay, I:394B;
 use in industrial development, I:207C;
 utilization of coal and fuel oil, I:106C;
 wind as source, III:310-19;
 world production, III:264C;
 see also Hydro-electric power
 Electric power grid: UK, III:244-47;
 U.S.A., III:303D
 Electric power plants: fuel, III:270A
 Electric transmission: Europe, III:252 (*map.*);
 for integrated power systems, III:227D-228D;
 insulation co-ordination, III:229D;
 lightning arrester, III:229D;
 relaying, III:229B;
 switching, III:229B;
 ultra-rapid reclosure, III:229C;
 U.S.A., III:254(*map.*);
 use of aluminium, I:42A
 Electrification, rural, *see Rural electrification*
 Electrification of railways, I:56A
 Electrochemical industry: effect of inter-connexion on, III:255B
 Electrochemical Society (U.S.A.), II:230D
 Electrochemical thermodynamics: application to study of metal corrosion, II:238-40
 Electro-drill coring in oil-well drilling, III:12D
 Elements: use of new, I:56B
 Elephant Butte Reservoir, New Mexico (U.S.A.), IV:359A
 Elephantiasis: Haiti, I:364B
 Elephants: behavior when habitat is invaded, VII:219A;
 Uganda, VII:216C
 Elk, American, *see Wapiti*
 Elk Refuge, Jackson Hole, Wyoming (U.S.A.), VII:241A
 El Pinar National Park, Venezuela, V:209C
 El Roble oil field (Venezuela), III:18B, 18D, 38B
 El Salvador: agriculture, VI:17-21, 271A
 El Teniente Braden Copper development, Chile, I:126D
 Embankments: laboratory studies of, IV:280C;
 volumes, IV:246B
 Emery: substitutes for, I:42C
 Emmenthal, Switzerland: forest experiments, V:134D
 Empire Forestry Conference (1935), V:135D, 178B
 Empire Shell Flour Lime, III:16C
 Employees: "know-how", I:190D;
 satisfaction through statistical control, I:190C;
 training, I:328B, 330C
 Employment agencies: as recruiting agencies, I:348A; *see also* Public employment services
 Enamels, vitreous: as metal-coating material, II:223D
 Enclosure of grassland, VI:558D
 Enclosure system, I:217A, 218B
Endomyces vernalis: fat content, I:144B, 145A
 Energy, I:312D;
 artificial restraints of use, I:50C;
 consumption in Canada, III:200B-201C;
 consumption in Europe, I:61B;
 consumption in smelting industries, I:103A;
 consumption related to income, I:101B;
 costs as percentage of the cost of production, I:207n(*tab.*);
 domestic applications, I:101C;
 ease of use, I:106D;
 economic aspects of production, I:49B, 105B;
 evolution, III:297A-298A;
 fuel for, III:269D;
 in mining industry, I:172C;
 new developments in production and utilization, III:263-330;
 production in Finland, III:305-9;
 purpose of use to be considered, I:49C;
 relation to mineral utilization, II:15A;
 shortages, I:47-51;
 sources in Canada, III:200C(*tab.*);
 transport of, I:102A;
 utilization, I:102C-103B, 106B-107A;
 utilization in agricultural development, III:301-9;
 utilization in industrial development, III:301-9;
 see also Electric power; Hydro-electric power; Power system, integrated; Water power; Wind power
 Engineering equipment: trade expansion in Europe, I:62A
 Engineering industry: Europe, I:61B
 Engineers, Corps of, *see United States Army - Corps of Engineers*
 Engines: fuels, III:283B;
 specific weight, III:285(*diag.*);
 utilization of fuels in relation to, III:287A;
 see also Airplane engines; Internal combustion engines
 Engines, high-compression single-cylinder: specific consumption, III:285 (*diag.*)
 England: birth rate, I:21A;
 deer population, VII:256D;
 effect of food rationing on nutrition, I:341A;
 fishing statistics, VII:166A;
 grain yield, I:32C;
 nutritional shortages, I:31B;
 use of electric power, steel and coal, I:61C;
 see also United Kingdom
 Englebright Reservoir, Yuba River, California (U.S.A.), IV:308C
 Ensilage, *see Silage*
 Enteritis: Haiti, I:363A
Enterolobium cyclocarpum, *see Conacaste tree*
 Entomology Institute of the Forestry and Agriculture Faculty (Zagreb Yugoslavia), V:67A
 Entropy: concept, I:197B
 Environment: adjustment to needs of plants, I:85B;
 control, I:188A;
 effect on survival of young fish, VII:51D, 58C;
 improvement, VI:426A, 431C;
 relation to livestock breeding, VI:411B, 414-27, 470D, 496C;
 study of, VI:425A;
 see also Crops - adaptation to environment; Livestock - adaptation to environment; Plants - adaptation to environment
 Equipment: imported by Europe, I:61A
 Erosion, I:32C, 56D;
 Africa, VI:574C-575A;
 Argentina, VI:155-60;
 as result of tenant farming and share-cropping, I:268B;
 Australia, I:426C;
 below spillways of dams, IV:280A-C;
 by streams, IV:281C;
 Cyprus, V:141B;
 effect on food supply, I:75A;

SUBJECT INDEX FOR VOLUMES I TO VII

- Erosion (*cont.*):
 effect on grazing lands, VI:500B;
 Honduras, VI:590-94;
 in strip farming, I:217B;
 Jamaica, I:294C;
 measurements, VI:164D;
 Mediterranean basin, I:14C;
 New Zealand, VI:123A, 124B-D, 449D;
 Nyasaland, I:283B;
 of submarginal land, I:81B;
 prevention in China, I:228B;
 relation to forests, V:138B-139B;
 relation to sedimentation, IV:307A;
 studies, VI:128A;
 Tennessee Valley, I:381C;
 U.S.A., I:426C;
 value of forests in controlling, I:409C;
see also Rivers - erosion problem;
 Soils - removal
- Erosion, wind, VI:21-22, 165C-166A;
 control, VI:50A;
 prevention, VI:28A-31D;
 Tunisia, VI:609A
- Erosion control, IV:189B, 307A, 368C;
 VI:121D; Argentina, VI:21-22;
 Cyprus, VI:11A;
see also Contour strip-cropping; Soil conservation
- Erosion survey: Argentina, VI:155-60;
 Chile, VI:150-52
- Errors: theory of, I:188C
- Esparto grass, VI:610D
- Espino blanco, VI:593A
- Etang de Théau, France: oyster fattening district, VII:49A
- "Etchka" fish hatchery (Yugoslavia), VII:158D
- Ethyl alcohol, *see* Alcohol, ethyl
- Ethylene: chemistry, III:83B;
 production from cracked gas, III:100A
- Ethylene glycol: production from petroleum, III:73B
- Eucalyptus trees, V:53B
- Euchlaena, VI:593C
- Euphrates River, I:400C; flood control, 393C;
 utilization, IV:148-58
- Euphrates Valley: development proposed, I:2C;
 irrigation projects, IV:149C-151A, 167A
- Europe: coal production, I:48B, 103B;
 crop yields, I:84C;
 development of resources in, I:58B;
 food production, I:340B;
 forest resources, I:35D;
 forestry, V:76-81;
 imports and exports, I:61A;
 inadequate use of resources, I:61B;
 integrated power system for, III:250-55;
 land-use planning, I:63B;
 mortality, I:21D;
 population, I:17A;
 resources, I:61A-61D
- Europe, Eastern: relationship with Western Europe, I:60B, 63A;
 resources, I:59C
- Europe, South-eastern: food shortages, I:31D;
 resources, I:59C
- Europe, Western: balance of resources and population, I:105C;
 coal supply, III:264B;
 lack of markets, I:213D;
 need of export markets and raw materials, I:60C;
 relationship with Eastern Europe, I: 60B, 63A
- European Cooperation Administration, *see* Marshall Plan
- European Council for the Exploration of the Sea, VII:34C
- European Economic Co-operation Programme, IV:380B
- European Forestry and Forest Products Commission, I:35D
- European Recovery Programme: Greek aims in agriculture under, IV:378B
- Europeans in Africa: need of conservation education, I:276B
- Evaporation: as process for extracting minerals, II:262B;
 records, IV:58B
- Evaporites: UK, II:46D
- Evergreen forests: Colombia, V:123C, 124A-125B
- Ewes: feeding, VI:498A
- Exchange of products: Eastern Co-operative Services, I:225A
- Exchange students, I:360C
- Excursions, country: as means of education, I:260B
- Exhibitions, conservation: as means of education, I:260B, 288B
- Experiment farms: Uganda, I:297D
- Experiments, in relation to surveys, I: 194A;
see also Agricultural experimentation
- Experiments, technological: in planning of resource utilization, I:192-96;
 new technique, I:196B;
 realism in, I:193B
- Exploitation: term, I:211D
- Exploration for minerals, *see* Mining exploration
- Export crops: Africa, VI:584B;
 disadvantages in Equatorial Africa, VI:581B;
 Morocco, VI:616D
- Export-Import Bank (U.S.A.): aid to Chilean copper industry, I:236A, 239C
- Extension work, I:259C;
 in conservation education, I:262-70;
 methods, I:264A;
 necessary for agricultural settlement, I:82B;
 Saudi Arabia, I:272D;
 U.S.A., VI:101C
- Fabrication, I:214D
- Factorial design, I:193A
- Factory gases: electrical precipitation methods of treating, II:186D-188C;
 filtration methods of treating, II:185C-186B;
 gravitational methods of treating, II: 184A;
 inertial methods of treating, II:184C-185C;
- Factory gases (*cont.*):
 recovery of metal values in, II:183B;
 scrubbing methods of treating, II:186B;
 ultrasonic method of treating, II:188C
- Factory ship: in Alaska waters, VII: 104B;
 use in fishing, VII:103-9
- Fagersta, Sweden: blast furnaces, III: 178C
- Falkland Islands: brown algae, VII: 185D;
 herring species, VII:29C;
Nacrocystis Pyrifera, I:133D
- Family-farm system, I:216-19;
 Africa, I:270A
- Family groups: in labour training, I:348B
- Famines: Bengal, I:24C;
 history, I:31A;
 Russia (1917-21), I:16C
- FAO, *see* Food and Agriculture Organization
- Faraday Society, II:238B
- Far East: economic development, I:425A;
 fat deficiency in diet, I:148B;
 forest resources and consumption, I: 36C;
 industrial development, II:7D, 8A;
 molasses production, I:148B
- Farm aid: U.S.A., I:205B
- Farm animals, *see* Livestock
- Farm competitions: as means of education, I:260B
- Farm equipment, *see* Agricultural equipment
- Farmers: experience as guide in land-use planning, I:79C;
 importance of soil conservation to, I: 82D
- Farmers' organizations: Africa, VI:582C;
 New Zealand, I:286B
- Farm families, VI:98A-D
- Farm hygiene, VI:312B
- Farm-improvement loans: interest, I: 205A
- Farm implements, *see* Agricultural equipment
- Farming, *see* Agriculture
- Farming, mixed, *see* Mixed farming
- Farm labour, *see* Labour, agricultural
- Farm machinery, *see* Agricultural equipment
- Farm management, VI:210C-211B;
 Canada, VI:196-98;
 effect on income, I:79D;
 Middle East, VI:104-7;
 plans, VI:97-104;
 relation to soil conservation, VI:196-98;
 teams of specialists, VI:101A;
 U.S.A., VI:97-102
- Farm Ownership Program (U.S.A.), VI: 101B
- Farm ponds, I:75C; *see also* Pond culture of fish
- Farm production, I:24D;
 increase per labour unit, I:18B;
 in relation to population, I:26(tab.);
see also Agriculture
- Farm products, *see* Agricultural products
- Farm roads, I:75C

UNSCUR PROCEEDINGS: INDEX

- Farms: maps showing capital accumulated, I:79D;
public services for, I:82B;
size, VI:615B;
size in Canada, VI:197D-198A
- Farms, small, VI:174-85, 182-85;
see also Small holdings
- Farms, submarginal, I:80C
- Farm schools: Belgian Congo, I:261A, 300D;
See also School farms
- Farm tenure, *see* Land tenure
- Farm tools, *see* Agricultural equipment
- Fats: from micro-organisms, I:132D, 144-48
- Fats and oils, edible: obtained from fish, VII:87D;
preservation, VI:362C, 365D;
production from petroleum, III:80C;
shark liver oils, VII:44B-46D
- Faults: as cause of oil concentration, III: 3B
- Fauna, *see* Animal life; Wildlife
- Faveleira shrub: Brazil, VI:73B
- Fayoum depression, Egypt: fisheries, VII:127B-130A
- Federal Aid to Wildlife Restoration Programme, VII:241B
- Federated Farmers, New Zealand, I:286C
- Feeding and feeding stuffs, *see* Animal nutrition; Fodder; Livestock - nutrition
- Feldspar: Cuba, II:80C
- Fences, I:75C
- Fen District, England; drainage system, I:218C
- Fermentation industries: chemurgy, I: 137C
- Fern, bracken, VI:506D, 525A;
useful products from, I:131D
- Ferro-alloy industry: Philippines, I:242D
- Ferro-alloys: sources, I:121A;
use of oxygen in manufacture, II:179C
- Ferrous metals, *see* Iron; steel
- Fertility in animals, VI:414B;
effect on vigour, VI:497C
- Fertility, human: *see* Reproduction, human
- Fertilization, artificial: on grasslands, VI:521B; *see* Ponds - fertilization
- Fertilizer materials: causes of short supply, II:297B;
consumption, II:297B;
distribution problem, II:297D, 299B;
economics of utilization, II:281-94;
economics of world availability and use, II:285-94;
sulphate of ammonia *vs.* Nitrates, II: 289C;
world resources, II:270-78, 274-78
- Fertilizers, I:75C, 291B, 311C; VI: 211D-213A, 260D, 264-66;
allocation, VI:222B-D;
amounts, VI:221D;
- British Caribbean Region, VI:250-55;
China, I:228D;
Eastern Pakistan, VI:245D-246A;
economic aspects, VI:244A;
effect on soil, VI:162B;
experiments, VI:234D, 221-24, 235B-D;
- Fertilizers (*cont.*):
from fish, VII:110B;
increase in quantity, I:33B;
Nigeria, VI:270A;
Ocean as source, I:33A;
on grazing lands, VI:504C, 546A, 555A;
plant at Decatur, Alabama, I:377C;
plants at Muscle Shoals, I:372D;
precision placement, I:85C;
rationing in UK, VI:221D-222B;
surveys, I:194C; VI:267C;
surveys of practice, VI:223A;
surveys *vs.* experiments, I:194A, 195A;
trials, I:195C;
tropics, VI:269C;
use for soil conservation, II:282A;
use in Indonesia, I:89D;
Western Pakistan, VI:240C-243A;
see also Green manuring; Manure
- Fertilizers, chemical, I:85D, VI:154A-D, 219D;
in conservation, II:269-300;
in western Pakistan, VI:243A-244C
- Philippines, I:242D;
relation to soils, I:57A
use in ponds, VII:122D, 123A
- Fertilizers, nitrogenous, *see* Nitrogen fertilizers
- Fertilizers, organic: encouragement of mosquito breeding, VII:123D;
- Fertilizers, phosphatic, *see* Phosphate fertilizers
- Fertilizers, potassic, *see* Potassic fertilizers
- Fertilizing, VI:453C;
of grasslands, VI:515C;
of rice crops, VI:260A-D
use of aircraft, VI:549A-550B
- Fescue: inbreeding, VI:532D;
see also Meadow fescue
- Fibreboards: manufacture from wood residues, V:297B-298D, 303B, 308D;
production in U.S.A., V:309A;
protection against termites and fungi, V:275C;
soft and hard types, V:309B
- Fibre crops: Africa, VI:581A
- Fibres: Chile, I:236D; *see also* Wood fibres
- Field crops: Java teak forests, V:110B-D
- Fig trees, VI:592A
- Fiji Islands: grazing lands, VI:559C
- Filariasis: Haiti, I:364B
- "Fillet of sole", *see* Plaice
- Films, *see* Motion pictures
- Filtration method for treating factory gases, II:185C-186B
- Filtration of surface water, IV:102-4
- Finance: relation to industry in Chile, I:239A
- Financing: of conservation work, I:6D;
of development, I:418B;
of resource surveys, I:174B
- Fine coal, *see* Coal, fine
- Finland: birth rate, I:21B;
energy production, III:305-9;
farm production, I:25B;
forest policy, V:212C;
forest surveys, V:2-5, 30D;
- Finland (*cont.*):
fox breeding, VII:210D;
nickel deposits, II:16C;
wood residues utilization, V:303-4
Technical Research Institute, V:303D
- Fir: pulping by sulphite process, I:142C
- Fir, balsam, *see* Balsam fir
- Fir, Douglas, *see* Douglas fir
- Fire: food destruction by, VI:359D
- Fire-breaks: types used in Cambodia, V:46D
- Fire insurance: necessary for agricultural settlement, I:82B
- Fireproof construction, III:202D
- Fires, forest, *see also* Forest fires
- Firewood: India, V:83C;
methods of cutting, Cambodia, V:47A;
see also Wood as fuel
- Fish, I:292A;
Atlantic Ocean, VII:28B;
biapocrosis of a species, VII:170C, 171A;
by-products, VII:98D, 88A-89D, 115B;
by-products industry, France, VII: 110-11;
Chile, I:238B, 238C;
comparative cost of products, VII: 88C-89A; -
consumption, I:214B, 411C; VII:72C;
consumption, Netherlands, VII:75C, 112A;
- Danish transplantation experiments, VII:53D-57C;
- dehydration, VII:94D-95A;
- detection by echo ranging and echo sounding, VII:95-97;
- diseases of pond fish, VII:149C;
- effect of temperature on keeping quality, VII:90B-90C;
- eradication of undesirable, VII:156D;
- factors influencing population, VII: 8B-8C;
- fluctuations in abundance in Norway, VII:2-5;
- fluctuations in population owing to climatic changes, VII:8-10;
- foods for, VII:122C, 134D-135B, 149A, 153B, 156C;
- food value, VII:11A-11D, 84B-85A, 97B-D, 116A, 120B, 140D;
- groups of edible marine species, VII: 11C;
- harvesting, New Zealand, VII:153C;
- harvesting economics, VII:170A;
- hybridization, VII:163B;
- increase in stock owing to rise in temperature of northern waters, VII:8C;
- incubation period, VII:152B;
- inventories, VII:72A;
- marketing, VII:115C;
- marketing, Netherlands, VII:75B;
- marking and tagging, VII:169D;
- methods of handling, preservation, processing and distribution, VII: 84-95;
- naturalization, New Zealand, VII: 150D-151D;
- naturalization, South Africa, VII:154 57;

SUBJECT INDEX FOR VOLUMES I TO VII

- Fish (*cont.*):
preservation, VI:365B, 372B-D, 375B;
preservation by anti-oxydants, VII:
91A-91C;
preservation by chemicals, VII:90D-
91A, 114D;
preservation by freezing, VII:98B;
processing, VII:93-95;
processing at sea, VII:103-9;
processing industry, Netherlands, VII:
76(*tab.*);
protection of, in water-use projects,
IV:449-57;
quantities and selling prices, VII:73D;
spoilage, VII:85A-85D;
spoilage prevention, VII:98A;
statistics of catch, VII:153D;
study of environment, VII:171A;
substitute for meat, VII:11A;
supply in Netherlands, VII:76(*tab.*);
survival of yearlings, VII:51C-52D;
technological aspects of handling, VII:
97-98;
Tennessee River, I:381B;
transplantation, VII:52D-57C, 145D;
transportation, VII:86B-87A;
tropical and subtropical waters, VII:
31A-33D;
utilization, VII:84C-85A;
varieties for pond culture, VII:131B;
various uses, I:58A;
world catch for 1947 and 1948, VII:
84A;
world production, VII:60B;
world production estimated, VII:63D
Fish, anadromous: Norway, VII:13B-16C
Fish, canned: Egypt, I:245B;
methods of preparing, VII:87B, 98C;
methods of preparing in Scandinavia,
VII:91D-92A;
supply and output, VII:74B;
world production, VII:86A
Fish, cold-water: South Africa, VII:154-
57
Fish, fresh-water: importance to food
supply, VII:160A;
management and cultivation, VII:119-
64;
Norway, VII:13B-16C;
production statistics, VII:164A-C;
Yugoslavia, VII:158-60;
see also Pond culture of fish
Fish, frozen, VII:86C-87A, 98B
Fish, marine: propagation and trans-
plantation, VII:51-57, 58A;
propagation and transplantation
(Europe), VII:57-59
Fish, salted, VII:86B;
improved preparation of, VII:87A
Fish, smoked: curing, VII:94B-94D;
improved preparation of, VII:87B
Fish, warm-water: culture in Philippines,
VII:142-45;
pond culture, VII:120-24, 131-38;
relation to soil conservation, VII:138-42
Fish albumen: prepared for edible
purposes, VII:88B
Fish culture: Dubisch method, VII:146B,
146D;
in irrigated fields, VII:123B, 124-26,
136D, 137D, 162D, 163C;
in irrigated fields, Indonesia, VII:40D,
161B;
in irrigated fields, Japan, VII:161B;
management of waters, VII:157A;
Netherlands, VII:145-47;
suitability of waters, VII:170D; *see*
also Pond culture of fish
Fisheries: Australia, VI:375B;
collection of basic statistics by states
(U.S.A.), VII:81B;
collection of statistics of foreign trade,
VII:71D;
common stock in, VII:169D-170A,
170D;
co-operative development, I:222B;
cost data needed, VII:70A;
costs of production, VII:70A-C;
data needed for better development of,
VII:64A;
development, I:407C; VII:28-41;
development, Chile, VII:41-44;
development, potential, VII:31D;
disposition of catch, VII:71A;
distribution and consumption of marine
products, VII:73C;
economic disadvantages, VII:117C;
economic effect of the present climatic
change, VII:9, 10;
economic statistics, VII:72-74;
effect of pollution on, IV:442C;
employment in and dependence on,
VII:69A-C;
equipment needed for scientific field
work at sea, VII:42C;
estimated yield of marine, I:411B;
exports of products, Netherlands, VII:
77(*tab.*);
fluctuations in catch over long and
short periods, Norway, VII:3C-4C;
Gulf of Mexico, VII:103D;
Haiti, I:361B;
importance of statistics, VII:73A, 83C;
imports and exports statistics, VII:
80B;
increased output needed, VII:116B-
118C;
India, IV:447D-449C; VII:184A;
Indonesia, VII:39B-39C, 40A;
international agreements, VII:147A,
167D;
international trade statistics, VII:74D;
investment in plant and equipment,
VII:69D-70A;
Jamaica, I:295B;
landings statistics, VII:79C-80A;
latent marine world resources, VII:
61(*map*);
latent resources and means of develop-
ment, VII:28-41;
marketing statistics, VII:71C;
measurement of yield in relation to
effort, VII:80C;
methods of exploration and develop-
ment, VII:34A-C;
need for developing, VII:66A;
- Fisheries (*cont.*):
need for improvement of statistics on,
VII:79B;
need for publication of statistics, VII:
82A;
Netherlands, IV:409-12;
Northern Hemisphere, VII:12B-12D;
overfishing *see* Overfishing;
Philippines, I:241D;
potential contribution to world food
supply, VII:38B-C;
potential yield from tropical and sub-
tropical waters, VII:62A;
potential yield in temperate waters,
VII:60D;
present world problem of marine, VII:
11;
prices, VII:71B;
probable results of development of
industry, VII:26C;
protection in Sweden, IV:439-45;
regulation a state responsibility in
U.S.A., VII:81B;
relation to world food supply, VII:
117A;
role of federal government (U.S.A.)
in co-ordinating statistics, VII: 81A-
83D;
Southern Hemisphere potentialities,
VII:12D-13A;
statistical service for, VII:68A;
statistics, Netherlands, VII:75-78;
statistics compiling, India, Java and
Pakistan, VII:112C;
statistics of catch, VII:70C-71A; 80B;
statistics on economic features, VII:
68-72, 79-81;
statistics on economic features in
U.S.A., VII:81-83;
statistics published by FAO, VII: 36B;
technique for obtaining catch statistics,
VII:70D;
techniques for developing, I:311D;
technological development (U.S.A.),
VII:103-9;
technological investigations, VII:43A;
tropics, VII:160, 184B, 185A;
undeveloped or under-developed re-
sources, VII:29D, 30A-30C, 35D-36B;
world production of marine, VII:28A-
28D;
see also Game fisheries; Overfishing
Fisheries, game, *see* Game fisheries
Fisheries, inland, VII:136D;
Indonesia, VII:40B-41A, 161B;
Netherlands, VII:145-47;
New Zealand, VII:150-54;
Yugoslavia, VII:158-60;
see also Ponds culture of fish
Fisheries, lake: Egypt, VII:126-30
Fisheries Board of the Zeeland Streams,
VII:50B
Fisherman's Federation (Canada): expe-
riment in using ascorbic acid to pre-
serve fish, VII:91B
Fishermen, I:411C;
Egypt, VII:127B;
India, VII:173B;
licensing, VII:145D;

UNSCUR PROCEEDINGS: INDEX

- Fishermen (*cont.*) :
 Netherlands, VII:145B;
 official estimate of number in England and Wales, VII:22C(*graph*)
- Fishery conservation, VII:72D;
 as objective of river basin development, IV:134C;
 Conventions of 1923, 1930 and 1937, VII:18A, 18D;
 research, VII:171-74
- Fishery legislation: Central Provinces and Berar Fisheries Act (India, 1948), IV:448B;
 India, IV:448A;
 Indian Fisheries Act (1897), IV:448B;
 Punjab Fisheries Act (1914), IV:448B;
 United Provinces Fisheries Bill (India, 1948), IV:448B;
 Sweden, IV:440C;
 U.S.A., IV:450B
- Fishery research, VII:184C;
 India, VII:172D-174A;
 Sweden, IV:443C-444D;
 research, UK, VII:185B
- Fishery resources: effect of dams on, in Sweden, IV:440D
- Fish farming, *see* Pond culture of fish
- Fish flour: prepared for edible purposes, VII:88A
- Fish guano, VII:110B
- Fish hatcheries: Egypt, VII:130D;
 Netherlands, VII:146A;
 New Zealand, VII:151D-152B;
 South Africa, VII:155C-156B;
 Sweden, IV:444B
- Fishing: cooperatives, Yugoslavia, VII:159D;
 economics of take, VII:169C, 170D;
 effects on Norwegian freshwater and anadromous fishes, VII:13-16;
 factory ship (U.S.A.), VII:103-9;
 for saury with lift-net and light, VII:100-103;
 improvement in gear and technique, VII:171A;
 Indonesia, VII:185C;
 lift-net methods, VII:100-103;
 management, VII:24C;
 mesh size of nets for cod restricted in Norway, VII:26B;
 methods of catching fish, VII:11D;
 methods of catching migratory species, VII:12C;
 need for improved equipment, VII:65C;
 Netherlands fleet, VII:75D(*tab.*);
 New Zealand, VII:153C-D;
 rangelands as public areas, VII:204B-204C;
 regulation, South Africa, VII:157C;
 taking of small fish, VII:170D;
 technological advances in methods, VII:99;
 U.S.A., VII:138B-139A;
 Yugoslavia, VII:159D;
see also Angling
- Fishing boats; Japan, VII:100D-101A
- Fishing industry, *see* Fisheries
- "Fishing periods", Norway, VII:2A
- Fish liver oils, VII:44B-46D, 87D-88A
- Fish meal: feed for pigs and poultry, VII:92B;
 new methods of preparing, VII:87B;
 nutritive value, VII:92A-92D
- Fish ova: transportation, VII:155D
- Fish ponds, *see* Pond culture of fish
- Fish products, VII:88A-89D;
 imports by Netherlands, VII:78(*tab.*);
 processing methods, VII:85D-86B
- Fish protein: for industrial use, VII:88B
- Fish rearing, VII:145B-147C
- Fish stocking, VII:145B-147C;
 South Africa, VII:156B-157A
- Fish stocks: assessment, VII:171B;
 depletion, VII:184C;
 economics of effort to increase, VII:171A;
 fluctuations in abundance, VII:169B, 171A;
 increase, VII:170B;
 North Sea, VII:166-69;
 research on, VII:169-71
- Fish waste: agricultural use, VII:110A, 124D;
 as source of protein, I:344B;
 by-product, VII:120C
- Five-Year Plan (Yugoslavia), IV:395D-398D
- Flatfish, *see* Flounder
- Flavor essences of fruit: preservation, I:136D
- Flax: introduction into U.S.A., VI:294A;
 seed treatment, VI:325D
- Fleece weight, *see* Sheep breeding - fleece weight
- Flies, *see* House flies
- Flødevigen Sea-fish Hatchery (Norway), VII:51B, 58A-B
- Flood control, I:370B; IV:132C-D, 326-49, 368C;
 benefits, IV:332C-334A;
 China, I:227B;
 costs, IV:332C-334A;
 financing, IV:334C;
 Greece, IV:347C;
 international aspects, IV:345D;
 Iraq, I:393C;
 Middle East, IV:155A;
 Netherlands, IV:326-31, 346D;
 North China plain, IV:309C, 310C;
 Punjab, IV:176A;
 relation to water utilization, IV:92B;
 U.S.A., IV:319C, 406B;
see also Dams; Dyking; Water control
- Flood control works: assessment for, IV:347A;
 effectiveness of, IV:347A
- Flood lands: reclamation in Belgian Congo, VI:596-98;
 reclamation in Brazil, VI:598-602;
see also Igapós
- Flood runoff, I:74A;
 classification, IV:78A;
 effect of reforestation on, V:144D;
 estimation, IV:48-52
- Floods: China, I:227D;
 effect of land changes on, IV:194D-200B;
 effect on fish, VII:152A;
 Egypt, IV:81D, 82B-84A;
- Floods: (*cont.*) :
 forecasting, IV:60D-62B, 82B-84A;
 frequency, IV:87B-90C;
 frequency analysis, IV:62D;
 India, I:199B;
 information on, I:184A;
 Northwest U.S.A., I:392B;
 Tennessee Valley, I:369C
- Flood waters: conservation, VI:545D;
 storage, IV:39A
- Flora, *see* Plants
- Flora, wild, *see* Wild plants
- Flor de Seda shrub, Brazil, VI:73C
- Florida, U.S.A.: phosphate deposits, II:271B, 272C
- Flotation: for recovery of mineral by-products, II:113A
- Flounder: rearing on eggs of *Artemia salina*, VII:52B;
 unexploited grounds of yellow-tail, VII:30A
- Flour: increase of extraction rate, I:342C
- Fluid mechanics: laws, IV:278C
- Fluorine: in animal diet, VI:456C
- Fluorosis, VI:456C
- Fluorspar: from gravity plant tailings, II:150C;
 UK, II:47B;
 use in artificial cryolite, I:42C
- Flying fish: in Micronesian region, VII:32C
- Flyways, *see* Migration routes (birds)
- Fodder, I:409A; conversion to human food, VI:438-45;
 experiments in Southeastern U.S.A., I:86C;
 improved uses, I:7C;
 storage, VI:354-56;
 wood molasses as, I:142D
- Fodder crops, *see* Forage crops
- Fogs, IV:18A
- Fomento, *see* Chilean Development Corporation
- Food: conversion of animal feed, VI:438-45;
 deterioration in storage, VI:320A-321C;
 harvested crops vs. animal food, VI:444B;
 imports, I:61A;
 improved uses, I:7C;
 new resources, I:131D;
 nutritive quality, VI:380C;
 quantity standards set up by FAO, I:31C;
 recent developments in preservation, I:136C;
 standard of living lowered by sole export of, I:60B;
 storage, VI:342-81;
 transportation to urban areas, I:33D;
 transport by rail, VI:364C
- Food, canned, *see* Canned foods
- Food, concentrated, *see* "Multipurpose food"
- Food, frozen: *see* Frozen foods
- Food, synthetic: *see* Synthetic food

SUBJECT INDEX FOR VOLUMES I TO VII

- Food and Agriculture Organization of the United Nations, I:2A, 143B; VI: 305D;
cooperation with WHO, I:337B, 343A;
establishment, I:31C;
Fertilizer Committee, I:294B
Fisheries Bulletin, VII:79B
Fisheries Division, VII:79A, 112A
Forest Resources of the World, I:143B
insistence on adequate agricultural development, I:207A;
international units for development of fisheries, I:311D;
interest in nutrition problems, I:338B;
investigation of pond culture, VII: 163A;
investigation of world diet, VII:11B;
objective, I:212A;
program, I:34A
proposed plant catalogue, VI:275C;
proposed regional councils for the study of the sea, VII:36C, 37(*map*);
Rice Conference, VII:123C;
system of recording and maintaining genetic stocks of wheat, VI:286A;
Yearbook of Fisheries Statistics, VII: 79A
- Food preservation, VI:342-81, 359-63, 370D;
Australia, VI:374-77;
Canada, VI:363-66;
Sweden, VI:370-74;
UK, VI:366-70
- Food processing, VI:372D
- Food production: British Caribbean Region, VI:254C;
Chile, I:238A;
Europe, I:61B;
government limitations on, IV:417A;
Indonesia, VI:565A;
methods of increasing, I:32B, 33B;
Morocco, VI:616D;
relation to diet, I:338B;
relation to farm mechanization, VI: 198D-199B;
Sukumaland, VI:587D;
United Kingdom, I:64C;
U.S.A., VI:85-88
- Food rationing: results in England, I: 340D
- Foods, foreign: introduction, I:342C
- Food supply, I:214B; VI:598B;
as factor in mineral utilization, II:15C;
calorie content, I:31B, 340C;
demand in relation to income, I:18B;
effect of erosion on, I:75B;
fisheries contribution to, VII:116B- 117A;
importance of plant disease control, VI:319-24;
increase in 1948-49, I:32A;
increases needed by 1960, I:31D(*tab.*);
Indonesia, VII:136A;
in terms of one world, I:211D, 215A;
over-exploitation, I:213B;
possibilities of increasing, I:163D;
relation to industrialization, I:206B;
relation to population, I:16B;
shortage caused by lack of labour, I: 18D;
- Food supply (*cont.*):
shortages, I:30-34, 84B;
South-east Asia, VII:160B;
see also Famines; Protein supply
- Food surpluses, *see* Crop surpluses
- Food yeast, *see* Yeast
- Foot-and-mouth disease, VI:468A, 469A;
control, VI:472C;
control in Argentina, VI:478B-481C;
control in Denmark, VI:475D-476C;
control in U.S.A. and UK, VI:471C;
isolation of foci, VI:480B;
prevention, VI:480C-481C;
prevention in Argentina, VI:494A;
quarantine in UK, VI:464B
- Forage plants, VI:511C, 530-34, 545A;
breeding, VI:534-40;
commercial grades of seed, VI:533B;
conservation, VI:347-54, 378B;
harvesters, VI:191A;
harvesting machinery, VI:190D;
Honduras, VI:591B-593C;
imports from South America to U.S.A., VI:295A;
Morocco, VI:616D, 617A;
overgrazing, VI:548A;
production, I:88A;
storage, VI:343B-D;
utilization limit, VI:501C-502B;
utilization of pedigree strains to increase production, VI:538-539D;
Western U.S.A., VI:541C
- Forced labour, *see* Coercion of workers
- Foremen: recruiting, I:352B;
training, I:351A
- Forest administration, V:175-214; Burma, V:199-202;
business management, V:197A;
decentralization, V:195C;
government role, V:193-214;
personnel (*see* Forestry personnel);
Philippines, V:182A;
principles, V:194D;
regional offices, V:195D;
relation to soil and water resources, V:197C;
relation to structure of government, V:197B;
relation to type of resources, V:196C;
scientific management, V:206C;
separation of administrative from technical bodies, V:210A;
U.S.A., V:203-7;
Venezuela, V:208-10
- Forest area, V:2D, 5A
- Forest balance, V:3D
- Forest conservation, I:77-83; Canada, V:180B;
chemical utilization of wood, V:289- 312;
Colombia, V:126D-128A;
costs, I:203D;
effect of Kaingin system, V:182D;
forest credit proposals, V:186D;
France, 17th century, I:14C;
New Zealand, V:225-27;
public control of cutting on private lands, V:185D;
- Forest conservation (*cont.*):
provision of forest credit, V:177D- 178C;
relation to public land disposal, V: 182D;
role of wood preservation, V:288-89;
salvage logging, V:241B-C;
U.S.A., V:185B, 288-89;
utilization of wood residues, V:296-302
- Forest diseases, V:55-57;
control, V:62-66;
control in UK, V:60-62
- Forest fires, I:257C;
Africa, VII:225A;
Australia, V:53-55;
causes, V:41B-42A, 43D-44B, 50B-D;
control, V:34-43, 50-53, 128C, 145C- 146A, 203B;
control by wetting agents, V:72C;
control in Canada, V:40-43;
control in Portugal, V:72B;
control in Scandinavian countries, V:72A;
control in tropical countries, V:43-49;
detection, V:36A-C;
fighting equipment, V:37D-38B;
fighting methods and techniques, V: 39A-C;
Honduras, VI:593D;
initiation of successional cycle in forests by, VII:206A;
methods of reporting, V:36C-37A;
organization for fighting, V:38B-39A;
prevention, I:56D, 410B;
training for fighting, V:72C;
transportation of fighters and equipment, V:37A-C;
TVA control, I:381C;
Wright system of control, V:41C-D
- Forest insects, *see* Insect pests in forests
- Forest inventories, I:185C; V:30C;
Argentina, V:16-19;
New Zealand, V:27-29;
sampling techniques, V:2-5, 30B-C;
statistical calculations, V:5A;
statistical methods, V:6-16;
Sweden, V:86B-88C;
U.S.A., V:24-27;
use of aerial photography, V:20-23, 32A
- Forest legislation, V:176-89;
Argentina, I:268C; V:189A, 191C;
basic principles, V:187-89;
Finland, V:212C;
fire protection on private land, V:185D;
Forest Pest Control Act (U.S.A., 1947), V:57A, 186A;
Forest Protection Act (Norway, 1932), V:103C;
- Indian Forest Act. (1927), IV:447A;
Japan, VI:37C;
McSweeney-McNary Law, (U.S.A., 1928), V:185D;
Philippines, V:181-83;
prohibition of import order (UK), V: 61A-C;
U.S.A., V:184-87;
Venezuela, V:209A, 210C
- Forest management, I:37A; V:75-132;
definition, V:76A;

UNSCUR PROCEEDINGS: INDEX

- Forest management (*cont.*):
 India, V:82-85;
 Java, V:106-14;
 Norway, V:103-5;
 principles and aims, V:76B-77B;
 Sweden, V:85-88;
 systems, V:77C-79C;
 Venezuela, V:171D-172A;
see also Silviculture
- Forest maps, V:23B-C; Burma, V:201D;
 Venezuela, V:208D
- Forest owners, V:212C;
 Canada, V:212B;
 need of forest protection by, V:63C-64A;
 Philippines, V:182B;
 Thailand, V:227B;
 U.S.A., V:184D
- Forest planting, V:187B; VI:560B;
 Colombia, V:127D;
 costs of reforestation, I:143D;
 India, V:99A, 99C;
 in torrent control, V:155D-156B;
 intensity, V:187B-188A;
 mountain slopes, V:154C;
 Norway, V:104D;
 Philippines, V:183B;
 replanting, I:32D, 37A, 305A;
 replanting, Norway, VI:49B;
 replanting by governments, I:81C;
 teak, V:110A;
 UK, V:100-103;
 Venezuela, V:150C;
see also Shelterbelts; Silviculture; Tree planting
- Forest policy, V:176-89;
 adaptation to national needs, V:198C;
 basic principles, V:187-89;
 British Commonwealth of Nations, V:178-81;
 Burma, V:199A;
 Canada, V:212A-B;
 Colombia, V:126C;
 conservation and increase of forest resources, V:176A;
 elements, V:178-81, 194A;
 fire protection on private land, V:185D;
 intensity of afforestation, V:187B;
 Philippines, V:181-83;
 recognition of local conditions, V:211D;
 relation to government structure, V:185A;
 U.S.A., V:184-87
- Forest products, I:410B;
 better utilization, I:37A;
 Chile, I:238B;
 consumption, I:35B;
 consumption in relation to living standards, I:35C;
 co-operative manufacture, I:222C;
 demand for, V:83A;
 Philippines, I:242D;
 requirements, I:35B;
 Sweden, V:85-88;
 transportation, V:236B-237B, 249-62
(see also Log transportation);
 utilization of waste, III:303A;
 value of, V:93A;
see also Timber; Wood
- Forest Products Laboratory, Madison, Wisconsin, I:142D
- Forest Products Laboratory, University of Minnesota (U.S.A.), V:185C
- Forest protection, V:33-74; Burma, V:201C;
 federal assistance in U.S.A., V:185D;
 North America, V:55-57;
 Venezuela, V:148-50;
 Yugoslavia, V:147-48
- Forest rangers: Belgian Congo, I:299D
- Forest research: Burma, V:200D-201A;
 U.S.A., V:185C
- Forest resources: Mexico, V:88-90;
 national surveys needed, V:5D;
 U.S.A., V:203D
- Forestry: Africa, I:298B;
 desirable for agricultural students, I:360A;
 European origin, VII:197A;
 Finland, V:2-5;
 for protection, in U.S.A., V:143-46;
 Norway, V:2-5;
 Nyasaland, I:285A;
 relation to agriculture, V:186B;
 South America, V:130B;
 Sweden, V:2-5;
 under-developed countries, I:316A;
 U.S.A., V:129D;
see also Forest management
- Forestry experts: cooperation with timber experts, I:37C
- Forestry personnel: Burma, V:199D-200B;
 conditions of employment, V:195B;
 decentralization, U.S.A., V:204C
 field organization, U.S.A., V:204D;
 merit system, V:195A;
 office organization, U.S.A., V:204B;
 organization, V:196A;
 professional training, V:194D;
 territorial organization, U.S.A., V:205D
- Forestry schools: Burma, V:200B;
 Philippines, V:183D;
 U.S.A., VII:197A;
 Venezuela, V:210C
- Forests: Africa, I:36B, 143D;
 aid in controlling torrents and avalanches, V:168-70;
 areas needed for various uses, I:79B;
 as hydrological agents, V:137B;
 Chile, I:238C;
 Colombia, V:120-28, 121C;
 Cyprus, V:140-42;
 depletion, I:134C, 290A, 291A;
 depletion in Mediterranean basin, I:14C;
 depletion in New Zealand, VI:445-50;
 depletion in U.S.A., I:319B;
 destruction, I:291B;
 destruction by farming, I:78D;
 ecological aspects of deer production, VII:205-7;
 economic aspects, I:410A, 212D;
 effect of depletion on soils, I:56C;
 effect on climate, V:134B, 170B;
 effect on rainfall, V:137D;
 effect on temperature, V:137A;
 effect on water supply, V:134D, 172B-D;
- Forests (*cont.*):
 effect on water table, V:137C;
 effects of destruction, V:135B-D;
 effects of different degrees of use by deer on carrying capacity, VII:205D(*graph*);
 Equatorial Africa, VI:579B;
 estimated annual yield, I:35;
 estimates of possible production, I:143D;
 factors initiating succession stages, VII:205C-206B
 importance, V:151B-152B;
 importance in human economy, V:187B;
 indiscriminate cutting, I:82C;
 in soil conservation, VI:5C;
 interrelated with water supply and soil fertility, I:14B;
 Iran, I:320D;
 Italy, IV:178B;
 Jamaica, I:294A;
 local communal use, V:183B;
 losses, I:35C;
 Malaya, VI:588D;
 managed *vs.* natural, V:188C;
 mensuration, V:79C;
 natural wealth, I:292A;
 New Zealand, VI:445-50;
 Philippines, I:241D;
 principle of multiple use, V:185B;
 protection, UK, V:130C;
 protective efficiency compared with that of grasslands and croplands, V:136A;
 protective function against avalanches, V:154B;
 protective functions, V:78A, 133-74, 188A, 197C;
 public ownership, V:146A;
 reactions on soil, V:136D;
 recreational value, V:139C;
 regulation, V:79C-80C;
 rehabilitation of devastated and derelict woodlands in UK, V:100-103;
 relation to soil conservation, I:409C;
 relation to soil erosion, V:138B-139B;
 relation to soil and water conservation, V:188A;
 relation to wildlife, V:139B;
 reserves in Chile, I:237A;
 shortages, I:34-37, 143B;
 spacing, V:80C-81A;
 spraying, V:67C, 74A;
 standing crop, V:79A;
 study of growing stock, V:3A;
 Switzerland, IV:208B-209A;
 Tennessee Valley, I:373B, 381B, 383B;
 tropics, I:409D, 410B, 417B;
 types, India, V:96A-C;
 UK, V:212A;
 use for grazing, I:79C;
 yields, V:87A
- Forests, agricultural: India, V:83D-84C
- Forests, collective, V:176D
- Forests, national: deferred grazing plan (U.S.A.), VI:528A;
 India, V:82B-83D;
 U.S.A., V:185B; VII:197a, 198B, 199B

SUBJECT INDEX FOR VOLUMES I TO VII

- Forests, private, V:177A
 Forests, protective, V:78B
 Forests, "pure", V:250D
 Forests, state: U.S.A., V:186B
 Forests, tropical, V:32C, 129D; VI:563C;
 Forests, tropical: cost of exploitation, V:
 251C;
 deficiency in valuable species, V:253-
 56;
 economics of exploitation, V:256C;
 insects and fungi as enemies, V:279A-
 D;
 logging practices, V:244D-246C;
 planned plantations, V:256D;
 protection of logs after felling, V:279-
 82;
 road building, V:254D-55;
 timber prospecting, V:254A;
 transportation problems, V:251A, 253-
 56;
 trees sensitive to insect and fungal
 attack, V:279B;
 types of insect pests, V:282A-C;
 types of stand, V:256A;
 yields, V:251B;
 zones of exploitation, V:251A
 Forest surveys, *see* Forest inventories
 Forest taxation: Argentina, V:189C;
 U.S.A., V:186C
 Forest transportation, *see* Log transportation
 Forest trees: breeding, VI:278D
 Forest utilization: Burma, V:201B-C;
 development in U.S.A., V:184A;
 logging charges, V:182C;
 Philippine licence system, V:182B
 Forest valuation: Argentina, V:189-93
 Formosa: carp culture, VII:133B;
 fertility rates, I:23C;
 pond culture, VII:131B;
 sugarcane experiment station, VI:263A
 Fort Peck Dam, Montana (U.S.A.),
 IV:136C
 Fouad I Institute of Hydrobiology and
 Fisheries (Egypt), VII:44B
 Foundries: scrap-processing methods, II:
 199B
 Four Freedoms, I:320D
 4-H Clubs, I:259A, 465A, 465B, 465D;
 Jamaica, I:296B
 Fox: Scotland, VII:256C
 Fox, black: introduction into Finland,
 VII:210D
 Fox, red: introduction into Finland, VII:
 210D
 Fox, Samson: breeding, Finland, VII:
 210D
 Fragmented ownership of land, I:217B,
 217C;
 China, I:227B
 France: administration of game resources,
 VII:242-47;
 agriculture, VI:605-8;
 alginic acid production, I:134B;
 bauxite deposits, II:116B, 117D, 247B;
 birth rate, I:21A;
 brown algae, VII:186A;
 capital export, I:19C;
 chemical industry, III:81-84;
- France (*cont.*):
 coal for electric power generation,
 I:106C;
 coal industry, III:123D, 130-33, 151-53,
 256-59;
 coking industry, III:168-72;
 colonies (*see* French colonies);
 disappearance of sheep breeding, VI:
 496D;
 distribution of parks, reservations, and
 sanctuaries, VII:246A(*tab.*);
 distribution of the principal species
 of game, VII:243(*map*);
 encouragement in use of gas generators,
 I:106D;
 farm production, I:18B, 24D;
 forestry, I:14C;
 fuel, I:55D;
 game conservation law needed, VII:
 245B;
 gold, II:116B;
 grain yield, I:32C;
 grazing land, VI:557A;
 hydro-electric power, III:298A-300B;
 iron, mines, II:115B;
 iron ore reserves, II:8A-9D;
 land reclamation, VI:605-8;
 lead, II:116B, 118B;
 metallic mines, II:116-19;
 mining methods, II:116-19;
 natural gas developments, III:82D;
 oil prospecting, III:24B;
 potash deposits, II:121A, 273C, 277D;
 pyrite, II:117C;
 research on topical forest insect pests,
 V:282A-C;
 Rhône basin project, I:390A, 394A;
 soil fertility, VI:267B;
 tidal power experiments, III:330B;
 timber protection, V:283-84;
 training of supervisory workmen, I:
 351A;
 tungsten, II:116C;
 value of protected game areas, VII:
 245C-245D;
 water control, IV:186-88;
 waterways, IV:339D, 343C;
 zinc, II:116B, 118B
 — Administration des Eaux et Forêts,
 V:156A
 — Colonial Scientific Research Bureau,
 VI:334B
 — Conseil Supérieur de la Chasse,
 VII:244B, 245B, 247A
 — Institute of Colonial Fruits and
 Citrus Fruits, VI:334B
 — Institute of Research on Cotton
 Plants and Exotic Textiles, VI:334B
 — Institute of Research on Palm Oil
 and Oil-Yielding Plants, VI:334B
 — National Timber Institute, V: 283-
 84
 — Office Technique et Scientifique des
 pêches maritimes, VII:111B
 — Waters and Forests Administration,
 VII:244A
 Franklin D. Roosevelt Lake, Washington,
 (U.S.A.), IV:437D; VI:603A
- Free enterprise, I:59B;
 effect on mineral conservation, I:122B,
 123D, 125A, 126C
 Freezing preservation, VI:360D
 Freight: on inland waterways, IV:
 339B
 Freight rates, IV:341B
 French colonies: soil protection, I:90a
 French Equatorial Africa: commercial
 timber, V:280A
 French Overseas Territories: agriculture,
 VI:333-36
 French West Africa: colonization, I:401C;
 fish culture, VII:162C;
 livestock breeding, VI:407;
 phosphate deposits, II:276C;
 river basin development, I:401A;
 trawling zone in waters near, VII:62D
 Freshwater fish, *see* Fish, freshwater
 Fresno Dam, Montana (U.S.A.), IV:252A
 Friant Dam, California (U.S.A.), IV:139D
 Frick (H.C.) Coke Company, II:137
 Frodingham, England: iron ore, II:45D
 Frodingham stone: analyses, II:158(*tab.*)
 Frost: effect on sheep, VI:418B
 Frozen fish, *see* Fish, frozen
 Frozen foods, I:136C; use in preservation
 of crops, 86A
 Fruit: amount needed in diet, I:32A, 33A;
 diseases, VI:331A;
 Egypt, I:244C;
 preservation, VI:368B, 371B-372D, 376
 A-C;
 preservation of flavor, I:136D;
 quick freezing, VI:343A;
 storage, VI:342C, 343A
 Fruits, canned: Egypt, I:245B
 Fruit, dehydrated, VI:362A
 Fruit crops: insect control, VI:318B
 Fruit juice concentrates: freezing, BI:
 361B
 Fruit trees: Morocco, VI:617C
 Fucaceae, *see* Algae, shore
 Fucoids, *see* Algae, shore
 Fuel, I:312D;
 artificial restraints of use, I:50C;
 assessment for small country, I:236B-
 237A;
 consumption, III:82A;
 depletion, I:415A;
 local character of problem, I:47A,
 48D;
 octane number, III:286(*diag.*);
 shortages, I:47-51;
 technological uses, III:269C-271C;
 waste, I:107A
 Fuel, fossilized, I:102B
 Fuel, liquid, *see* Gas; Oil
 Fuel, mineral: Canada, III:201A
 Fuel, solid, *see* Coal
 Fuel, synthetic, I:13D, 415A;
 Bergius process, III:144B;
 development, I:7C;
 Fischer-Tropsch process, III:87B-89D,
 94C, 266A;
 hydrogenation process, III:89D-91D,
 96-98;
 processes, III:87B-92C, 144B;
 production, III:84-96;
 production costs, III:94(*tab.*), 94C;

UNSCCUR PROCEEDINGS: INDEX

- Fuel, synthetic (*cont.*):
 production from coal, III:144-50;
 production methods, III:93D;
 raw materials for, III:85C;
 summary of requirements, III:87
 (*tab.*);
 see also Synthetic liquid fuel
- Fuel conservation: future trends, III:
 271-77;
 in space heating, III:203B;
 relation to water control, I:388D;
 UK, III:133-35, 206-8
- Fuel consumption, III:268B;
 in houses, III:205D;
 U.S.A., III:273B(*fig.*)
- Fuel for international combustion en-
 gines, *see* Motor fuels
- Fuel oil: competition with coal, I:107C,
 110C;
 production, I:50B;
 utilization in power generation, I:105C
- Fuels, competitive, I:102A
- Fuel supply: East Africa, VI:586A
- Fuel utilization: analysis, III:272A-273C;
 domestic applications, III:268D-269B;
 future outlook, III:268-71, 283-92;
 future trends, III:264-67, 271-77;
 U.S.A. (1947), III:272B(*tab.*)
- Fullers' earth: UK, II:46D
- Fumel-sur-Lot Dam, France, IV:241C
- Fungi: effect of dew on, IV:46D;
 protection of crops from, I:85B
- Fungicides, VI:335C;
 in plant disease control, VI:330D
- Fur-bearing animals, *see* Game
- Fur conservation, VII:187-211
- Furfural: from corn cobs, I:134B
- Fur game: parasites, VI:498A
- Furnaces, blast, *see* Blast furnaces
- Furnaces, open-hearth: *see* Open-hearth
 furnaces
- Fur-seal fishery: Pribilof Islands, VII:
 30D
- Gabon, French Equatorial Africa:
 forests, V:114B, 115D-116B; VI:579B
- Gach Saran (oil field), Iran, I:99D
- Galvanized iron, *see* Iron, galvanized
- Gambia, West Africa: planning for
 nutrition, I:340A
- Game: administration of resources, VII:
 215-17, 248B;
 administration of resources, France,
 VII:242-47;
 administration of resources, U.S.A.,
 VII:239-41;
 annual yield on productive estate,
 UK, VII:190D;
 as carriers of disease to livestock, VII:
 221A;
 competition with domestic livestock,
 VII:203D-204A;
 control (term), VII:218B;
 control essential to preservation, VII:
 220A-220C;
 control in Kenya Colony (Africa),
 VII:218-20
 costs and economic values of conser-
 vation, France, VII:245D-246B;
 diseases of, UK, VII:193D;
- Game (*cont.*):
 distribution in France, VII:243(*map*);
 estimated kill in average pre-war year
 (France), VII:244C(*tab.*);
 France in need of conservation law,
 VII:245B;
 in French legal terminology, VII:242B;
 international laws, VII:246D;
 inventories of populations, VII:240B-
 240D;
 killed at Great Witchingham, Norfolk,
 England, 1911-30, VII:192A(*tab.*);
 kinds of preserves needed by different
 groups, VII:254A;
 management of land to produce
 maximum crop in UK, VII:194A-
 194C;
 ownership, I:410D;
 population appraisal, Africa, VII:216C-
 216D;
 population, U.S.A., VII:239B;
 preservation involves control, VII:
 220A-220C;
 problems arising from incursion of
 humans, VII:218D-220C;
 reduction of habitat areas, Africa,
 VII:226D;
 restocking, South Africa, VII:253C;
 stabilization of herds, VII:203B-C;
 term, VII:248A;
 winter food supply, VII:240B;
 see also Wildlife
- Game area: study of typical, VII:191B-
 192A
- Game birds: artificial propagation, VII:
 194D;
 census and assessment of shootable
 crop, VII:194A;
 determination of population levels,
 VII:230B-231B;
 international protection, VII:246D;
 need of careful management, VII:230A;
 production of migratory, VII:237C-
 239C;
 see also Partridge; Pheasant
- Game conservation, VII:187-211;
 costs and economic values of, France,
 VII:245D-246B;
 international conventions, VII:217B;
 on croplands, UK, VII:190-95;
 on Western U.S.A. rangelands, VII:
 201-4;
 public relations and education in, VII:
 247B-C
- Game fisheries: need for statistics on,
 VII:72C
- Gamekeepers (UK): value of, VII:194D-
 195A;
 work of, VII:190B-191C
- Gamekeeper's beat (Great Witchingham,
 Norfolk) VII:191(*map*)
- Game laws: France, VII:244C-245B;
 U.S.A., VII:198D, 199A
- Game management Northern Rhodesia,
 VII:220-22;
 principles, VII:202D;
 typical problems, Northern Rhodesia,
 VII:221D-222D;
 see also Game conservation
- Game reserves: France, VII:245C;
 term, VII:256B;
 see also Wildlife refuges
- Ganga River, India: run-off, IV:76A
 (*tab.*)
- Ganges River, India: fish, VII:133D
- Ganges River delta, Bengal, VII:131A
- Gannets: population estimates, New
 Zealand, VII:235A
- Gapeworms, VI:484D
- Garamba National Park (Belgian Congo),
 VII:223A;
 studies of psychology of large mammals
 in, VII:225D
- Gas: by-product of iron and steel manu-
 facture, III:293-96;
 cleaning, III:295D;
 production, III:264D;
 see also Natural gas; Producer gas
- Gas, synthetic: production, III:95C
- Gas, water, *see* Water gas
- Gascony, France: forest fire, V:70B, 71C
- Gas engines, III:281D
- Gaseous oxygen, *see* Oxygen, gaseous
- Gases, factory, *see* Factory gases
- Gas generators: use for motor vehicles,
 I:107A
- Gasification of coal, underground, *see*
 Coal - underground gasification
- Gas injection in oil recovery, III:47A
- Gas manufacture: coal requirements, III:
 136B, 160A;
 coke as by-product, III:158A;
 Europe, I:102D;
 Norway, III:174B
- Gas-oil ratio in oil wells, III:38A
- Gasoline: consumption, III:264B;
 for airplanes, III:77B;
 from shale oil, III:54A;
 production, III:70B-71D;
 production by hydrogenation of coal
 or tars, III:94B
 transportation, IV:340A;
 use of alcohol with, I:137D
- Gasoline, synthetic: Hydrocol process,
 III:175A
- Gasoline engines, *see* Internal combustion
 engines
- Gaspé region, Quebec (Canada): petro-
 leum discoveries, III:3A
- Gas turbines, III:290D;
 developments, III:275B-277C;
 Finland, III:308D;
 for integrated power systems, III:
 227B;
 fuel, III:267D;
 use in aircraft engines, III:265C;
 use in motor vehicles, III:265B;
 use on ocean vessels, III:265D;
 use on railways, III:265C
- Gedong Tataan irrigation project (Su-
 matra, Indonesia), VI:565A
- Geese, *see* Goose
- Geiger counters, I:41B, 312B
- General Agricultural Experiment Station,
 Buitenzorg (Java), IV:353D
- General Electric Company (U.S.A.), II:
 142C;
 heat pumps, III:214C;

SUBJECT INDEX FOR VOLUMES I TO VII

- General Electric Company (U.S.A.)
 (cont.):
 meteorological experiments, IV:7D-8C, 10A-15C;
 research in gasification of coal, III: 276D
- General Engineering and Development Company (U.S.A.), III:214C
- Generators: of integrated power systems, III:226C-227D
- Genetics: application to livestock breeding, VI:386B, 394-96, 409B; forage grass, VI:542A-D; Mendelian theory, VI:430B, 433D; sheep, VI:397-99;
see also Heritability; Hybridization
- Genipap, VI:593B
- Géniat Dam, France, I:388B, 390C; III:298C; IV:221C, 222B, 320B
- Genotypes, VI:532B
- Geochemical prospecting, *see* Mining exploration - geochemical prospecting
- Geochemistry: in oil finding, III:3A, 7A, 25A
- Geodetic surveys: necessary step in making topographic maps, I:178A
- Geological surveys, I:412D
 to follow topographic mapping, I:178B
- Geological surveys, intensive, I:180D
- Geologic maps: for mine exploration, I: 180B-181B;
- Geologists: India, I:312C
- Geology: applications to oil prospecting, III:3D, 6C, 25C;
 bearing on secondary oil recovery operations, III:49B;
 "contingent" relationships, I:169C;
 estimate of oil reserves, I:94D;
 in prospecting, I:168C, 169C; II:62B;
 in resource survey, I:173C;
 techniques in oil prospecting, III:7B
- Geophysical methods: for mineral exploration, I:41A, 56B, 168D, 169D;
 in oil finding, III:2D, 3C, 4B-5A, 6C, 6D, 7D
- Geophysicists: India, I:312C
- Geophysics: importance in water resources development, IV:417C
- Georgia Power Company (U.S.A.), III: 262A
- Gerber Dam, U.S.A., IV:249D
- Germany: attempts to produce fat yeast, I:133A;
 capital export, I:19C;
 coal and iron resources, I:117B;
 coal mining, III:116D;
 coking industry, III:161C;
 electrical development, I:50A;
 exports (1937), I:60n;
 farm production, I:18B;
 forestry, I:14C;
 grain yield, I:32C;
 inland waterways, IV:343C;
 iron and steel industry, II:241B;
 population pressures vs. conservation, I:206B;
 research in food yeast, I:49A;
 state control of resources for military purposes, I:206D;
- Germany (*cont.*):
 synthetic detergent production, III: 79D;
 synthetic fuel production, III:94B, 97B;
 terms of trade, I:206D;
 water-gas production, III:266C;
 working of less valuable iron deposits, I:170B;
- yeast production from wood sugar, I:132B
- Ginger production: Jamaica, I:294D
- Giraffe: behavior when habitat is invaded, VII:219A;
 Congo, VII:253B
- Glacial layer: concealment of subsoil, I:171C
- Glassware: manufacture in Egypt, I: 245C;
see also Clay products
- Glory of the Seas* (fishing vessel), VII:103B
- Glucose: laminarin as source of, VII: 186C
- Glycerin: from petroleum, III:73B
- Glycogen: enzymatic degradation and synthesis of components, I:135A
- Goajira peninsula, Colombia: vegetation, V:121D
- Goat pneumonia, VI:469A
- Goats: breeding seasons, VI:415B;
 browsing habits, VI:418B;
 diseases, VI:468B, 469B;
 French tropical Africa, VI:576A
- Goiter: Haiti, I:363C
- Goiter, endemic: effect of seaweed on, VII:178D
- Gold: as alloying element, II:232D;
 Australia, II:51B;
 Belgian Congo, I:169A;
 Brazil, II:18C;
 cyanide process for extracting, I:41B;
 India, I:116A; II:67D;
 Peru, I:124A;
 Philippines, I:242B;
 placer mining, II:150A;
 shortage, I:113B;
 use in Central and South America, I:56A
- Gold Coast, West Africa: forests, V:116B
- Gold mines: France, II:116B;
 South Africa, I:170D; II:61B
- Goods carriage, *see* Freight
- Goose: damage to crops, VII:236C
- Goose, Ross's: migration route, VII:231C
- Goram, *see* Gourami
- Gorgas, Alabama (U.S.A.): experiments in underground coal gasification, III: 144C-146A, 146C-151C, 155B
- Gorlovka, U.S.S.R.: experiments in underground coal gasification, III:154B
- Gourami, VII:122B, 133D;
 possible culture in Philippines, VII: 144D
- Gourami, giant: culture in Philippines, VII:143C
- Government: aid to conservation, I: 205B, 205D;
 aid to on-the-job training, I:350B;
 control of land use, I:82C;
- Government (*cont.*):
 intervention in economic affairs in Ecuador, I:251A;
 preparation of new land for settlement, I:82A;
 regulation of agricultural areas, I:81B;
 relation to industry in Chile, I:239A
- Government financing of development projects, I:390A, 391A-391C;
 Egypt, I:245C
- Government Fuel Research Station (UK), III:207B
- Grackles: damage to crops, VII:236D
- Grain: amount needed, I:32A, 33A;
 breeding, VI:280A;
 diseases, VI:329B;
 experiments in Southeastern United States, I:86C;
 harvesting machinery, VI:188A;
 loss of food value, I:86B;
 maintenance of genetic stocks, VI: 286-89;
 mechanical drying, VI:343D;
 principal food crop in Asia, I:340A;
 production, I:32C;
 seed treatment, VI:325B;
 storage, VI:343B-D, 354D, 356B, 377B;
 winter hardiness, VI:281B;
 yield, VI:297-301
- Grain crops: effect on soils, VI:519A
- Grain production: Canada, VI:196B-197A;
 Honduras, VI:593C;
 Morocco, VI:616D;
 Sweden, VI:297-301
- Grain sorghum: chemurgy, I:137A
- Gram: diseases, VI:328A
- Grand Bank (Newfoundland): increased exploitation of cod possible, VII:29D
- Grand Coulee Dam, Washington (U.S.A.), I:392B, 393B, 402D; III:301D; IV: 221C, 252C, 253C, 293D, 373C, 455D;
see also Franklin D. Roosevelt Lake
- Grapefruit juice, frozen concentrated, I:136D
- Grape juice, frozen concentrated, I:136D
- Grapes: diseases, VI:338C
- Graphite: Ceylon, I:114A, 114D;
 Cuba, II:80C;
 India, II:68D
- Graphite, artificial, I:42B
- Grass-carp, VII:122A
- Grassed-waterways: as phases of conservation, I:265B
- Grasses: conservation, VI:508C;
 cross-fertilizing, VI:280D;
 cutting, VI:560A;
 hybridization, VI:542B;
 introduction into U.S.A., VI:294A;
 mixed with clover, VI:507D, 518A-519B;
 planting, VI:595A;
 relation to soil fertility, VI:271C;
 UK, VI:190B;
 use of leafy strains, VI:508A;
see also Bermuda grass; Blue grass; Cocksfoot; Forage plants; Harial grass; Hay; Kans; Napier grass; Peanut grass; Ryegrass; Sand lovegrass; Spartina grass; Wheatgrass

Grassland, I:419B; VI:162B;
botanical composition, VI:522A;
causes of deterioration, VI:528A;
Colombia, VI:527D;
Denmark, VI:525B;
depletion, I:290A, 291A;
evaluation by botanical research, VI:
522-24;
exploitation, VI:524B;
France, VI:607A-608A;
improvement, VI:459D;
Indonesia, VI:526A;
Italy, IV:178C;
Jamaica, I:294D;
lay-off period, VI:528A;
Livestock grazing; *see also* Grazing
land; Prairie, Savanna regions
management, VI:525D, 526C, 527B;
measurement of yield, VI:460B;
mixtures, VI:515B;
natural wealth, I:292A;
Netherlands, VI:450-51, 522-24;
New Zealand, VI:448B-449D, 517-21,
534-40;
overcutting, VI:519A;
pests, VI:460C;
protection, VI:309-39;
protection against insects, VI:310-18;
role in soil conservation, VI:548-52;
Scotland, VI:507A-D;
soil fertility cycle, VI:520C;
Tennessee Valley (U.S.A.), I:373B,
382A;
treatment, VI:220B-D;
UK, VI:514-16;
U.S.A., VI:452A;
Grassland Improvement Station, Strat-
ford-on-Avon (England), VI:515C
Grass seeds: danger to sheep from, VI:
418C
Grass sward, *see* Sward, non-leguminous
Gravel or cinder culture, *see* Nutriculture
Gravimeter: use in determining sedi-
mentary basins, III:7C
Gravitational method for treating factory
gases, II:184A
Gravity: anomalies, I:56B
Gravity drive for oil expulsion, III:34B,
41C
Gravity-meters: use in oil finding, III:4B
Grazing: initiation of successional cycle
in forests by, VII:206A;
see also Livestock grazing
Grazing lands, VI:440B;
Africa, VI:501B, 525C;
Africa, East, VI:587A;
application of ecological principles,
VI:509-14;
Argentina, VI:428A;
botanical composition, VI:530-34;
causes of deterioration, VI:501C-503A;
China, VI:501A;
classification, VI:511A, 544B-D;
clearing by mechanical measures, VI:
546C-547A;
close grazing, VI:527D;
Colombia, VI:559D;
condition of, VI:499-528;
depletion, VI:500, 503B, 510B-511A;
France, VI:557A;

Grazing lands (*cont.*):
game management on (Northern Rhod-
esia), VII:220-22;
Honduras, VI:593D;
importance in food production, VI:
500A;
improvement, VI:444D;
India, VI:500D;
invasion of unpalatable plant species,
VI:503A;
Ituri, Belgian Congo, VI:594-96;
joint use by game animals and domestic
livestock (U.S.A.), VII:255D-256A;
management, VI:5B, 408A, 503C, 508C,
547D-548B;
Morocco, VI:617A;
multiple use of, VII:201D-202A;
New Zealand, VI:553-60;
overgrazing, VI:500-505, 527A, 548A;
overstocking, VI:525C, 547D;
Pacific Islands, VI:559B;
prevention of deterioration, VI:553-60;
recreation and wildlife problems, VII:
195-200;
relation to livestock production, VI:
408D-409B, 500-509;
restoration and maintenance, VI:504B-
D, 544-48;
seasonal use, VI:541B;
seeding and restoration, VI:529-60,
541-44, 595A-596C;
social and economic problems, VI:
504D;
term, VI:509B;
testing new plants for re-vegetation,
VI:541-44;
Tunisia, VI:610A;
U.S.A., VI:500D, 502D, 503D, 541-44;
U.S.A., Western, VI:559B (*see also*
United States of America, Western –
range lands);
utilization, VI:440A, 512C;
value, VI:512D-514A;
Venezuela, VI:433C;
see also Grasslands; Rotation of grazing
land
Grazing lands, public, VI:502C, 525A; *see*
also United States, Western – range land
Grazing rotation, *see* Rotation of grazing
land
Grazing tax: Pakistan, VI:7B
Great Bear Lake, Canada: uranium-silver
deposits, II:16C
Great Britain, *see* United Kingdom
Greater Antilles: bauxite, I:120B
Greater Butte Project, (Montana, U.S.A.),
I:122A, 123C; II:144A
Greater Rajasthan Union, India: gypsum
deposits, II:22D
Great Lakes, North America, I:78D; IV:
339C;
traffic on, IV:343D
Great Plain of North China, I:228A
Great Plains (U.S.A.), land-use errors, I:
78C
Great Slave Lake, Canada: gold reserves,
II:16B
Great Valley of California, U.S.A., VI:
510B

Great Witchingham, Norfolk (England):
game killed, 1911-30, VII:192A;
management of a typical game area,
VII:191B
Greece: agricultural economy, IV:381D-
382C;
average annual income of rural family,
IV:382B;
chromite production, I:120A;
climate, IV:381B;
coal consumption, I:61C;
density of population, IV:382A;
flood control, IV:347C;
grazing land depletion, VI:501B;
irrigation, IV:378-82;
low income level, I:61D;
magnesite, II:257B;
river-basin development, IV:168D;
water economy, IV:407-8
Greek recovery programme, IV:380B
Green crops, *see* Forage plants
Greenland, fisheries, VII:8D-9D
Green manuring, IV:353A; VI:176B,
241C, 271A;
Japan, VI:260D;
use in controlling parasitic fungi, VI:
334D;
use in replenishing soil, I:85C
Green River formation of oil shales
(U.S.A.), III:57B
Grenoble, France: hydraulic laboratory,
IV:275D
Grey mullet: culture, China, VII:133D;
culture, Hong Kong, VII:134B;
culture, Israel, VII:148A;
Egyptian delta lakes, VII:129C
Grid system, electric, *see* Electric power
grid
Ground survey: accuracy of position for
oil prospecting, III:9A
Ground water, *see* Water, ground
Ground-wood: use in hardwood pulping,
V:293C
Group training: in agriculture, I:298A
Growing season: Tennessee Valley, U.S.A.
I:369D
Growth rate in animals, VI:414B
Guajiniquil atorador, VI:592C
Guamá River, Brazil, VI:599A;
alluvial soils compared to those of
Nile, VI:601C;
drainage, VI:601B;
igapós, VI:599D-601C
Guanacaste, *see* Conacaste tree
Guanay or guanay cormorant, VII:232A-
232C
Guano: amount produced by adult bird
per year, VII:232D;
Chile, II:291B-291D;
harvesting, VII:233A-C;
proposed expansion of industry, VII:
233C
Guano, fish, *see* Fish guano
Guano birds, VII:232A-233D;
nesting in New Zealand, VII:235A
Guapinol, *see* Courbaril trees
Guar: introduction into Arizona, I:134C
Guara Oeste oil field, Venezuela, III:39B
Guario oil field, Venezuela, III:18D
Guasimo, *see* Caulote

SUBJECT INDEX FOR VOLUMES I TO VII

- Guatemala: agriculture, VI:111D; botanical exploration to, VI:295A; conservation education, I:322D; soil conservation, VI:62-66
— Department of Soil Conservation, VI:64B-66C
- Guayas river, Chile, I:250C
- Guazuma tomentosa*, see Caulote
- Guiana, British, see British Guiana
- Guiana, Dutch, see Surinam
- Guinea-Congo forest, West Africa, V:114B
- Gulf of Alaska: potential production of Pacific cod, VII:29D
- Gulf of Mexico: continental shelf, I:97A, 98C, 100A; III:21D; fisheries, 103D; sedimentary basins, I:96a
- Gulf Oil Company (U.S.A.), III:4C, 30B
- Gull: methods of reducing numbers, VII: 237A
- Gull, black-backed: New Zealand, VII: 235B
- Gull, red-billed: New Zealand, VII:235B
- Gullies: control, I:75C; control in New Zealand, VI:446D-448A
- Gulpen, Netherlands: fish hatchery, VII: 147C
- Gunnison-Arkansas project (U.S.A.), I: 402B
- Gypsum: Chile, II:292C; India, II:22D, 68D; Jamaica, I:295B; Pakistan, II:22D; relation to sulphur deposits, II:85, 91D; source of sulphur, II:91D; UK, II:46D
- Gypsy moths: control, V:66-70
- Haarlem Lake, Netherlands: drainage, IV:171B
- Haddock: Atlantic population, VII:60B; investigations of survival of eggs (Norway), VII:58D-59B; North Sea, VII:166A, 167C
- Haft Kel oil field, Iran, I:99C; III:31C, 31D
- Haila, Israel: water supply, I:218B
- Hail: prevention by seeding methods, IV:21B-D
- Haiti: agricultural education, I:357-60; conservation of resources, I:361A; economic problems, I:365A; grazing land, VI:558C; social conditions, I:364D; soil conservation, VI:50D
— Agricultural Technique, Service of I:358A
- Haiti, University of, I:357D
- Hake: in waters of Patagonian continental shelf, VII:30D
- Halibut: conservation, VII:18A-19B; effect of fishing on stocks of Pacific, VII:16B-20C; fluctuations in catch (1930-48), VII: 19C; protection of young fish, VII:169B
- Halibut fisheries: on Pacific Coast of North America, VII:16B-20C; statistics of catch, VII:17(graphs)
- Hampshire, England: iron deposits, II:46B
- Hannah Dairy Research Institute, Ayr (Scotland), VI:386A
- Han River, China: fish, VII:133C
- Hardwood forests: England, V:101A
- Hardwoods: not easily pulped by sulphite liquors, I:142C; sawing practices (see Sawmill techniques - hardwood sawing practices); use for pulping in Latin America, V: 320C; utilization, V:293A-294A
- Hare, European: introduced into Argentina, VII:252C
- Harialis grass, VI:567C
- Harspranger power station, Sweden, IV: 423C
- Harvard Forest (U.S.A.), V:25C, 26A
- Harvesting machinery, VI:188A-D, 200D
- Hatcheries: Netherlands, VI:387B
- Haulage: in mines, II:111D
- Haveli Project, Pakistan, IV:391B
- Hawaii: agriculture, VI:191-95, 330-33; cattle diseases, VI:482B; food production, I:33A
- Hawks: preservation, VII:208B, 209A
- Hay, VI:503C; drying, I:86A; VI:190C, 343D, 348D-350B; effect on grassland, VI:554A; experiments in Southeastern United States, I:86C; loss of food value, I:86B; Netherlands, VI:451A; see also Forage plants; Grasses
- Haying machinery, VI:187D, 352C-353A
- Health conservation: French colonies, I: 344C; UK, I:204D;
see also Public health
- Health education, I:337A; Haiti, 361A
- Health standards: of workers, I:331B; damage to foods, VI:360A; in technological processes, III:269C
- Heather, VI:506D
- Heating, I:101C; Canada, III:200-203; conservation in fuel utilization, III: 199-222;
- Czechoslovakia, III:218-19; improvements, I:7C;
- Israel, III:221D;
- Norway, III:209-12; specific energy requirements, III:219A (tab.); UK, III:206-8; U.S.A., III:204-6;
see also Solar heat
- Heating, central: France, III:220B
- Heating, district, III:203B; UK, III:208B
- Heating and ventilating industry: UK, III:203D
- Heating appliances: testing, III:207B
- Heating of commercial and industrial buildings, III:202D, 208B
- Heating of houses, III:205D, 267A, 268D; by solar energy, III:215-18; methods, III:202B; Norway, III:211A; UK, III:206D
- Heating of public buildings, III:203A
- Heating oils, III:72A
- Heat pumps, III:213-14
- Heat sterilization, VI:360C
- Heat-tolerance, VI:422D, 433A; effect on livestock, VI:440D; tests for, VI:416B
- Heat-treatment furnaces: gas as fuel, III:295B
- Hebrew University in Jerusalem, II:264B
- Hedgerows: nesting place for partridge and pheasant, VII:192B
- Heel flies, VI:489C
- Heidelberg am Neckar, Germany, IV: 260C
- Helicopters: in mineral exploration, II: 65C; proposed use in forest surveys, V:32D
- Helium: from natural gas, III:73A
- Helminthic diseases, I:361C, 363A; VI: 468C, 482A
- Hematite: Brazil, I:120B; U.S.A., I:407A
- Hemicelluloses: component of wood fibre, I:140a; sugars from, I:142a
- Hemlock: source of essential oils, V: 299A; pulping by sulphite process, I:142C; source of tannin, V:299B
- Hemp, bowstring, I:294D
- Heptaldehyde, I:158D
- Herbage, see Forage plants; Grasses; Grasslands - botanical composition
- Hereford cattle: export from UK to Argentina, VI:471A; grazing habits, VI:418B
- Heritability in animals, VI:410C; in rate of growth of beef cattle, VI: 434D; relation to environment, VI:424B, 431B; see also Genetics; Hybridization
- Herring: Atlantic population, VII:60B; biological knowledge of useful in fishery VII:64B; causes of mortality, VII:6D-7B; dehydration, VII:94D; exported from UK, VI:22D(graph); Falkland Islands, VII:29C; North Sea, VII:167C, 185A; prediction of year-classes, VII:64B; preservation by chilling, VII:93C; preservation by freezing, VII:93D-94A; price in Norway, VII:88D(tab.); spawning grounds, Vancouver Island, VII:5D; transplantation to New Zealand, VII: 53D
- Herring, "hot-smoked", VII:115A
- Herring fisheries: Atlantic coast catch (U.S.A.), VII:29B; British catch, VII:29A, 93A; British Columbian production, VII: 29B; Canadian production, VII:29B; fluctuations in abundance on West Coast of Vancouver Island, British Columbia, VII:5-7;

UNSCUR PROCEEDINGS: INDEX

- Herring fisheries (*cont.*):
 fluctuations in fishing, Norway, VII: 4C-5C;
 India, VII:173C;
 Japanese catch, VII:29B;
 Labrador, VII:29B;
 Netherlands, IV:409, 410;
 Newfoundland, VII:29B;
 New Zealand, annual catch, VII:32A;
 North Sea, VII:166A;
 Norway, VII:29B;
 Pacific coast (U.S.A.), VII:29B;
 U.S.A., VII:29B;
 Vancouver Island catch from 1933-34
 to 1945-46, VII:6A(*tab.*);
 West Pacific, VII:32B
- Herring meal, *see* Fish meal
- Hexachloroethane: in treatment of liver fluke, VI:482D
- Hexitols, I:134D
- Heysham, England: oil refinery, III:77B, 78A
- Hides: effect of ecto-parasites on, VI: 468C
- High water, *see* Floods
- Hills: deforestation, VI:445-50
- Hillside farming, 5A, 506B-507A; Algeria, VI:608A-D;
 Colombia, V:174C;
 Cyprus, VI:12A;
 France, VI:606A;
see also Land, steep; Strip-cropping; Terracing
- Hilsa (fish): possible development of fishery, VII:32B
- Hoesch Benzin Gesellschaft (Germany), III:94D
- Hofuf, Saudi Arabia: water supply, IV: 386B
- Höganäs process, *see* Sponge iron - production
- Hoganikal Falls, India, IV:448C
- Hoisting: in mines, II:112A
- Hojum power plant, Sweden, IV:257B
- Holstein-Friesian cattle, VI:434A
- Holland, *see* Netherlands
- Homesteading: withdrawal of lands from in 1934 (U.S.A.), VII:198A
- Honduras: land reclamation, VI:590-94; population, VI:590B
- Honduras, British, *see* British Honduras
- Hong Kong: fish culture, VII:134B; pond culture, VII:120D, 131B
- Hookworm disease, I:336C
- Hoover Dam, U.S.A., I:388B; IV:247D, 252C;
see also Boulder Dam
- Horn, Cape: brown algae, VII:185D
- Hornborga, Lake, Sweden, IV:445C
- Horn flies, VI:489B;
 eradication, VI:492C
- Horokiwi River, New Zealand: trout culture, VII:153A
- Horses: breeding seasons, VI:415B;
 effect of heat on, VI:417B;
 eradication of mange, VI:488A;
 itchy legs, VI:487B
- House flies: resistance to insecticides, VI:492D
- Housing: Canada, III:201D;
 for workers, I:329B;
 UK, I:64B;
 use of by-products, I:59D
- "H" steels, II:176A
- Hudson Coal Company (U.S.A.), II:151B
- Huisache: elimination by chemicals, VI: 547A
- Hula Valley, Israel: fish culture, VII: 148B
- Humahuaca, Argentina, VI:402A
- Human factor: in agricultural development, I:333C
- Human fertility rate, *see* Reproduction, human - rate
- Humidity: effect on livestock, VI:417D-418B
- Humidity control: to prevent metal corrosion, II:228A
- Humid regions: errors in use, I:78D;
 forest removal, I:78D;
 protection against soil deterioration, I:57A
- Humphreys Gold Corporation (U.S.A.), II:151B
- Humus: importance in conservation of soil fertility, I:299A;
 in tropics, VI:563D;
see also Soils - organic matter
- Hungary: bauxite deposits, I:120B; II: 247B;
 consumption of nitrogenous fertilizers, I:61C;
 electrical development, I:50A;
 use of agricultural equipment, I:61C
- Hunting: French legislation, VII:244C, 245A;
 national benefits (France), VII:246B;
 number of licenses issued (U.S.A.), VII:208A;
 of ducks (U.S.A.), VII:238D-239A;
 of migratory birds (U.S.A.), VII:236D-236A;
 police law (France), VII:244C-245A;
 rangelands as public areas, VII:204B-204C;
 Sweden, IV:445A
- Hunting communities: diet, I:338C
- Hunting reserve: term, VII:256A
- Hyena: harm done by (Kenya Colony), VII:219D-220A
- Hybridization: effects on wildlife, VII: 210D;
 of bovines, VI:407;
 of plants, I:85A; VI:277D-278D, 282B-D, 530D, 534D
- Hydraulic engineering in under-developed countries, I:317A; *see also* Water control
- Hydraulic experiments: scale models for, IV:268A-269B
- Hydraulic laboratories, IV:275D;
 Bureau of Reclamation (U.S.A.), IV: 274C;
 function, IV:277A;
 St. Anthony Falls, University of Minnesota, Minneapolis (U.S.A.), IV: 281B
- Hydraulic mining, I:79A;
 effect of debris on water resources, IV:308B
- Hydraulic power pumps, III:11D
- Hydraulics: in exploitation of water resources, IV:417C;
 measurement, IV:42-45, 93A;
see also headings beginning Water
- Hydraulic works: France, V:167B-168C
- Hydrocarbons: control in motor fuel, III:97C;
 in sedimentary rocks, I:109A
- Hydrocarbons, non-saturated, III:83B
- Hydrocarbons, saturated, III:83A
- Hydro-electric equipment, III:251C
- Hydro-electric power, I:56A, 102B, 370B; III:298A-300B;
 Australia, IV:142B;
 Austria, IV:42-45;
 Chile, I:235D, 238D;
 conservation of wood through, I:207D;
 consumption, I:101D;
 development, I:7C;
 development limits, I:49A;
 Egypt, IV:84A, 305C
- Europe, III:251A;
 factor in conserving other power resources, IV:430-432;
 future of, III:272A;
- Haiti, I:361B;
- India, I:311A;
- Middle East, IV:155C;
- Norway, III:173A;
- Philippines, I:241D, 242D; IV:458B;
 potential, IV:63B;
 relation to conservation (U.S.A.), IV: 425-30;
- Sweden, I:415A; III:328D; IV:422-25;
- TVA (U.S.A.), I:371B, 380C;
- U.S.A., III:301-5;
- U.S.A. Pacific Northwest, III:304
 (*map*), 329A;
vs. coal, I:48C
- Hydro-electric power plants, IV:458D-459A;
 construction, IV:256-60;
 economic considerations, IV:259D-260C;
 experiments with models, IV:257C;
 for integrated power systems, III: 226D;
 siting, IV:257D;
- Yugoslavia, IV:261B
- Hydro-electric power-station: definition, IV:256A
- Hydro-electric resources: factor in economic development, I:49D
- Hydrogenation process: in liquid fuel production, III:266A, 89D-91D, 96-98; in wood residue utilization, V:301A-C
- Hydrographic charts: relation to marine insurance rates, I:175C
- Hydrologic cycle, IV:458B-D;
 importance, IV:37C;
 role of clouds in, IV:2B-3A
- Hydrologic surveys, I:183-85, 311C; IV: 52-55;
 geologic mapping, I:180C

SUBJECT INDEX FOR VOLUMES I TO VII

- Hydrology: in resource survey, I:173C; probability theory applied to solution of problems, IV:85-90; technical problems, IV:256B
- Hydrolysis, *see* Wood hydrolysis
- Hydrometeorology: studies by U.S.A. Weather Bureau, IV:62B
- Hydroponic Research Centre, University of Brussels; nutricultural research, I:132B
- Hydroponics, *see* Nutriculture
- Hydro-power, *see* Hydro-electric power
- Hydrosphere: as resource, I:56-57
- Hydroxymethylfurfural, from sucrose, I:134D
- Hymenaea courbaril*, *see* Courbaril trees
- Ice: elimination from airports, IV:18D-19D
- Ice crystal process of precipitation, IV:5A
- Iceland: cod fishery yield, VII:9D
- Iceland* (fishing vessel), VII:104A
- Idaho, U.S.A.: burning sagebrush areas, VI:547C; increase in numbers of moose, VII: 255D; phosphate deposits, II:271C
- Idaho, University of, VI:559A
- Igarapé* (Amazon River), VI:599B-601C
- Iglesias Mining Institute (Sardinia, Italy), II:74C
- Ignorance: as cause of misuse of resources, I:219B
- IJssel, Lake, Netherlands, IV:409A, 410C, 412B
- Ikan moedjair*: culture in Indonesia, VII:137C, 138B
- Illinois (U.S.A.): secondary oil recovery operations, III:50D; survey on fertilizers, VI:267C
- Illinois-Indiana coal fields (U.S.A.), III: 120A
- Illiteracy: Haiti, I:361A
- Immigration: U.S.A. curbs an economic blow to Italy, I:206D; *see also* Migration
- Imperial Chemical Industries (UK), VII: 164A;
- Game services (United Kingdom), VII: 190B
- Imperial Fisheries Experimental Station, *see* Japan - Central Fisheries Station
- Inbreeding, *see* Livestock breeding - inbreeding; Plant breeding - inbreeding
- Incas: economy of integral development, I:247B
- Incentives: to conservation, I:272A; to higher training, I:350D; to work, I:347B, 348D
- Income: increase with industrialization, I:209A; *see also* Standard of living
- Income level: Europe, I:61D
- Income taxes: Tennessee Valley region, I:372A
- Indene: as metal-coating material, II: 223D
- Index plants, VI:139-49
- India: agricultural survey, I:198C; agriculture, I:18B, 24D, 25B, 115B; VI:175C-177D; India (*cont.*): ammonium sulphate production, II: 290B; asbestos, II:68C; bauxite, II:67B; botanical exploration to, VI:294D; building stone, II:68C; capital import, I:19C; cattle breeding, VI:420A, 422B, 422D; cement industry, II:21-24; chromite, II:67C; clays, II:68C; clupeids, VII:60D; coal fields, I:120D; II:22C, 67B; coal industry, III:117-19, 124D; coast line, VII:172A; consumption of metals, I:115B; control of livestock diseases, VI:467-70; copper, II:67D; corundum, II:68C; diamonds, II:68D; dolomite, II:68D; effects of forest destruction, V:135C; fat deficiency, I:132D; fertility rate, I:17D, 24A; fertilizer shortage in relation to low crop yields, II:288D-290D; fish culture, VII:135C, 161C, 162B, 163C, 172B-173D, 184D; fish culture in ponds, VII:120D, 121D, 131B; fisheries, VII:171-74; fishery exploitation, VII:172D; fishery practices, I:312A; fishery statistics, VII:112C; food supply, I:340A; forest management, V:82-85; forest policy, V:179A; forest research, V:137D; forestry, V:95-100; forest surveys, V:11-16; fresh-water fish, VII:133A; geological survey, I:312B; gold, II:67D; graphite, II:68D; grazing land depletion, VI:500D, 503C; gypsum, II:22D, 68D; industrial development, I:20A, 310B; iron ore deposits, II:67D, 68A; iron ore reserves, II:7D; irrigation, IV:370D, 416B; kyanite, II:68D; land reclamation, VI:566-69; land ownership, I:217B; land resources, IV:77A (*tab.*); land-use legislation, VI:40A; latent fisheries resources, VII:62B; lead, II:68B; lignite deposits, II:290B; limestone, II:68D; livestock breeding, VI:431D, 528B; livestock imports, VI:471A; magnesite, II:68A, 257B; manganese production, I:120A; marine fisheries research programme, VII:171-74; metal exports, I:113D; metal resources, I:114C, 115D; mica, II:69A; India (*cont.*): mineral exports, II:69B; mineral resources, II:67-69, 100A; mining, I:407A; mining exploration, I:312B; "mobile" employment offices, I:348D; mortality, I:21D; mortality among young animals in, VI:497B; petroleum deposits, II:67B; pond fertilization, VII:123A; population, I:105C; population density, II:288B (*tab.*); potash deposits, II:277B; prices of farm products, I:27A; prospects of fisheries expansion, VII: 33B; protection of wildlife and fish, IV: 446-49; research centers, I:425B; resource development, I:310C; river basin project, I:402C; sillimanite, II:68D; sodium salts, II:69A; soil conservation, VI:128-30; soil deficiency in relation to food shortage, II:288D; soil surveys, VI:126-27; standard farm land, I:27C; standards of living, I:118A; steatite, II:69A; titanium, II:68B; vanadium, II:68B; water resources, IV:72D-77C; water supply, IV:101B; wood preservation research, V:271-78; zinc, II:68B
- Bureau of Mines, I:114B;
- Forest Research Institute, V:271B, 272D, 274C
- Geological Survey, I:312B; VI:126C;
- Marine Fisheries Research Station, VII:173B
- Ministry of Agriculture, VI:569D
- National Planning Committee (India), II:290A
- Indian Agricultural Research Institute, VI:126C, 127B; plant breeding, VI:284-85
- Indian Council of Agricultural Research: Fish Committee, IV:448B
- Indian Fisheries Conference (1948), VII: 112C
- Indian Ocean: fishery resources, I:311D; percentage of world fish production, VII:28B
- Indian rice grass, VI:560D
- Indian Silvicultural Conferences, V:134D
- Indian Standards Institution, I:191B
- "Indicator" plants, VI:527D
- India: Peru, I:124A; recovery from lead-zinc refineries, I: 41C
- Indochina: agriculture, VI:334D; fertility rates, I:23C; fish culture, VII:163B; labour supply, I:344D; phosphate deposits, II:276C; tungsten production, I:120A

UNSCUR PROCEEDINGS: INDEX

- Indochina (*cont.*):
- Bush Fires Commission, V:46A
 - Indonesia: agricultural development, VI: 564D-566C; agriculture, I:321B; VI:564D-566C; crop rotation, VI:564A; development of oil palms, I:89B; equipment needs of fisheries, VII:65C; fish culture, VII:136-38, 161B, 161C, 163B; fish culture in ponds, VII:122A; fishery research, VII:41C; forestry technique, V:106-14; grasslands, VI:526A, 528B; inland fisheries, VII:40B-41B; irrigation, IV:382-84; labour recruiting, I:333D; land tax, IV:384D; latent fishery resources, VII:39A-41C; livestock breeding, VI:432B; metal exports, I:113D; metal resources, I:114D; reclamation methods, VI:623A; relationship of soil characteristics to irrigation programmes, IV:353-55; soil conservation, VI:51C, 52C; sugar cane development, I:89B
 - Bureau of Utilization, VI:108C
 - Inland Fisheries Service, VII:136D
 - Irrigation Service, IV:383D
 - Indo-Pacific Fisheries Council, I:311D; VII:36C, 41C
 - Indus River, I:402D
 - Industrial accidents, *see* Safety measures
 - Industrial guilds: as recruiting agencies, I:348A
 - Industrial health services, I:335A
 - Industrialization: Argentina, I:247B; as higher stage of human culture, I:247A; capital investment and technology as creative forces, I:208B; co-ordinated with resources development, I:6A; effect on agriculture, I:246C, 248C; hampered by monopolistic factor, I: 208A; Mexico, I:248D; problems, I:232-34; relation to export of food and raw materials, I:60B; relation to food production, I:339D; relation to food supply, I:206B; relation to public health, I:335C; size of project, I:209A
 - Industrial research: India, I:312C
 - Industrial revolution, I:119D;
 - Industrial waste: stream pollution by, IV:111-15
 - effect on mineral production, I:121D
 - Industry: assessment for small country, I:236B-237A; controllable and uncontrollable factors, I:188B; diffusion, I:415C; increasing returns, I:20n; prerequisites, I:244D; Tennessee Valley, U.S.A., 373B, 380B; UK, I:64B
 - Inertia: in wind turbine, III:310D
 - Inertial method for treating factory gases, II:184C-185C
 - Infant mortality: Haiti, I:362C
 - Infectious abortion, *see* Brucellosis
 - Infectious diseases, *see* Livestock diseases, infectious
 - Infectious dropsy, VII:149C
 - Influenza: Haiti, I:363C
 - Influenza epidemic (1918): effect on population, I:16C
 - Informational media: as method of education, I:264C
 - Inheritance customs, *see* Fragmented ownership of land
 - Inhibitors: for conserving metals, II: 216C, 223B, 228D, 229A
 - Inland fisheries, *see* Fisheries, inland
 - Inland waterways, *see* Waterways, inland
 - Inland Waterways Corporation (U.S.A.), IV:341B
 - In-plant youth training, *see* On-the-job training
 - Insecticides, V:64C, 67A; VI:317D-318C, 335C, 489A; application to soil, VI:496C; co-ordination with good management and hygiene, VI:496B; methods of use, VI:313B; petroleum as source, III:73D; resistance of pests and parasites to, VI:492C, 496B; secretion in milk, VI:491C; toxicology, VI:337A, 491A-D, 492A, 497B; use against animal parasites, VI:489D-491A; use in forest protection, V:67C-70D
 - Insect pests, VI:463-98; agent in disseminating plant diseases, VI:320C; chemical control, VI:317D-318C; control by insects, VI:311C; control by mechanical means, VI: 317C; control in Indo-Pakistan, VI:467-70; cultural control, VI:317A-C; food destruction, VI:359D; international co-operation in control, VI:318D; natural control, VI:316B-317A; of animals in Argentina, VI:493-95; protection of crops and grasslands against, I:85B; VI:310-18; *see also* Gypsy moths
 - Insect pests in forests: biological methods of control, V:65A; control, V:55-57, 62-66; control in Canada, V:57-59; control in UK, V:6-62; in tropic, V:279A-D; knowledge of, V:63A; public interest in controlling, V:65D
 - Insemination, artificial, *see* Artificial insemination
 - Inspection: manufacturing step, I:189D; reduced by statistical control, I:190B
 - Institute for Mineral Dressing (Austria): method of ore concentration, II:164D
 - Institute of Central African Studies, I:277D
 - Institute of Inter-American Affairs, I: 335D
 - Institute of Metals (UK), II:251A
 - Institute of Plant Breeding (Wageningen, Netherlands), VI:281B
 - Institute of Sea-fisheries (Batavia), VII: 39D
 - Institute of Seaweed Research (Scotland), VII:186A
 - Institut Français d'Afrique Noire, I:277D
 - Institut national pour l'étude agronomique du Congo belge, I:270A
 - Instituto Agrônomico do Norte (Brazil), VI:599A, 600A, 600C, 601C
 - Insulating materials: testing, III:205B; types, III:204D
 - Insulation of buildings, III:201D, 204-6; estimated savings in fuel, III:205D; methods of application, III:205A; Norway, III:210A; testing, III:207C; units of measurements, III:205B
 - Insurance rates: relation to hydrographic charts and aeronautic, I:175C
 - Inter-American Agreement on Plant Health, I:268D
 - Inter-American Bank, I:365B
 - Inter-American Conference on Agriculture, Third, VI:139B
 - Inter-American Conference on Conservation of Renewable Natural Resources, I:76B, 258A
 - Inter-American Institute of Agricultural Sciences, I:314A; VI:423B; background and educational approach, I:354A-56D; types of learners, I:355A
 - Inter-American Science Conference, Eighth, I:354B
 - Intercolonial Research Institute (Africa), I:277D
 - Interest rates: suited to growing industrialization, I:233C
 - Internal combustion engines, III:270C; advances, III:274A; Finland, III:308D; fuel, III:265B; use in oil-well drilling, III:11C
 - Internal combustion turbines, III:270C; for airplanes, III:271B
 - International Association of Forestry Research Institutes, V:63A
 - International Bank for Reconstruction and Development: financing of conservation projects, I:393B; loans for reclamation projects, VI: 621C, 622C
 - International Civil Aviation Organization: co-operation with WHO, I:337B
 - International collaboration for conservation: Africa, I:278A
 - International Committee for Bird Preservation: wildfowl research institute, VII:254B
 - International Conference for the Protection of African Fauna and Flora (1933), VII:223C

SUBJECT INDEX FOR VOLUMES I TO VII

- International Conference of West Africanist, I:277D
 International Conference on Tsetse and Trypanosomiasis (1948), VII:217C
 International Convention of 1902 (between the United States, the United Kingdom, Russia and Japan) regulating seal hunting, VII:248D
 International Convention of 1902 (for the protection of birds useful to agriculture), VII:246D
 International Convention relative to the Preservation of Fauna and Flora (London, 1933), VII:248D
 International co-operation, I:354B, 356C; for economic development, I:309C; for exploring fish stocks, I:311D; in conserving resources, I:12B; in fisheries exploitation, VII:38C; in insect control, VI:318D; in mineral production, I:309A; in mineral surveys, I:413A; in organizing training facilities, I:352D; in plant disease control, VI:320B, 324A; in recruitment and training of labour, I:328B, 351C; in resource development, I:416C; in river basin development, I:396B; in training of technical and scientific personnel, I:360B
 International Council for Sea Exploration, I:58A; VII:73B
 International Emergency Food Council, II:297B
 International Fisheries Commission: establishment, VII:18A; report of findings (1928), VII:18C
 International Fishery Conference, Buitenzorg (1938), VII:136C
 International Geological Congress, I:113B
 International Hunting Council, VII:248D
 International Irrigation Congress, I:399C
 International Joint Commission between the United States and Canada, I:399C, 400A; IV:170A
 International Labour Conference conventions and recommendations, I:328B
 International Labour Office (ILO), Geneva, I:327A, 327D; assistance in labour recruiting, I:332C; co-operation with WHO, I:337B; co-ordination of effort in manpower field, I:353C; international information centres, I: 351D; study of employee training, I:331B
 International millionth scale map, I:179D
 International Minerals and Chemical Company, II:151B, 151D
 International Nickel Company, II:144D
 International Office for the Protection of Nature, VII:248D
 International Society of Soil Science, VI: 126C
 International Union of Electric Power Producers and Distributors, III:250B
 Interplanting, *see* Mixed farming
 Inter-University Council, I:314C
 Intestinal disorders: Haiti, I:362D
 Intestinal threadworm, *see* Strongyloides
 Inventions: relation to industrial economy, I:I20A
 Iodine: from seaweed, VII:177A, 178D
 Iran: exploratory oil wells, I:98A; natural resources, IV:162-65; petroleum production, I:99B; III:30-32; rivers, IV:162B; water resources, IV:148C, 151A, 162-65
 Iranian seven-year plan for reconstruction and development, IV:162-65
 Iraq: exploratory oil wells, I:98A; oil fields, I:99D; water resources, IV:148C, 151A
 Iraq-Iran foot-hill zone: petroleum resources, III:4A
 Iraq-Iranian oil-fields, III:5C
 Irati oil shales (Brazil), III:63D
 Ireland: agriculture, I:18B; birth rate, 21B; brown algae, VII:186A; phosphate deposits, II:276C
 Irish moss seaweed: as source of geling materials, VI:364C
 Iron: amount in earth's crust, I:39B; annual loss due to rusting, II:218D; China, I:114C; cost of corrosion prevention in Germany, II:241B, in UK, II:219B; economic aspects of, I:119A; electro-biological corrosion, II:236C; estimated world reserves, II:2B; French West Africa, I:169A; fundamental to civilization, I:38C; history, I:56A; importance of pre-coating, II:225C-226A; increase in durability through alloying, II:231D-232A; India, I:114C, 116A; inexpensive methods of utilizing low-grade ores, II:163-65; Malaya, I:114C, 114D; metallurgy, I:56A, 407B; plant nutrient, I:85D; production increase, I:13C; reserves, I:407A; reserves in U.S.A., I:59n; scrap, I:41D; standard ores, II:10C; use of oxygen in manufacture, II:179B; utilization of low-grade ores, II:143D, 148B;
see also Cast iron, nodular; pig iron; steel
 Iron, galvanized, II:223D
 Iron, sponge, *see* Sponge iron
 Iron and steel industry, I:I-5-12; alloys essential to, I:38C; by-products, III:293-96; Canada, III:183B; Chile, I:236B, 309A; conservation in production, II:172-76; India, I:318A; main sources of supply, II:12(labs.); new methods, III:182B; Philippines, I:242D; prospective changes in production, II:180-82;
- Iron and steel industry (*cont.*): relative size in UK, Germany and U.S.A., III:158(tab.); UK, II:152-62; U.S.A., II:7B; U.S.A., Western, III:166B; *see also* Blast-furnaces
 Iron and Steel Institute (UK), II:226B
 Iron ore: Brazil, II:17B, 83B; Canada, II:13C; changing denotation of term, II:180B; Chile, I:236B; Egypt, I:245B; estimated reserves, II:5D; exports to Japan from Malaya, I:114A; France, II:116B; India, II:67D, 68A; Lake Superior deposits, II:6B; Liberia, II:77C; Lorraine, III:160B; Mesabi Range deposits, II:6C; Philippines, I:242B; reaction in fluid media, I:103A; relation to living standard, I:117A; reserves, II:10-11(tab.)
 Iron ore smelting, I:103A; III:183-95; costs, III:190A; Krupp-Renn process, III:182A, 190D; processes other than blast-furnace, III:186B; Wiberg-Söderfors process, III:188D-190A, 190B, 194B;
see also Smelting furnaces, electric
 Ironstone: quarrying in UK, 109B-109D
 Irrigated areas of world, IV:370(*map*)
 Irrigation, I:57B, 75C; IV:353-419; VI: 186D, 209D-210B;
 as objective in river basin development, IV:193D;
 Canada, IV:417D; VI:121D, 197C;
 Canada, Western, VI:229B;
 Chile, I:237C;
 China, I:226-28;
 definition, IV:355B;
 Egypt, I:390D;
 errors in, I:78D;
 experiments in Western U.S.A., I:86C;
 feasibility determination, I:182n;
 financing of, IV:373D-374C;
 government responsibility (U.S.A.), IV:373B;
 Greece, IV:378-82;
 India, I:310C, 402C; IV:370D, 416B;
 Indonesia, I:391B; IV:382-84;
 in plant disease control, VI:329B;
 in sub-humid and humid areas, IV: 372D-373A, 375-78;
 international aid in developing, IV: 375A;
 Israel, IV:107A-108A, 168A;
 Mexico, IV:318A, 308-91;
 Middle East, IV:149C-155A;
 Pakistan, IV:355B, 391-94;
 Philippines, I:241D;
 recent developments, IV:369-75;
 relationship of soil characteristics to, IV:353-55;
 relation to soil conservation, VI:5D;
 Saudi Arabia, IV:385-88;

UNSCCUR PROCEEDINGS: INDEX

- Irrigation (*cont.*):
 soils in relation to, IV:355B, 358A;
 surveys, I:194C;
 Thailand, IV:101B;
 tropics, VI:564A, 619B;
 U.S.A., III:303C; VI:603A-604A;
 Uruguay, I:394D;
 use of waste water, IV:121D;
 Western Punjab, IV:168C;
 Yugoslavia, IV:397A
- Irrigation, lift: Egypt, IV:297-305
- Irrigation canals, *see* Canals, irrigation
- Irrigation laws: Mexico, IV:390B
- Irrigation projects: built and financed by U.S.A. Government, I:370C;
 France, I:390C;
 Indonesia, VI:565A;
 mistakes, I:208D
- Irrigation Research Laboratory, Lahore (Pakistan), IV:274D
- Irrigation works: construction in Malaya, VI:589B-590C;
 effect on fish, VII:152C
- Isle Royale National Park (U.S.A.): overpopulation of moose, VII:255D
- Isopropyl alcohol, *see* Alcohol, isopropyl
- Israel: agriculture, IV:45-47; VII:149D-150C;
 climate, IV:105D-106C;
 fish culture, VII:147-50;
 industrialization, I:322B;
 irrigation, IV:107A-108A, 168A;
 sewage reclamation, IV:130B;
 solar heating, III:221D;
 water supply, IV:167D
- Fisheries Department of the Ministry of Agriculture, VII:148D
 — Meteorological Service, IV:45D;
- Itabira, Brazil: iron ore, I:56A
- Italy: agriculture, I:25B;
 birth rate, I:21B;
 electrical development, I:50A;
 labour export, I:206C;
 maize hybrids imported, I:87D;
 mineral resources, II:70-75, 100B;
 origin of sulphur deposits, II:85-95,
 101E;
 population pressures *vs.* conservation, I:206B;
 potash deposits, II:277B;
 terms of trade, I:206D;
 torrent control, V:169B-170C;
 water control, IV:178-79
- Ituri, Belgian Congo: grazing lands, VI: 594-96
- Ivigtut, Greenland: source of cryolite, I:42C
- Ivory Coast, West Africa: commercial timber, V:279B;
 forests, V:114B;
 reclamation areas, VI:579A
- Iwo Jima, United States Army Air Force nutricultural gardens, I:132B
- Jablanitza Dam, Yugoslavia, IV:260-63
- Jacobshavn, Greenland: rise in average winter temperature, VII:8D
- Jagua, *see* Genipap
- Jamaica: agriculture, VI:269A;
 bauxite deposits, II:247B;
- Jamaica (*cont.*):
 climate, I:293B;
 conservation education, I:293-96;
 conservation plan, I:261C;
 food yeast production, I:152B, 154D;
 topography, I:293D
- Jamaica Agricultural Society, I:295D
- Japan: affected by rise in food prices, I:19D;
 agriculture, I:18B, 24D;
 alginic acid production, I:134B;
 brown algae, VII:186A;
 capital export, I:19C;
 carp and trout culture, VII:133B;
 consumption of fresh fish, VII:40B;
 fertility rate, I:17B, 17D, 23C, 24A;
 fish culture, VII:134C, 135C, 161B;
 herring production, VII:29D;
 imports of iron-ore, I:114A;
 lack of markets, I:213D;
 life expectation, I:17D;
 mortality, I:17A, 21D;
 percentage of control of world fish production, VII:28B;
 pond culture of fish, VII:131B, 131D;
 population, I:105C, 206B;
 red seaweed resources, VII:174B;
 terms of trade, I:206D;
 tuna fisheries, VII:31B, 31D, 63C;
 U.S.A. Army Air Force nutricultural gardens, I:132B
- Central Fisheries Station: Oceanographical Chart published by, VII: 100B
- Java: agriculture, IV:211D-212A, 383A;
 consumption of fresh fish, VII:40B;
 continental shelf, I:100A;
 development schemes, IV:171C;
 fish culture, VII:135C, 137C, 163B;
 fishery statistics, VII:112C;
 food production, I:33A;
 irrigation, IV:171A, 171C, 383C-384A;
 VI:564A;
 malaria, I:321D;
 milk-fish culture, VII:133B;
 reclamation methods, VI:623A;
 soil fertility, VI:565A;
 soils, IV:353-55;
 sugar and tobacco industries, VI:564B;
 teak forests, V:106-14;
 water control, IV:353-55;
 water requirements, IV:384B
- Javanese: migration for land reclamation projects, VI:565B
- Jeans Training Centre, near Zomba, Nyasaland, I:284A
- Jet engine: columbium and cobalt essential to, I:40D
- Jet propulsion of aircraft: fuels, III:71D
- Job analysis, I:330D;
 for new projects, I:329C
- Johne's disease, VI:466D
- Jonkershoek, South Africa: hatchery, VII:155A, 156A
- Jordan: international problem of development, I:400D
- Jordan River: discharge, IV:129C
- Jordan Valley, upper, Israel: fish culture, VII:148C
- Jordan Valley Authority, I:420D; IV:
 106C, 168A
- Jujuy, Argentina, VI:402A
- Jungle: clearance, VI:569A
- Jura River, Switzerland, IV:207B
- Jusepín oil fields, Venezuela, III:38B;
 geological formations, III:38C
- Jute production: Brazil, VI:600C
- Juxtaposition of resources: as factor in mineral utilization, II:15D
- Kafue Game Reserve (Northern Rhodesia), VII:221B
- Kafue River (Northern Rhodesia): cattle country on flood-plains, VII:221B
- Kagera National Park (Belgian Congo), VII:223A;
 exploration, VII:225B;
 studies of psychology of large mammals in, VII:225D;
 study of parasites of vertebrates in, VII:225A
- Kaingin system, *see* Forest conservation — effect of Kaingin system
- Kaiser Company (U.S.A.), II:172D
- Kaiser-Wilhelm Institute for Industrial Physiology (Germany), I:341C
- Källby, Sweden: water purification plant, IV:124-27
- Kalusz-Holyn, U.S.S.R.: potash deposits, II:273D
- Kans grass (*Saccharum spontaneum*), VI:176B, 566D-567C, 568A;
 effect of ploughing on, VI:621D
- Kaolin, II:123B;
 Cuba, II:80C
- Karaganda Central Asia: coal fields, I: 120D
- Kara Kum, Southeastern, Central Asia: grazing land depletion, VI:501A
- Karoo vegetation, VI:501B
- Karoun Lake, Egypt: fisheries, VII:127B-130A, 130C
- Karwar, India: mackerel research station, VII:173C
- Katanga, Belgian Congo: sulphide copper ore, II:16B
- Kelp, I:133C;
 Haiti, I:361B
- Kelp burning, VII:177A;
 iodine from, VII:179B
- Kent, England: iron beds, II:46B
- Kentucky Utilities Company (U.S.A.), III:262A
- Kenya, East Africa: agriculture, VI:102-4;
 cattle breeding, VI:433D;
 forest policy, V:179C;
 game control, VII:218-20;
 land use legislation, VI:40B
- Game Department, VII:216D;
- Kerosene: consumption, III:264B;
 use in aircraft engines, III:71D, 265C
- Keswick Dam, California (U.S.A.), IV: 139B
- Khabur River, Iraq and Syria: development, IV:149D
- Kiangsu, China: fish culture, VII:135B
- Kinetic theory of gases and thermodynamics, I:197B
- Kings River project, California (U.S.A.), IV:428D

SUBJECT INDEX FOR VOLUMES I TO VII

- Kiruna, Sweden: iron mines, I:56A, 120A
 Kiruna iron ore (Sweden), II:6C
 Kiwi, VII:234A
 Klarälven River, Sweden, IV:441D
 Know-how, *see* Technological knowledge
 Kola phosphate deposit (U.S.S.R.), II: 271D
 Koppers Company of America, III:159A
 Korea: fertility rates, I:23C;
 phosphate deposits, II:276C;
 potash deposits, II:277B
 Kosi River, Barakshetra (India): dam, I:310D; rainfall run-off, IV:67B(*tab.*)
 Kraft: use in hardwood pulping, V:293C
 Krian Irrigation Scheme (Malaya), VI: 588B
 Kristineberg pyrite deposit (Sweden), II:63B
 Kruger National Park, Transvaal, VI: 497D; VI:217B
 Kuanchuan, China, IV:310A
 Kudzu, VI:557B, 558C, 559C
 Kumaun Hills, India: soil classification, VI:126D
 Kuwait oil-field, Iran, III:30B
 Kuznetsk basin, U.S.S.R.: coal fields, I: 120D
 Kvarntorp shale-oil area, Sweden, III: 52-53(*chart*)
 Kwangtung Province, China: fish culture, VII:135B
 Kwashiorkor (disease), I:339D
 Kyanite: India, II:68D
- Laboratories, national: India, I:313A
 Laboratory work: at National School of Agriculture, Haiti, I:358D
 Labour: beneficiary of industrialization, I:208B;
 costs in mining exploitation, I:170B;
 Egypt, I:245C;
 for resource development, I:327-34;
 in energy production, I:103B;
 no world shortage, I:328C;
 physical fitness, I:347B;
 physical output, I:61D;
 problem of location, I:329D;
 recruitment (*see Labour recruiting*);
 techniques, I:325-66;
 training, I:346-53;
 training techniques, I:349-51;
 see also Employees; Manpower; Manual work
 Labour, agricultural, I:317B, 331C, 332B;
 diminution, I:18C;
 economics, VI:441B;
 guidance, I:333A;
 Haiti, I:362B;
 Indonesia, I:334A;
 New Zealand, VI:554B;
 redistribution, I:18D-19A;
 UK, I:68D;
 Uruguay, I:332D
 Labour, forced, *see* Coercion of workers
 Labour, skilled, I:352B;
 barriers to employment, I:351B;
 essential factor in industrialization, I: 233B;
 lack of, in India, I:323A;
 lack of, in Israel, I:322C;
- Labour, skilled (*cont.*):
 shortage, I:328C, 330A, 347B;
 training abroad, I:352C;
 Labour: unskilled: recruitment, I:331B
 Labour costs: relation to electric energy costs, I:207D
 Labour government (UK): position on game conservation, VII:209C
 Labour in mining industry, *see* Mine labour
 Labour organizations: credit claimed for higher living standards, I:118B;
 see also Trade unions
 Labour recruiters, I:348B
 Labour recruiting, I:328A, 329C, 346-53;
 Indonesia, I:333D;
 techniques, I:348-49;
 undesirable practices, I:348B
 Labour requirements: lack of knowledge of, I:347C
 Labour supply: as factor in mineral utilization, II:15C;
 inventory, I:347D;
 no world shortage, I:347A;
 see also Manpower
 Labour turnover: high in newly industrialized areas, I:329B
 Labrador: herring production, VII:29D;
 iron reserves, I:120B; II:49B;
 titanium, deposits, II:13C
 Lactic acid, from sucrose, I:134D
 Lactose, I:137C
 Ladino clover, *see* Clover, Ladino
 Ladybird beetles, VI:311D
 Lake Miraflores (fishing vessel), VII:103B
 Lakes: fish culture, VII:152B;
 fisheries, Egypt, VII:126-30;
 fish stocking, Egypt, VII:130B;
 South Africa, VII:157B
 Switzerland, IV:205D, 207D, 208B
 Lake States Forest Experiment Station (U.S.A.), V:25C, 26B
 Laminaria, *see* Brown algae
 Laminarin: as source of glucose, VII: 186C; substitute for blood plasma, I: 134B
 Lambs: mortality, VI:498C;
 percentages of gross energy in feed eaten, VI:443D
 La Merced (fishing vessel), VII:103B
 Lancashire, England: coal field, II:45A
 Land: development, I:80C-83B;
 errors in settling, I:78A;
 exhaustion under continuous cropping, I:194B;
 exploitation, VI:76C;
 importance to man, I:77D;
 minimum units for exploitation, I: 267D;
 ownership customs, I:217A, 270A;
 physical analysis, I:75C;
 power of purchase by TVA, I:375A;
 problem of ownership (U.S.A.), VII: 198C-199C;
 productivity, VI:99B-D, 125-26, 207-72, 217-20, 233-49, 264-66;
 productivity in south-eastern Asia, VI:258-64;
 productivity requirement, I:209(*tab.*);
- Land (*cont.*):
 relation to population, I:75B;
 reserves, I:19B;
 suitability for mixed or rotated uses, I:79C;
 survey map, I:79D;
 type of exploitation, I:267D
 Land, arable: misuse, I:291C;
 statistics, VI:225A;
 treatment, VI:217D-220B;
 see also Productive land; Waste land, arable
 Land, arid: development, Java, IV:212A
 Land, fallow, VI:154D, 606D
 Land, new, I:33B
 Land, non-arable: use for grazing, VI: 470B
 Land, poor: *see* Farms, submarginal
 Land, productive: *see* Productive Land
 Land, public, VI:525B;
 grazing on, VII:198A;
 hunting and fishing areas, VII:204B-C
 U.S.A., VI:510D
 Land, steep: grass and tree planting, I: 75C; *see also* Hillside farming
 Land, undeveloped, I:32D
 Land classification, I:65D-66B, 79A-80B;
 VI:117A-118B;
 by geologic maps, I:180C;
 system of US Soil Conservation Service, VI:3B
 Land clearing by fire, V:44B-C
 Land colonization, *see* Agricultural colonization
 Land drainage: Netherlands, III:320B
 Land forms: geologic mapping, I:180C
 Land legislation, IV:213A;
 Argentina, I:268A;
 Canadian Prairie Farms Rehabilitation Act (1935), VI:37D;
 Italian Integral Land Reclamation Law (1929), VI:37C;
 Punjab Land Preservation Act (1900), VI:37C;
 Rural Leases and Partnerships Act (Argentina), VI:21D;
 Surface Rights Act (U.S.A., 1920), VII:199B;
 Veterans' Land Act (Canada), VI:121D;
 War Service Land Settlement Agreement Act (Australia), VI:614A
 Landlord-tenant contracts, I:88C
 Land management: economic aspects, IV:201D-202C;
 effects on run-off and ground-water, IV:193-204
 Land reclamation: costs, IV:174-77;
 economic and social problems in Africa, VI:579D-584A;
 equipment, VI:569A;
 financial aspects, VI:569C, 620A, 622C;
 financial aspects, Africa, VI:584A;
 for agricultural use, VI:561-623;
 France, VI:605-8;
 French tropical Africa, VI:570-85;
 Honduras, VI:590-94;
 India, VI:566-69;
 Indonesia, VI:564D;
 machinery, VI:612D;

UNSCUR PROCEEDINGS: INDEX

- Land reclamation (cont.) :**
- management problems, IV:366-69;
 - money advanced by International Bank, VI:621C;
 - Morocco, VI:616-19;
 - Netherlands, VI:611-13;
 - projects (U.S.A.), IV:371(*tab.*)
 - Punjab, IV:174-77;
 - Saudi Arabia, IV:386C-387B;
 - social objectives in Africa, VI:581B;
 - Surinam, VI:565D;
 - Tunisia, VI:610;
 - U.S.A., VI:602-5;
 - Yugoslavia, IV:395-98;
 - see also* Flood-lands - reclamation; Reclamation farms
- Land reclamation, large-scale, VI:578B
- Land resources: India, IV:77A(*tab.*)
- Land rights: Africa, VI:577B
- Landslides: Colombia, V:174C;
- France, V:159A, 159D, 162-68;
 - Norway, VI:44D-45B;
 - see also* Avalanches
- Land tenure: Africa, VI:583B-584A;
- Canada, VI:198C;
 - Pakistan, VI:7C;
 - relation to soil conservation, VI:81D
- Land-use, I:417A;
- adjustment, VI:14D;
 - Argentina, VI:21B;
 - Canada, VI:120-22, 225D;
 - changes, VI:7A;
 - conservation practices in China, I:226-29;
 - Cyprus, V:142C;
 - economic aspects, VI:36A;
 - El Salvador, VI:20C-21A;
 - errors, I:78B, 80D-81C, 426B;
 - errors in methods, I:82C;
 - example of improvement in Southern U.S.A., I:265A;
 - increase of agricultural land, VI:561-623;
 - Java, V:111B(*tab.*)
 - legislation, VI:35-43;
 - maps, I:273B;
 - Middle East, VI:104-7;
 - Philippines, I:241B;
 - planning for full production, I:63-69;
 - preliminary surveys, I:401C;
 - primitive customs, I:217A;
 - relation to water control, I:388C;
 - UK, I:64-69;
 - see also* Farm management
- Land Utilization Survey (UK), I:65B-66C
- La Pampa (Argentina) Pico, VI:26D
- La Paz oil fields, Venezuela, III:37D
- La Plagne, France: lead and zinc mines, II:118C
- Lapland: iron ore reserves, II:6C
- Lara, Venezuela, VI:301-3
- Las Brenas, Chaco (Argentina), VI:26B
- Laterite, II:5D-6A, 7D;
- concealment of subsoil, I:171C;
 - effect on soil, I:257C;
 - hostile to tree growth, I:56C
- Laterite soils, IV:353C
- Latex: as protective against metal deterioration, II:221A
- Latin America: agricultural laboratories, I:313C;
- barriers to employment of natives, I:351B;
 - capital import, I:19C;
 - educational facilities, I:355D;
 - fertility rate, I:18A, 24A;
 - food shortages, I:31D;
 - grassland development, VI:525D;
 - improved use of resources, I:214A;
 - industrialization, I:413D;
 - investment opportunities, I:414A;
 - labour supply, I:347A;
 - land-use legislation, VI:41A;
 - mortality, I:17A, 21D, 22C;
 - public health activities, I:335D;
 - pulp production, V:320C;
 - standard farm land, I:27C;
 - technical progress, I:308D;
 - training of technicians, I:333-56;
 - see also* South America
- Latin-American Forestry and Forest Products Office, Rio de Janeiro, V:210C
- Lauwerszee, Netherlands, IV:399D
- Lazulite: Chile, II:292A
- Leaching, *see* Soil percolation
- Lead: annual requirements, I:39n;
- as alloying element, II:232D;
 - as cathodic coating, II:224B;
 - base materials, II:30(*tab.*)
 - Burma, I:114C;
 - composition, I:39B;
 - conservation, II:194-97, 201D;
 - depletion, I:407A;
 - deposits, I:120B;
 - diminishing reserves, I:113B;
 - estimated world reserves, II:3A;
 - exhaustion of supply, I:13D;
 - France, II:116B, 118B;
 - fundamental to civilization, I:38C;
 - India, I:114C, 116A, II:68B;
 - Peru, I:124A;
 - production since 1900, I:39D;
 - prospective world demand, I:40C;
 - recovery by Waelz process, II:145B;
 - relative scarcity, I:39B;
 - reserves in U.S.A., I:39n;
 - Sardinia, II:70-75, 100B;
 - scrap used in, I:41D
 - UK, II:47A;
 - uses, II:194C-195C, 197A(*tab.*)
 - utilization of low-grade ores, II:147C;
 - world production, II:196(*tab.*)
- Lead, scrap: *see* Scrap lead
- Lead-in-use: U.S.A., II:35(*tab.*)
- Lead tetraethyl: as drain on lead resources, II:196D
- Leaf-fall: as mulch, VI:541D
- Lebak method of rice growing, *see* Rice production - Lebak method
- Lebanon: attempts at reforestation by aerial seeding, VI:559B;
- forestry, V:174C
- Lectures, illustrated: use in conservation education, I:290C
- Leduc Field, Alberta, I:100C
- Leeward Islands: land-use legislation, VI:40C
- Legal measures, for technical development, I:311B
- Legislation: Animal Health Control Act (Argentina), VI:477B;
- Flood Control Act (U.S.A., 1944), IV:406B;
- Indian Arms Act (1878), IV:447A;
 - National Parks Act (India), IV:447B;
 - Sand Drift Act (South Australia, 1923-1935), VI:37D;
 - Sand Drift Ordinance (Palestine, 1933), VI:37D;
 - see also* Fishery legislation; Forest legislation; Game laws; Irrigation laws; Land legislation; Water legislation; Wildlife legislation
- Legumes: adaptation to range land, VI:542A;
- as fish food, VII:150A;
 - introduction into U.S.A., VI:294A;
 - nitrogen fixation, VI:557B;
 - species suitable to tropical conditions, VI:559B;
 - use as intermediary crop between grains, VI:519A;
 - use in replenishing soil, I:85C;
 - see also* Astragalus, Clover
- Leicestershire, England: iron beds, II:45D
- Lemons, Meyer: introduction into U.S.A., VI:294B
- Lempa River Valley, El Salvador, VI:17A
- Leopard: effects of unlimited trapping (Kenya Colony) VII:219C-D;
- protected in eastern Africa, VII:216D
- Leprosy: effect on productivity, I:336D; Haiti, I:364B
- Lespedeza, VI:530D; introduction into U.S.A., VI:294A, 295D
- Lespedeza bicolor*: used in revegetating crop field borders, VII:188D-189A
- Less-developed regions, *see* Under-developed areas
- Leucaena: as forage plant, VI:528B;
- use as ground cover in teak forests, 107D-108C
- Leucite Hills, Wyoming: potash deposits, II:284A
- Levulinic acid: from sucrose, I:134D
- Ley, *see* Grazing land
- Ley-arable rotations, I:193D
- Liberia: iron deposits, I:120B;
- mineral deposits, II:77C;
 - mineral discovery, II:75-78, 100C
- Liberia Mining Company, II:75B
- Liberian Development Company, II:75B
- Libidibia coriaria*, *see* Nacascalao
- Libya: agricultural projects, I:217D
- Lice: eradication, VI:492C
- Lice, cattle, VI:489C
- Lice, poultry, VI:489C
- Light: effect on fecundity, VI:459C;
- VII:163D;
 - use in fishing, VII:100-103, 114A
- Lighting, III:269B
- Light metals: as substitutes for steel and copper, II:254-56;
- future of, II:246-61, 252-54;
 - relation to standards of living, II:251B
- Lignin: component of wood fibre, I:140A;
- production from wood waste, V:291D, 301A
- Lignite: Haiti, I:361B

SUBJECT INDEX FOR VOLUMES I TO VII

- Limbo (*Terminalia superba*): research on against insects and fungi, VI:279C-282
- Lime: Jamaica, I:295B; loss from leaching, VI:215A-216D; soil content, VI:219A-D
- Limestone: importance to chemical industry, I:38C; India, II:68D
- Limestone, sulphur-bearing: in association with celestite, II:93C
- Limestone reservoirs: petroleum production from, III:30B, 30D; porosity compared to fissuring, III:30D
- Limestone soils: Indonesia, IV:354D
- Limfjord, Denmark: transplantation of cod, VII:56D; transplantation of plaice, VII:53D, 54B(*map*)
- Liming, VI:211B-C, 235D; British Caribbean Region, VI:251D, 252B; of grasslands, VI:518A, 525B
- Lincoln, New Zealand: grasses testing, VI:538C; ryegrass, VI:535D
- Lincolnshire, England: coal field, II:45B; iron beds, II:45D; limestone, II:106B-106D
- Linen production: Egypt, I:245B
- Lingonberries: preservation, VI:372A
- Linseed, *see* Flax
- Linth River, Switzerland, IV:207A
- Lion: effect of destruction of (Kenya Colony), 219D-220A
- Liquid air, II:177B
- Liquid fuel, synthetic, *see* Synthetic liquid fuel
- Lister Institute, London, I:153C, 154B
- Literacy: most important "know-how", I:253D
- Lithosphere: as resource, I:55D
- Liver flukes, VI:469B, 482B, 482D, 483C, 486A, 487A
- Livestock: adaptation to environment, VI:399-407, 414-27; adaptation to high altitudes, VI:433C; competition with game, VII:203D; conservation, VI:473-77; digestible energy, VI:438-45; disease resistance, VI:498C; effects of poor nutritive conditions, VI:419B-420C; external parasites, VI:488-93; feeding, VI:354-56, 437-62 (*see also* Fodder; forage plants); heat regulating powers, VI:415C-417C; importance to family farms, VI:443C; internal parasites, VI:481-85; management in control of parasites, VI:497D; measurement of yield, VI:433B; nutrition, VI:386A; parasites, VI:485-88 (*see also* Livestock - external parasites; Livestock - internal parasites)
- pests (*see* Insect pests); shipping regulations, VI:479D-480C; toxicity from insecticides, VI:491B; treatment, VI:433D;
- Livestock (*cont.*): utility in Africa, VI:582A; watering places, VI:426B-427C, 610B; VII:140C; winter shelter, VI:441A
- Livestock breeding, I:333B, 409A; VI:383-435; Africa, I:298B; VI:560B-D, 575D, 581C; Argentina, VI:24C-25B, 399-407, 428-30, 527B; breeding season, VI:414D; Canada, VI:197B; Canada, Western, VI:229A; Chile, I:237D; cross-breeding VI:395B, 399-407, 411B, 423A, 429A, 434D; Denmark, VI:390-94; desirable qualities, VI:414B; development of new types, VI:411A; dominance, VI:396B; education, VI:385D; Egypt, VI:409A; epistasis, VI:396B; genetic improvement, VI:408B, 409B-413A; grading-up, VI:410D, 411B, 423C; inbreeding, VI:411B; increased production, VI:554B; Indonesia, VI:432B; management, VI:471B, 525C, 553-60; mating time, VI:411D; measurement of improvements, VI:431B; methods, VI:410D-411D; Morocco, VI:617A; Nyasaland, I:284D; Pakistan, VI:7B; performance measurement, VI:409B, 434A; Philippines, I:241C; progeny testing, VI:390-92, 410A, 434B; relation to grazing land, VI:408D, 500-509; relation to soil conditions, VI:496D; research, VI:336A-D; selection, VI:394-96, 409D-410C, 411B, 422B, 426B, 431B, 433B; sires, VI:384B-D; societies, VI:335B-D; stud breeding, VI:411C; sub-tests, VI:34D; techniques for establishing breeds in new environments, VI:425A; Tennessee Valley (U.S.A.), I:373B; Uganda, I:297A; UK, VI:384-86, 514-16; U.S.A., VI:503B; *see also* Artificial insemination; Cattle breeding; Fowl breeding; Sheep breeding
- Livestock breeding, nomadic, VI:526B
- Livestock diseases, VI:441B, 463-98; Argentina, VI:493-95; control, VI:471B-472D; control in Denmark, VI:473-77; control in Indo-Pakistan, VI:467-70; mortality in young animals, VI:468C, 469B;
- Livestock diseases (*cont.*): organization for prevention, VI:469C; relation to human diseases, VI:498A; *see also* Anthrax; Brucellosis; Foot-and-mouth disease; Mastitis, bovine
- Livestock diseases, infectious: prevention and control in UK, VI:464-67
- Livestock diseases, nutritional, VI:451-56
- Livestock grazing: areas needed for, I:79B; forests for, I:79C; government ownership of ranges, I:81D; on public lands (U.S.A.), VII:198A; over-grazing, I:82C; overgrazing on state forests, I:319B; relation to forests, V:153A; semi-arid regions for, I:80B; surveys of land for, I:185C; use of land for plow farming, I:78C; use of uneconomical areas, I:81B; *see also* Grasslands; Grazing lands
- Living standards, *see* Standards of Living
- Lixivation for low-grade ores, II:115A
- Ljusnan River, Sweden: transportation of salmon, IV:442B
- Llallagua mine, Bolivia, II:114D
- Llandarcy, Wales: oil refinery, III:78A
- Loading: in mines, II:111C, 129D
- Loans: to private owners for conservation, I:205B
- Lobster: conservation measures needed, VII:30C; hatching, Newfoundland, VII:59C
- Local Native Councils, Nyanza, VI:103D; *see also* Native Authority Councils
- Location: as factor in utilization of mine products, II:14A
- Loch Fyne, Scotland: fish propagation, VII:58B
- Locker plants: use in preservation of crops, I:86A
- Locker storage, *see* Refrigeration
- Locks (in waterways), IV:222B-D, 259B
- Locomotive Development Committee of Bituminous Coal Research, III:265D, 276D, 277B
- Locomotives: steam vs. Diesel electric, I:105A, 106A
- Locusts: control measures, VI:337C
- Loess soil: Israel, IV:108A
- Lofoten fishery (Norway), VII-2C-4A, 10A
- Logging: initiation of successional cycle in forests by, VII:206A
- Logging techniques: bark removal, V:247A, 290D, 306C-307A; care of equipment, V:265D; cutting practices, V:239D; mechanization, V:264C, 265A, 265C; Philippines, V:243-46; skyhook, V:239A; tree girdling, V:247D; UK, V:265D; U.S.A., V:234-42
- Logging wastes, *see* Wood residues
- Logic, deductive, I:197A
- Logic, deterministic: relation to statistics, I:197A

- Logone-Shari basin, French Equatorial Africa, VI:570D, 579A
 Log transportation, V:249-62;
 bulldozers for road maintenance, V: 261B;
 Burma, V:201A;
 cable-skidding, V:236A;
 Canada, V:260-63;
 costs for typical logging operation (California), V:257D;
 distance of haul as factor in cost, V: 258D;
 efficiency of loading equipment as factor in cost, V:259A;
 equipment for tropical forests, V:252A;
 forest roads as factor in cost, V:259A;
 hauling, V:261D-262A;
 increased mechanization, V:250A;
 loading and unloading, V:261B-C, 262B-D;
 low-cost mechanized loading and unloading, V:262D;
 power loading, V:236C-237A;
 railways and highways, V:255A;
 road-building equipment, V:250A;
 size of load as factor in cost, V:258A;
 size of timber as factor in cost, V:258B;
 tractors and trucks, V:255B;
 trend to use of motor trucks, V:257A;
 tropics, V:253-56;
 U.S.A., V:257-59
 Log-wood: Jamaica, I:294A
 Loire basin, France, IV:186C
 Lombok (Indonesia): rice production, IV:383B
 London, England: control of silver price, I:127A;
 distillation of sea water, IV:128C;
 groundwater overdraining, I:389A;
 water supply, IV:41D, 92C
 Longyear City coal bed (Norway), III: 173C
 L'Orb, France: lead and zinc mines, II: 118C
 Lorraine: coal-fields, III:258B;
 iron ore, I:117B; II:8A-9A, 116D; III: 168B, 171C
 Los Andes States, Venezuela: forestry, V:209D
 Los Angeles, California (U.S.A.): distillation of sea water, IV:128C
 Los Angeles County (California) Flood Control (U.S.A.), IV:307D
 Los Angeles River Drainage Area flood control project (U.S.A.), IV:307D
 Louisiana, U.S.A.: continental shelf, I: 97A, 97B;
 drainage projects, VI:604D
 Louisville Gas & Electric Company (U.S.A.), III:262A
 Lowestoft research laboratory (England), VII:26B
 Low-grade ores, I:122B, 122D, 123A; as economic and technical problem, II: 163D;
 beneficiation of, II:172B;
 definition and classification, II:141B- 141D;
 iron and steel from, II:152-59;
 milling methods, II:142-45;
- Low-grade ores (*cont.*):
 new processes for utilizing, II: 140-59, 146-52;
 technical advances in concentration, 150D-151D;
 utilization, II:163-65, 182;
see also Mineral utilization
 Low-shaft furnace, *see* Blast furnaces, low-shaft
 Lubaga, Sukumaland, VI:586C
 Lubricating oils, III:72B;
 manufacture in UK, III:76D
 Lubuk Linggau irrigation project (Indonesia), VI:565A
 Lucerne, *see* Alfalfa
 Lumber: ban on exportation in Philippines, I:242A;
 cost of scarcities, I:206A;
 sample conservation investments (*chart*), I:211
 Lumbering: Honduras, VI:594A
 Lungworms, VI:482D, 483C
 Lupin: alkaloid content, VI:283B-284C
 Lusaka (Northern Rhodesia): conference on game (1948), VII:217C
 Luscic-Grabarje, Yugoslavia: insect control, V:67C-69A
 Luzon, Philippines: irrigation, VI:564A
Lynn Ann (fishing vessel), VII:104D
 Maas River, Netherlands, IV:327(*map*); improvement of, IV:328B, 330B-331D
Mabukiss (Egyptian research vessel), VII:46C
 Macauley Institute for Soil Research, Aberdeen (Scotland), VI:454D
 Machetes: use in Nigeria, I:302A
 Machinery: imported by Europe, I:61A;
 labour for, I:327C, 330B, 347D
 Mackatica deposit of molybdenum, (Yugoslavia), II:96B
 Mackerel: annual production, VII:30B;
 ascorbic acid dipping, VII:91C;
 India, VII:173C;
 possible increase in production in tropical and subtropical area, VII: 32A
 McNary Dam, Columbia River (U.S.A.), IV:257C
 Macquarie Island, New Zealand, VII: 234B
 Macroculture of unicellular organisms: production of food constituents from, I:131D
 Madagascar: agriculture, VI:334C, 335B, 335D;
 unexplored region suitable for trawling, VII:62C
 Madras, India: forest surveys, V:12C;
 marine fisheries research station, VII: 173A, 173C
 Magnesia: extraction from sea-water, I:41C;
 sea-water as source of, II:257-61
 Magnesite: Austria, II:257B;
 Brazil, II:19B;
 Greece, II:257B;
 India, II:68A, 257B;
 Manchuria, II:257B;
 Yugoslavia, II:257B
- Magnesium: alloys, II:250A;
 alloys employed in aircraft construction, II:260D(*tab.*);
 amount in earth's crust, I:39B;
 as substitute for steel, I:41D;
 from Dead Sea brine, II:262A;
 from sea-water, II:149C, 257-61, 258B;
 fundamental to civilization, I:38C;
 future of, II:248D-250C;
 in cathodic protection of metals, II: 230A;
 increased use, I:412C;
 increasing durability through alloying, II:232D;
 India, I:116B;
 methods of extraction, II:249D-250A;
 new uses, I:40C;
 production from sea water, I:41C, 124C;
 production uneconomical in England, I:160C;
 sources, I:120B, 407B; II:123A;
 use in castings industry, I:42A
 Magnetic base station, III:9B
 Magnetic method: in mineral discovery, II:76D;
 in oil-finding, III:4C
 Magnetism: anomalies, I:56B
 Magnetite concentrate: dephosphorizing, II:112D
 Magnetite ore: Sweden, III:176D, 178C
 Magnetometer: in mineral exploration, II:52B, 57B, 61C;
 use in determining sedimentary basins, III:7C;
 use in oil prospecting, I:41A; III:8B, 24B
 Mahanadi River, Sambalpore (India): rainfall run-off, IV:67C(*tab.*)
 Mahogany: West Africa, V:116B
 Maize: as fish food, VII:158B;
 as fuel, I:415A;
 Canada, VI:197B;
 crop yield, I:88A;
 drying, I:86A;
 early-maturing varieties, I:85B;
 effect on soil, VI:7A;
 experiments in Southeastern U.S.A., I:86C;
 field crop in teak plantation, V:113C
 harvesting machinery, VI:188B;
 hybrid, I:85A; VI:274B
 in Masai diet, I:338D;
 Nyasaland, I:284C;
 sample conservation investments, I:210(*chart*);
 Tennessee Valley, I:369D;
 waxy, I:134C
 wet-milling, I:137A
 Maize planting: on grazing land, VI:595C
 Makatea: phosphate deposits, II:272B
 Malaria: danger from fish ponds, VII: 149D;
 Haiti, I:361C, 363D;
 Java, I:321D
 Malaria control, I:337A, 343A; VI:568D, 620B;
 through fish breeding, VII:123C;
 TVA program, I:374D, 377D

SUBJECT INDEX FOR VOLUMES I TO VII

- Malaya: agriculture, VI:558D; climate, VI:588A; fish culture, VII:164C; fish culture in ponds, VII:120D, 122B, 131B; ilmenite reserves, I:116C; iron production, I:120B; metal exports, I:113D; metal resources, I:114D; pond fertilization, VII:123A; rice production, VI:588-90; rubber production, VI:262C; tin-ore, I:116C
- Drainage and Irrigation Department, VI:588D
- Malay Peninsula: iron deposits, I:120B
- Malili-Masamba irrigation project (Indonesia), VI:565A
- Malines, France: lead and zinc mines, II:118C
- Malmberget Mine, Sweden, II:111D
- Malowe Hills, Nyasaland: soil conservation, I:283C
- Malta: land-use legislation, VI:40C
- Malya, Sukumaland, VI:586C
- Mammifera; classification, VII:249D
- Man: as a resource, I:334-37; economic value, I:335A; factor in development technique, I: 407D; relation to environment, I:326B, 427A
- Management of bird resources, *see* Birds — management of resources
- Management of game, *see* Game management
- Management of wildlife, *see* Wildlife management
- Managerial resources: Egypt, I:245C; TVA, I:374A
- Manchuria: coal fields, I:120D; magnesite, II:257B; standards of living, I:118A
- Mandapam, India: Marine Fisheries Research Station, VII:173B
- Manganese: Brazil, II:18D, 83B; conservation in steelmaking, II:175A; depletion, I:407A; diminishing reserves, I:113B; Egypt, I:245B; essential to steel industry, I:38C; estimated world reserves, II:2B, 5C; exported from Far East, I:113D; from low-grade ores, II:149C; Gold Coast, I:169A; India, I:113D, 114C, 116B, 407A; II: 68A; Philippines, I:242B; plant nutrient, I:85D; production, I:120A; reserves, II:10(tab); world production, II:5C
- Mange, VI:488A
- Mangroves, V:121C
- Mangrove wood: Indonesia, VII:137C
- Manicoba tree: Brazil, VI:72D
- Manila Bay area, Philippines: fish ponds, VII:143A
- Manioc: harmful as field crop in teak-wood plantation, V:110C
- Manitoba, Canada: cropping systems, VI:227D-229A
- Manitoba Central Basin Project (Canada), IV:450D
- Mannitol, I:134D; VII:175A, 178A
- Manpower: Africa, VI:582A; budget for resource development, I: 347D; estimate of requirements, I:346C; exchange of information on requirement, I:351D; in agriculture, VI:582A; in grassland farming, VI:554B, 557C, 557D; long-term planning, I:328A, 346D; relation to food production, I:339D; *see also* Labour supply
- Manual work: avoidance of stigma on, I:349B; prejudice against in Nigeria, I:303R
- Manufacturing: in growing industrialization, I:232D, 234C; physical output per worker, I:61D
- Manufacturing process: analogous to the repetitive experiment in science, I: 188D; fundamental steps, I:189D; variability, I:189A
- Manure, VI:211C, 217-20, 443C; application to grasslands, VI:450B; use in China, I:228D; use in Nigeria, I:304A
- Western Pakistan, VI:240D; *see also* Animal dung; Fertilizer materials
- Manure, chemical: use in ponds, VII:161A
- Manure, liquid: use for irrigation, IV: 122B; use in Denmark, VI:267C
- Manuring: of grassland, VI:508B; of ponds, VII:121B, 122C; *see also* Green manuring
- Maoirs: eel fisheries, VII:150B
- Mapili irrigation project (Indonesia), VI: 565A
- Maps: *see* International Millionth-Scale Map
- Maps, aerial, V:20D-21D, 25A, 49A
- land-use, I:65C
- Maracaibo, Lake, Venezuela: oil fields near, III:14B, 16A
- Maranhão State, Brazil: shale oil resources, III:62B
- Mara oil fields, Venezuela, III:37D
- Marburg mountain-river plant, Germany, IV:260C
- Marche-Romagna sulphur deposits, Italy, II:88D-90D
- Marèges Dam, France, IV:234C
- Marennes Basin, France: oyster fattening district, VII:49A
- Marine algae, *see* Seaweed
- Marine biology, I:133D
- Marine corrosion, *see* Ships' plate
- Marine drilling in oil finding, III:5D
- Marine engineering: control of metal corrosion in, II:230A
- Marine fisheries, *see* Fisheries
- Marine resources, VII:165-86; research programme, VII:13A-13C
- Mariout, Egypt: fisheries, VII:127B-130A
- Maritime Guinea: reclamation areas, VI: 579A
- Maritime Provinces, Canada: cropping systems, VI:226B
- Marketing, co-operative, I:222B
- Markets: in relation to costs, I:236A
- Marlin: possible development of fishery, VII:31C
- Marl soils: Indonesia, IV:354A; irrigation of, IV:354B
- Marlstone Rock Bed, England, II:45D
- Marshall Plan, VI:609C; operation in North Africa, VI:616B
- Marshland: wildlife produced on, VII: 188C
- Maryvale, Utah (U.S.A.): potash deposits, II:284A
- Masai, pastoral tribe, I:338D
- Masjid-i-Sulaiman, Iran, I:99B; oil field, III:5C, 30A, 31A, 31B
- Massachusetts Institute of Technology (Cambridge, Mass.): experiments in solar heating, III:216A
- Mass production, I:119D
- Mastitis, bovine: control in Denmark, VI:476C-477C; methods of control, VI:465A-466B
- Matapalo amate, *see* Fig trees
- Mavrovo Dam, Yugoslavia, IV:26-63
- Maximum efficient rate (MER): definition III:35C
- Mead, Lake, Colorado River (U.S.A.), IV:358D; VI:603A; Recreational Area, IV:437D
- Meadow fescue, VI:515C
- Meadowland, *see* Grassland
- Meat: amount needed, I:32A, 33A; importance in diet, VI:439A, 443B; import regulations in UK, VI:464A; preservation, VI:342B, 366B-367B, 374D-375B; *see also* Animal foods
- Meat, canned: Egypt, I:245B
- Meat, smoked: preservation, VI:361A
- Meat industry: training of workers, I: 353A
- Medical care: as work incentive, I:348D
- Medical personnel: needed in economic projects, I:342B
- Medical Research Council, London, I: 153C; yeast research, I:132C
- Mediterranean area: strip cultivation, I:57A; limestone massifs, I:56C;
- Mediterranean Sea: fish production, VII: 127A; use for power production, I:392D
- Memphis, Tennessee (U.S.A.): financing of public undertakings, I:391C
- Mendelian characters, *see* Genetics
- Mene Grande Oil Company, Venezuela, III:14B, 15C-16A, 39B
- Menhaden: VII:30B; VII:62A,C
- Menzaleh, Egypt: fisheries, VII:127B- 130A
- Mer *see* Maximum efficient rate
- Mercury-steam plants, III:280D
- Mérida, Venezuela, V:209D

- Merrimack River, New Hampshire and Massachusetts (U.S.A.): purification, IV:114C
- Mesabi Iron Range, Minnesota (U.S.A.), II:6B; iron ores, I:39C; III:176B; taconite, II:143D, 148C, 172B
- Mesopotamia: effects of forest destruction, V:135C.
- Mesopotamia, Argentina: erosion, VI: 156B-158C
- Mesquite, VI:503A; elimination by chemicals, VI:547A
- Metal-coating, II:202B; methods of application, II:224A; use in reducing metal corrosion, II: 213A, 223-27
- Metal corrosion, I:412C; atmospheric pollution as cause of, II: 220B; cathodic protection against, II:215D- 216C, 229D; control, II:212-213; 220B-222A; cost of control, II:217(tab.), 218-22; costs, II:215B-217A, 218-22; environments conducive to, II:212D; inhibitors, II:216C, 223B, 228D, 229A; losses from, II:214A-215B; losses in U.S.A. due to, II:213-218; prevention by means other than protective coatings, II:227-34; protective coating, I:41D; II:223-27; railways, II:221C; relation to world's resources, II:218D; research on, II:226B-227C; savings through control of, II:217(tab.); shortage of coating materials for preventing, II:223C; specifications for coating iron and steel pipe, II:235D-236B; underground structures, II:221D-222B
- Metallurgical coke, *see* Coke, metallurgical
- Metallurgical industry: history, I:56A
- Metallurgy: advances in methods, II: 145A; Asia, I:115B; treatment of waste gases, II:180-90
- Metals: abundance, I:43A(tab.); beneficiation techniques, I:407B; comparative prices in UK, II:249B (tab.); conservation by corrosion control, II: 212-213; consumption, I:119D, 125B; consumption in Asia, I:115A; consumption in East, I:113C; depletion in war, I:113A; economy of using rare, II:200C; effect of restricted allocation, II:200C; electrolytic refining, I:41B; estimated world reserves, II:2(tab.); importance to civilization, I:113A; improved utilization, I:7C; irreplaceable resources, I:412A; known reserves, I:127B; new uses, I:40C; *per capita* consumption, II:4A(tab.); *per capita* consumption in relation to world reserves, II:4C(tab.); potential scarcity, I:126A;
- Metals (*cont.*): prices, I:125D; principal sources, I:45A(*map*); production rates by hemispheres, II: 3(tab.); quality, I:412B; rate and conditions of exploitation, I:119B; reclamation from smoke stacks, I: 41C; relation to living standards, I:113-21; II:97A; resistance to shock, I:42B; resources of Far East, I:114C; use in agriculture in Asia, I:115A; world production, I:43B(*tab.*); II:2 (tab.)
- Metals, basic world production, I:43A (tab.)
- Metals, corrosion-resistant, II:215C
- Metals, light, *see* Light metals
- Metals, non-ferrous, *see* Non-ferrous metals
- Metals, precious: contribution to national wealth, I:118D
- Metals-in-use: accumulation and conservation, II:32-35; reclamation possibilities, II:32B-32D, 38D; *see also* Scrap metal
- Meteorological data, I:194D
- Meteorology, experimental: economic aspects, IV:2-27
- Methane fermentation, I:158A
- Methane gas: as source of synthetic fuel, III:82D, 93B
- Methanol: from petroleum and natural gas, III:73B
- Methoxychlor: relative harmlessness, VI: 491B; use against animal parasites, VI:489D, 490C; use in control of insects on milk cows, VI:491D
- Mettur Dam, Cauvery River (India), IV:448D
- Meuse River, Western Europe: estuary, VI:611C
- Mexico: agriculture, IV:388-91; VI:68-70; botanical exploration, VI:295A; climate, IV:167D; conservation education, I:270D; Department of Water Resources, IV: 388B, 390D; forests, V:88-90; industrialization, I:248D; irrigation, IV:318A, 388-91; National Irrigation Commission, IV: 388B, 389C
- phosphate deposits, II:272B
- soil surveys, VI:172A
- Mexico, Gulf of: *see* Gulf of Mexico
- Miami River, Ohio (U.S.A.): rainfall run-off, IV:67A(tab.), 73A(tab.)
- Mica: India, II:68A
- artificial, I:42B
- Micro-organisms: from algal carbohydrates, I:134B;
- Micro-organisms (*cont.*): production of protein, fat and vitamins, I:414D; proteins from, I:132B; *see also* Yeast
- Micropalaontology: III:3C
- Micro-seepage detection, *see* Mining exploration - geochemical prospecting
- Middle class: Haiti, I:361D
- Middle Congo, *see* Congo, French Middle
- Middle East: agriculture, I:217D; VI: 104-7; Egyptian products, I:246A; grazing land depletion, VI:501A; petroleum production, III:85A; petroleum reserves, I:39C; III:5G; river basin projects important for, I:416D; strip cultivation, I:217A; technical assistance, I:2C
- Middle Niger Basin project, I:57C
- Midlands (England): coal fields, I:120D
- Migration, I:18A, 21C(*tab.*); importance in improving livestock, VI:394B; of workers, I:328B, 329D, 330D, 347A, 351D
- Migration routes (birds), VII:231B, 239A
- Migratory Fish Committee, Sweden, IV:444A
- Milk: amount needed, I:32A, 33A; effect of DDT on, VI:497B; feed to pigs, VI:483B; importance in diet, VI:439A, 443B; percentages of gross energy in, VI: 443D; preservation, VI:342B; records, VI:384D-385A; secretion of chemicals in, VI:491C
- Milk cans, *see* Tin cans
- Milk fish: advantages, VII:143B; breeding methods, VII:144A; culture in China, VII:133D; culture in Indonesia, VII:137B; culture in Java, VII:133B; culture in Philippines, VII:134C, 142-45; harvesting methods, VII:144B
- Milk powder, VI:362A
- Milk production, VI:444D, 459B; economics, VI:441B; India, VI:420B
- Milk sugar, *see* Lactose
- Milkweed, *see* Flor de Seda shrub
- Millers: associations of, VI:263B
- Millet: China, I:227D
- Mimosa albida*, *see* Carbon blanco
- Mimosa nigra*, *see* Carbon negro
- Minas Geraes, Brazil: iron deposits, II:17B; III:129B
- Mine labour, II:111A, 125B-126D; displacement by ore exhaustion, I: 119B; productivity, II:120E, 121D, 122C; vs. mechanization, II:167B-168B
- Mine mechanization, I:407A, 412B; II: 106-70; drawbacks, II:123C-124A; economies of, II:124-27;

SUBJECT INDEX FOR VOLUMES I TO VII

Mine mechanization (*cont.*):

for large-scale operations, II:106-10;
labour aspects, II:167B-168B;
of non-metallic mines, II:128-37;
relation to depletion of reserves, II:
122D;
Sweden, II:110B

Mineral areas: development, I:412D

Mineral by-products: utilization of, II:
150A

Mineral conservation, I:41C, 121-27,
312B;
efforts toward, I:40A;
future *vs.* immediate exploration, I:
119a;

international cooperation, II:207A;
methods, I:411D;

relation to water control, I:388D;
Sweden, II:203-4;

trend in backward countries, I:113D;
treatment of low-grade ores, II:115A

Mineral deficiencies in diet: animals,
VI:453A;
Asia, I:340B

Mineral deficiencies in soils, VI:461C

Mineral discovery, I:41A, 56B, 59D,
122D; bearing of geological research
on, II:43A, 44A;
increase of resources by, II:79-81;
outlook for future, II:42-44;
see also Mining exploration

Mineral industries: extension services,
I:273A

Mineralization: "contingent" relationships, I:169C

Mineral ownership: laws of, I:98D

Mineral reserves, I:412A, 412C, 414C;
classification according to possibilities
of utilization, II:9D-10C

Mineral resources: Brazil, II:17-21;
conservation in mining and milling,
II:106-70;

importance of risk capital in developing,
II:58A;

increase by exploration, II:60-103;
measurement, II:4-12

Minerals: accessibility of deposits, I:40A;
consumption, I:13D, 39C, 122A, 412A;
II:5A;

consumption rate, II:102C;

cost of production, I:412B;
depletion, I:122C, 213B, 407A;

derivation from materials in abundant
supply, I:124C;
distinguished from organic resources,
I:14A;

efficiency in use, I:122D;

Egypt, I:245B;
essential needs defined, I:38D;

estimated world reserves, II:2(*tab.*);
estimated world supplies by cost range,
II:2-4;

exploitation for national security, I:
127D;

extraction by evaporation, II:262B;

geologic mapping, I:180C;

government intervention in exploitation,
I:126C, 127D;
grouped or isolated deposits, II:60B;

Minerals (*cont.*):

importance in nutrition, I:340C;
importance to civilization, I:38A;
in animal diet, VI:454-56;
international co-operation in extraction
and processing, I:309A;

irreplaceable resources, I:412A;

Jamaica, I:295B;

lack of statistics on resources, I:39A;
leaching out through forest destruction,
I:79a;

mine mechanization to increase recovery,
II:110-13;

no present critical shortages, I:39A;

"outcrops", I:171A;

per capita consumption, II:4A(*tab.*);
per capita consumption in relation to
world reserves, II:4C(*tab.*);

Philippines, I:242A;

political aspects, I:119C;

production rates by hemispheres, II:
3(*tab.*);

recovery from waste gases, II:180-90;
reduction of wastage through mechaniza-

tion, II:120A, 122A;

scientific surveys in Far East, I:114B;
sea-water as source of, II:258B;

shortages, I:38-46;

stockpiles, I:119C;

technology, I:412B;

UK, II:44-47;

world production, I:44(*tab.*); II:2(*tab.*);
see also Low-grade ores; Metals

Minerals, low-grade, *see* Low-grade ores

Minerals, non-metallic: principal sources,
I:45B(*map*)

Mineral utilization: classification accord-

ing to possibilities, II:9A-10C;

exploitability limits, II:8C-9B;

geographical factors, II:13-24, 37D;

markets for by-products as factor in,
II:16A;

recent developments, II:16A

Miners, *see* Mine labour

Mines, non-metallic, II:119-24;

mechanization, II:128-37

Mines Domaniiales de Potasse d'Alsace,
II:124-26

Mine transportation, II:136B

Ming River, China: fish, VII:133C

Mining: assessment for small country,
I:236B-237A;

caving methods, I:123B;

competition with other land interests,
II:43D;

foreign capital in, II:97A;

geographical factors, II:13-24;

improvement of techniques, I:41B;

Jeffrey high-frequency jig, II:151D;

labour (*see* Mine labour);

physical output per worker, I:61D;

safety measures, II:167A;

see also Strip mining

Mining, opencast, II:107C, 119D-120B,
123C

Mining costs: influence of technical
advances on, II:124-27

Mining exploration, I:168-72, 312B,
412B; II:13B-13D;

Mining exploration (*cont.*):

African native objections to, II:43C;

Australia, II:50-54;

bearing of scientific research on, II:
57D;

Bolivia, II:82;

boring for information, II:56A;

Brazil, II:83-84;

by governments, II:60D;

by mining companies, II:61A;

Canada, II:61D;

cost of geophysical survey methods
II:66-67(*tab.*);

costs, I:169B, 170B; II:60-66, 79-82;

economic factors, I:39D, 170A; II:51C;

electrical methods, II:63B;

expansion, I:170A;

geochemical prospecting, II:63A, 64-66,

77A, 97C, 98B;

geophysical methods, II:63A, 64-66;

in under-developed countries, II:57B;

Siberia, II:75-78;

means of increasing mineral resources,
II:60-103;

methods, II:50C, 60-66, 79-82, 100D;

modern techniques, II:76B-77B;

North and South America, II:48-51,
55B;

primitive methods, II:64A;

Sardinia, II:71C;

"sling-ram" method, II:63B;

South Africa, II:61B;

surface prospecting no longer useful,
I:41A;

systematic reconnaissance, I:169A;

technical problems, I:169B;

unchanged in principle, I:170A;

UK Geological Survey in relation to,
II:45A;

Yugoslavia, II:95-96, 101C;

see also Mineral discovery

Mining industry: contribution to national
income, I:118D;

economic conditions, I:170D, 171D-
172C;

labour-saving devices, II:128-37;

long-term prospects, I:171D-172C;

Sardinia, II:70-75

Mining machinery, II:128-37

Minneola irrigation reservoir, Idaho,
IV:456D

Min River, China, I:227B

Miraflores lode (Bolivia), II:114D

Miranda, Venezuela: forestry, V:209C

Mississippi Power & Light Company
(U.S.A.), III:262A

Mississippi Power Company (U.S.A.),
III:262A

Mississippi River, U.S.A., IV:336B;

rainfall run-off, IV:71A(*tab.*);

traffic, IV:348C

Mississippi River Commission (U.S.A.),
IV:347B, 347D

Missouri, University of (U.S.A.): soil
research, VI:164D

Missouri River Basin project (U.S.A.),
I:208D, IV:37B;

recreation studies of, IV:437A

- Missouri Extension Service (U.S.A.), VI:101C
 Mites: eradication, VI:492C
 Mixed farming, VI:189A;
 Africa, VI:577A, 581C;
 Burma, VI:15D;
 Canada, VI:197B;
 French colonies, I:90C;
 tropics, VI:564B, 619B;
 UK, I:68C
 Mlalo Rehabilitation Scheme (East Africa), VI:88-89
 Moisture: conservation, VI:128D;
 element in food preservation, VI:342B
 Molasses, I:133A;
 growth factors, I:147A;
 see also Wood molasses
 Molasses, sugar cane: preparation of fat from, I:147B;
 use as raw material, I:145-47
 Molecule size distribution in hydrogenation, III:97B
 Molybdenum: as alloying element, II: 232A;
 as copper by-product, II:150B;
 Cuba, II:80C;
 essential to steel industry, I:38C;
 new uses, I:40C;
 plant nutrient, I:85D;
 toxicity, VI:452D, 455B-456B, 461C;
 Yugoslavia, II:96B
 Monceaux-la-Virole Dam, France, IV: 242A
 Mongollano, VI:593B
 Monnet Plan: operation in North Africa, VI:616B
 Monocellular organisms: speed of synthesis, I:41D
 Monsanto Chemical Company (Venezuela), III:16B
 Montana U.S.A.: phosphate deposits, II:271C
 Montee: transplantation, VII:145D
 Moose: increase in Idaho and Wyoming, VII:255D;
 increase in Wyoming, VII:203C;
 number in Sweden, VII:255D;
 number in Sweden compared with Maine (U.S.A.), VII:255C;
 population in U.S.A., VII:239B
 Morava River, Yugoslavia: carp stocking, VII:159D
 Morbihan, Gulf of France: oyster spat production, VII:49A
 Morenci, Arizona (U.S.A.): copper mines, I:123B
 Morgantown, West Virginia (U.S.A.): coal underground gasification experiment, III:146A-146C
 Morocco: agriculture, VI:616-19;
 coal underground gasification experiment, III:151A;
 lead deposits, II:194B;
 phosphate deposits, II:272A, 272C;
 water control, IV:188B-191D
 — Hydrogeological Service, IV:188B-191D
 Morrell, Prince Edward Island (Canada), I:223B
 Morro, *see* Calabash tree
 Mortality: Egypt, I:244A;
 projections, I:21C;
 reduction, I:17A, 17C
 Mortgages: Argentina, I:267D
 Mosquitoes: control through fish breeding, VII:123C;
 resistance to DDT, VI:492D
 Motion picture industry: Chile, I:237B
 Motion pictures: use in conservation propaganda, I:261B, 270C, 276D, 287C, 301A
 Motorboats: use in fishing, VII:185C
 Motor fuel, III:70B-71D, 265A, 270D, 327C;
 alcohol as, I:143A, 137D;
 compositions produced over different catalysts, III:98C(*tab.*);
 hydrogenation over various catalysts, III:98B(*tab.*);
 production of blending agents, III:98D
 Motor vehicles: gas generators for, I: 107A;
 use of steel substitutes in, II:255C;
 see also Automobiles; Trucks
 Mountain goat, VII:239B
 Mountain lion: hunted in Utah, VII: 209D;
 reduced in number (U.S.A.), VII:197D
 Mountains: forests, V:152D-155C;
 soil restoration, IV:189D;
 torrent control, V:155-61;
 use of air-borne magnetometer in, III:9C
 Mountains, tropical: soil conditions, V: 174A
 Mountain sheep: kind of refuges needed, VII:254A
 Mouse-proofing of grain stacks, VI:345D
 Mrigala, VII:133A;
 culture in India, VII:133D
 Mucuna, VI:593C
 Mud-fish, VI:590A;
 possible culture in Philippines, VII: 144D
 "Muddy Water" (song), I:261C, 296B
 Mulata oil field, Venezuela, III:38B, 39A
 Mulching, VI:525C;
 Argentine sand dunes, VI:32B;
 British Caribbean Region, VI:252B;
 see also Leaf-fall as mulch
 Mule deer, *see* Deer, mule
 Mules: effect of heat on, VI:417B
 Mulhouse (Alsace): potash deposits, II: 273C
 Mullet: conservation measures needed, VII:30C;
 harvesting in Philippines, VII:144D;
 see also Grey mullet
 Multiflora rose: use as hedge on crop land, VII:189A;
 use as wildlife cover, VII:208B
 Multiplier theory of national income, I:391B
 "Multipurpose food", I:344A
 Multi-purpose projects, I:388B, 391A, 391C, 391D;
 unified administration, I:396-403
 Muncie Gear Works, Muncie, Indiana (U.S.A.), III:214C
 Munich, Germany: cost of decreasing death rate, I:335A
 Murman coast, U.S.S.R.: cod fishery yield, VII:9D-10A
 Murray River, Australia: diversion of Snowy River into, I:402C
 Murray River Scheme (Australia), IV: 145A
 Murrumbidgee River Scheme (Australia), IV:142D-145A
 Muscle Shoals, Alabama (U.S.A.): nitrate munitions plant, I:372D
 Mushroom mycelium, I:137C
 Music: use for soil conservation propaganda, I:261C
 Muskingum Watershed Conservancy District, Ohio (U.S.A.), IV:451A-452C
 Mussel: culture, Netherlands, VII:49C-40A;
 unexploited resources, VII:30C
 Mustard gas substances: use in inducing mutations, VI:533A
 Mutation of plants, induced, VI:277B, 533A
 Mutations: unimportant in livestock breeding, VI:394B
 Mutton bird, *see* Shearwater, sooty
 Nacascallo, VI:592D
Nannocystis Pyrifera, I:133D
 Naft Safid oil field, Iran, III:31C
 Nairobi, Kenya Colony (Africa): conference on game (1947), VII:217C
 Naphthalene: ratio to aromatics in hydrogenation, III:97D
 Naphthenic acids, III:84A;
 recovery from oil refinery distillates, III:77A
 Napier grass: diseases, VI:33IC
 Närke, Sweden, III:51B
 Narvik, Norway: port for iron transportation, I:120A
 National Advertising Council (U.S.A.), V:72C
 National Association of Corrosion Engineers (U.S.A.), II:230D
 National College for Heating and Ventilating, Refrigeration and Fan Engineering (UK), III:208D
 National Emergency steels, II:175B, 175D
 National forests, *see* Forests, national
 National Grid System, *see* Electric power grid
 National Institute for Research in Dairying, Reading (England), I:154A; VI:386A
 Nationalism inimical to normal flow of goods and raw materials, I:120C
 National Livestock Loss Prevention Board (Chicago, U.S.A.), VI:489C
 National Organization for Research in Animal Breeding and Genetics (UK), VI:386B
 National parks, *see* Parks, national
 National Renault Automobile Régie (France), V:283C
 National School of Agriculture, Haiti, I:357-60;
 Experimental Station, I:357D

SUBJECT INDEX FOR VOLUMES I TO VII

- Native assistants in Africa, I:299D
 Native Authority Councils: Nyasaland, I:284A
 Native Authority Federations, VI:586B
 Native officials: use in conservation propaganda, I:299B
 Natural equilibrium, *see* Balance of nature
 Natural gas: chemicals from, III:73A; consumption, I:101D; III:82A; production practices, III:36B; prospecting techniques, III:6-8; source of synthetic fuel, III:85C; Swedish shale as source, III:55B; Venezuela, I:413D; waste, I:204C
 Natural selection: in plants, VI:531C, 533B; *see also* Darwinian theory of natural selection
 "Nature Protection Days", I:259B
 Nauru, Pacific Islands: deficiency diseases, I:342C; phosphate deposits, II:272B
 Navajo Indian Reservation (U.S.A.): sheep raising, VI:425B-427D
 Navajo sheep, VI:425C; fleece, VI:426D; improvement, VI:426B-427C; improvement of environment, VI:431C
 Navigable waterways: structures, IV: 219-23
 Navigation, IV:326-49; as objective in river basin development, IV:133A; development of waterways in U.S.A. for, IV:335-38; Middle East, IV:155B
 Navigation projects: government expenditures for, I:370B; France, I:390C
 Near East: forest resources and consumption, I:35D; grazing land deterioration, VI:503C; sedimentary basins, I:96a
 Nebraska, U.S.A.: grassed-waterways seeding demonstrations, I:265B
 Nectarines: introduction into U.S.A., VI:294B
 Nederlandse Heide Maatschappij, VII: 146B, 147C;
 Fresh Water Fishery Head Department, VII:145B
 Negev, Israel: water resources, IV:47C; water storage, IV:105-11
 Nematodes, VI:331B
 Neretva River, Yugoslavia, IV:261D
 Netherlands: agriculture, I:25B; VI:217-20, 450-51; birth rate, I:21A; conservation of pipelines, II:234-37; consumption of nitrogenous fertilizers, I:61C; copper deficiency in animal diet, VI: 455B; dairying, VI:395C; development of synthetic detergents, III:80A; drainage problems, IV:399-405;
 Netherlands (*cont.*): exports of fishery products, 1934-38, 1947 and 1948, VII:77(*tab.*); fish consumption, VII:75C, 112A; fisheries statistics, VII:75-78; flood control, IV:326-31, 346D; foreign trade in fish, VII:75C; grain yield, I:32C; grasslands, VI:522-24; imports of fishery products (1934-38, 1947 and 1948), VII:78(*tab.*); inland fisheries, VII:145-47; land reclamation, VI:611-13; marketing of fish, VII:75B; petroleum chemical industry, III:79-81; poultry breeding, VI:387-90, 434C; reclamation of estuaries, passages and creeks, VI:611C-613A; river basin projects, I:393D, 398A; saline soils, IV:365C; shellfish industry, VII:47-51; soils, IV:363-65; supply of fish and fishery products, VII:76(*tab.*); war-flooded areas, IV:403B-404B; 403 (*map*); water control programmes, IV:363-65; water supply, IV:100D, I29A; waterways, IV:339D, 343C; wind power, III:319-22
 — Poultry and Egg Board, VI:388C;
 — Service for Agricultural Engineering, IV:401D
 — Soil Testing Laboratory, Groningen, VI:217B
 Netherlands East Indies: agriculture, VI: 334D; bauxite deposits, II:247B
 fish culture, VII:136C
 Netherlands Overseas Territories: agricultural development, VI:564D
 Neutrons: use in inducing mutations, VI:533A
 New England, U.S.A.: cloud study, IV: 6B; dairy farm plans, VI:100D; importation of livestock from northern Europe, VI:422A; river basin projects, I:416D
 Newfoundland: herring production, VII: 29D; iron ore reserves, II:7A; lobster hatching, VII:59C; unexploited fish stocks, VII:30A
 New Guinea: example of hunting community, I:333C; nutrition problems, I:339C
 New Haven Power and Light Company (U.S.A.), III:213C
 New Jersey Agricultural Experimental Station (U.S.A.): nutricultural research, I:132B
 New Mexico, U.S.A.: potash deposits, II:277C
 New Orleans, Louisiana (U.S.A.): cost of sickness, I:335A
 New South Wales, Australia: forest fires, V:54C; grazing land depletion, VI:501C; minerals, II:53D
 New York State, U.S.A.: dairy herd analyses, VI:434C; drought (1949), IV:22C; reforestation, I:81D
 New Zealand: agriculture, I:18B, 24D, 25B; VI:554C; animal food in diet, VI:443A; birds, VII:233-35; birth rate, I:21B; brown algae, VII:185D; climate, VI:540A-D; conservation education, I:285-89; control of sheep diseases, VI:497A; dairying, VI:395C, 412A-413A; experiment in salmon stocking, VII: 26A; fish culture, VII:150-54; forest policy, V:180C, 225-27; forest surveys, V:27-29; grassland, VI:460C, 517-21, 460A; grazing land, VI:553-60; grazing land depletion, VI:501B; grazing research programs, VI:505B; herring and pilchard catch, VII:32A; irrigation projects, IV:375-78; land-use legislation, VI:39B; *Nannocystis Pyriifera*, as fertilizer, I: 133D; phosphate rock deposits, II:285B; plant breeding, VI:534-40; potential fisheries development, VII: 33C; role of phosphate in agriculture, II: 285-87; sawmill techniques, V:225-27; school system, I:285B; soil conservation, I:285-89; VI:123-24, 445-50; transplantation of herring, VII:53C; transplantation of salmon and trout, VII:53B
 war-time shortages of phosphates, II:285D
 — Forest Service, V:225D
 — Grasslands Division, VI:517D, 535A, 555A
 — Manawatu Catchment Board, VI: 448C;
 — Ministry of Works, IV:337A
 — National Council of Primary Production (New Zealand), II:286B, 287B
 — National Forest Survey, V:28A-29A
 — Soil Conservation and Rivers Control Council, I:287A; VI:448C, 549A, 551D
 Niacin: deficiency, I:341B; in *Rh. gracilis*, I:147D
 Nickel: as alloying element, II:232B; as cathodic coating, II:224B; Brazil, II:19D; Burma, I:114C; Cuba, II:80B; diminishing reserves, I:113B; fundamental to civilization, I:38C; India, I:114C, 116B; Peru, II:16C; production since 1900, I:39D; relative scarcity, I:39B

- Nicotine, VI:484D
 Nigeria: agriculture, VI:270A; conservation education, I:301-4; forest policy, V:179B; phosphate deposits, II:276C; school system, I:302B
 Niger Office, French West Africa, I: 400D; VI:581A, 584D
 Niger River, VI:570D; development, I:400D; regulation, VI:578C, 581A;
 Niger River basin, West Africa: fish culture, VII:62C
 Nile River, I:492D; alluvial soils compared with those of Guana, VI:601C
 as means of transportation, I:246A; basin development projects, I:390D; control, IV:254-55; development, IV:167B; fish production, VII:127B; forecasts of water volume, IV:81-84; silt, IV:293D, 297D;
see also Blue Nile River; White Nile River
 Nile Valley: cultivable areas, IV:303D-305C; further development proposed, I:2C; soil, IV:297D
 Nilgiri Hills, India: relation of forest planting to rainfall, V:138B
 Ninghsia, North China, I:227C; IV:310A; irrigation project, I:227C
 Niobium: Cuba, II:80B
 Nipa oil field, Venezuela, III:18D
 Nitrate fertilizers, I:42A
 Nitrates: Chile, I:119C, 236D; II:122D, 275C, 284C, 293A; Guggenheim process of separation, II: 122D synthetic, I:42B
 Nitrites: as inhibitors of metal corrosion, II:229B
 Nitrocellulose: manufacture based on agricultural products, I:157B
 Nitrogen: application to grasslands, VI: 450B; effect on soils, VI:519B; methods of extraction from atmosphere, II:275D; world productive capacity, II:276A
 Nitrogen fertilizers, II:274A, 284B; VI: 217D-218B, 243B, 251A; British Caribbean Region, VI:252A, 253C; on grasslands, VI:516A; production and consumption in Europe, I:61c; sources of, II:275B-276A; trade balance in Europe, I:62A
 Nitrogen fixation, VI:557B-C; by clover bacteria, VI:518C; by white clover, VI:538B, 539D, 555A
 Nodular worms, 483B
 Nolla River, Switzerland, IV:184D
 Nomadic herdsmen, VI:408A
 Nomadic livestock breeding, *see* Livestock breeding, nomadic
 Nomadic tribes: protection of watering places, I:81D
 Non-ferrous metals: conservation, II: 197-203; consumption and production, I:62C; export, I:59C; increasing importance of, II:199D; production from scrap metal and residue, II:197D; threatened exhaustion, II:197B; types of scrap, II:198B
 Non-metallic coating: for metals, II:225B
 Non-metals: importance, II:119B
 Normandy, France: iron ore deposits, II: 9B, 117C
 Norrland, Sweden: power plants, III: 248A
 Norsk Hydro-Elektrisk Kvaelstofaktieselskab (Norway), III:173D
 North Africa, *see* Africa, North
 North America: animal food in diet, VI: 443A; electrical development, I:49D, 50B; exports of food and raw materials, I: 61A; forest resources and consumption, I: 36A; industrialization, I:50B; mineral exploration, II:48-51, 55B
 North American Conservation Congress, I:319B
 North American Halibut and Salmon Commissions, VII:34C
 Northampton sand ironstone (England), II:45D; method of quarrying, II:107C-108D
 Northamptonshire, England: iron beds, II:45D, 161A
 North China plain, IV:309-14; annual flood damage, IV:310C; crops, IV:310B; plan for flood control and irrigation, IV:312B-314C
 North China River Commission, IV:312A
 North-eastern Forest Experiment Station (U.S.A.), V:25C, 265A
 Northern Ireland: Ministry of Agriculture, VI:384A
 Northern Rhodesia: "controlled area" system in relation to game management, VII:220-22; copper belt, II:16C; copper deposits, I:120C; schools, I:274A; sulphide copper ore, II:16B
 — Game Department, VII:217A;
 — Game and Tsetse Control Department, VII:227B
 North Fork Reservoir, California (U.S.A.), IV:308C
 North Island, New Zealand, VI:517B, 539A; agriculture, VI:540A; erosion, VI:123A-124B; fish, VII:151C; grazing land, VI:554D
 North Sea: changes in fish stocks, VII: 166-69; fisheries, VII:20D, 23D, 24A, 28C, 185A, 185C; plaice, VII:56B
 Norway: alginic acid production, I:134B; brown algae, VII:186A; coking industry, III:173-75; electric power, III:253D; experiments on hatching and liberation of fish larvae, VII:51B-52D; fish catch (1947), VII:90A; fluctuations in fish populations, VII: 2-5; fluctuations in herring fishing, VII:4C; forest management, V:103-5; forestry, I:14C; forest survey, V:2-5; game, VII:210C; heating, III:209-12; herring production, VII:29D; hydro-electric power, III:173A; inland fisheries, VII:13-16; power consumption, III:259B; power systems, III:261B; propagation experiments, VII:58A-59B; seaweed industry, VII:177-80; soil conservation, VI:43-49
 — Department of Commerce, VII: 177B
 — Department of Experimental Forestry, V:103D
 — Ministry of Agriculture, VII:16C
 Norwegian Bog Association, VI:46B, 48A
 Northwest Appalachian Conservation Experiment Station, I:74C
 North Western Railway, India, V:274C
 North-west Frontier Province, West Pakistan: grazing land depletion, VI: 500D; gypsum deposits, II:22D; soils, VI:244B
 Nova Scotia, Canada: adult education, I:259D
 Nuclear energy, *see* Atomic energy
 Nuclei: types in atmosphere, IV:4A-5A, 9B-10A
 Nueva Esparta, Venezuela: forestry, V:209D
Nuisance IV (fishing vessel), VII:104A
 Nutriculture, I:131D-132B
 Nutrition, I:417D;
 Colombia, I:345B; effect on livestock, VI:419B, 433D; effect on work output, I:341C; Haiti, I:362B; improvement should be extended to whole community, I:342A; relation to susceptibility to disease, VI:497A, 497C; relation to use and conservation of natural resources, I:338-42; standards set up by FAO, I:31C
 Nutrition deficiency: effect on productivity, I:336D
 Nutrition Laboratory, Coonoor, India, I:154B
 Nyamuragira volcano (Belgian Congo), VII:225B; laboratory, VII:224A; report on, VII:223D
 Nyanza Province, Kenya: agriculture, VI:102-4
 Nyasaland: land-use legislation, VI:40C;

SUBJECT INDEX FOR VOLUMES I TO VII

- Nyasaland (*cont.*):
soil-conservation propaganda, I:261B,
283-85
Nylon, I:159A
- Oaks: eradication by chemicals, VI: 547B
Colombia, V:124B;
source of tannin, V:299B
- Oats: breeding, VI:298A, 298C;
disease control and adaptation, I:85a;
varieties, VI:293D;
yields at varying nitrogen and phosphate levels, VI:519B
- Observations: statistical methods, I:199B
- Obstacles to conservation, I:418D
- Ocean: as resource, I:57D;
biosynthesis compared with land, VII:
115D;
extraction of magnesium and magnesia from, I:41C;
photosynthetic fixation compared with land, VII:115D;
resources (*see* marine resources);
source of food supply, I:33A
- Oceania: animal food in diet, VI:443A;
forest resources and consumption, I:
36C
- Ocean Island, Pacific: phosphate deposits, II:272B
- Oceanographic and atmospheric circulation theory of correlation between, VII:25A
- Oceanography, I:133D;
see also International Council for Sea Exploration
- Oecology: importance in cultural synthesis, I:280B
- Oestrus, *see* Livestock breeding - mating time
- OFAR, *see* United States of America - Office of Foreign Agricultural Relations
- Ohio, U.S.A.: meteorological experiments, IV:23D
- Ohio River, U.S.A.: traffic, IV:348B
- Oil, *see* Petroleum
- Oil chemistry, *see* Petroleum - chemistry
- Oil engine, *see* Internal combustion engines
- Oil palms: Indonesia, I:89B
- Oils, essential: woods yielding, V:299A
- Oil shale: retorting, III:60B;
source of synthetic fuel, III:85D
synthetic fuels from, I:7C
- Oil-Shale Demonstration Plant (Colorado, U.S.A.), III:59B
- Oil-yielding crops: Africa, VI:581A;
Morocco, VI:616D
- Oiticica tree: Brazil, VI:72A
- Oklahoma, U.S.A.: secondary oil recovery operations, III:50D
- Okoumé, V:115D-116B
- Older workers, I:330D
- Olefines, III:84A
- Olive trees: Tunisia, VI:610C
- Olympic Mountains Washington (U.S.A.), VII:196C
- Oamarua, New Zealand: seeding field trials, VI:551B
- One-crop system: Tennessee Valley, I:
376B
- Onions: hybridization, I:85a;
seed treatment, VI:326A
- Ontario, Canada: cropping systems, VI:
227A-C;
forest conservation, V:180B;
mineral deposits, I:171A
"Ontario fine sandy loam," I:182C
- Ontario Research Foundation, III:183B
- On-the-job training of young workers, I:350B
- Oosterschelde (Netherlands): oyster beds, VII:47C, 48B
- Open-hearth furnace: gas as fuel, III:
295B;
use of oxygen in, II:177C-178C
- Open-hearth process: importance, II:
173B
- Ophir irrigation project (Indonesia), VI:565A
- Orange juice, frozen concentrated, I:136C
- Oranges, navel: introduction into U.S.A., VI:294B
- Orchards: relation to soil conservation, VI:5D;
see also Fruit trees
- Ore: definition of term, II:141B
- Ore, low-grade: processed by low-cost energy, I:207C;
utilization, I:39D, 41C
- Ore concentration: by flotation, II:142D,
164B;
Cyclone process, II:151A;
Humphreys spiral device, II:143C,
151B;
methods, II:144C, 142D-143C;
sink-float process, II:112C, 114D, 143A;
slime jigging process, II:164C-165D
- Organic chemistry: synthetic reactions, I:103B
- Orissa, *see* Singhbhum
- Orkney Islands: sublittoral seaweed, I:
134A
- Orographic clouds, *see* Clouds, orographic
- Oslo, Norway: electric heating, III:220C
- Oslofjord, Norway: investigations of survival of cod and haddock eggs, VII:
58D-59B
- Osteomalacia, I:340B
- Ostrich: number increased in South Africa, VII:256A
- Ottawa, Canada: Cereal Division Laboratory, VI:286D
- Otto Company (Germany), III:161C
- Output of goods, *see* Production
- Overcutting of grassland, *see* Grassland-overcutting
- Overfishing, I:411A; VII:20-24, 25A,
169A-D, 183D;
defined, VII:20A;
evidences of, VII:20D-22A, 22D;
of Belt Sea plaice, VII:55B;
problem for fishery control bodies, VII:
26A
- Overgrazing, *see* Grazing lands - overgrazing
- Overstocking of grazing land, *see* Grazing land - overstocking
- Owls: protective federal laws needed, VII:209A
- Ownership: importance to conservation, I:222B;
lack of, cause of misuse of resources, I:219C;
of western lands (U.S.A.), VII:198C-199C;
see also Fragmented ownership of land; Private owners of resources
- Owyhee Dam, Oregon (U.S.A.), IV:247D
- Oxen: breeding, French West Africa, VI:
407
- Oxfordshire, England: iron beds, II:45D
- Oxidation: losses from, II:212A, 214B
- Oxidation method in wood residue utilization, V:301C
- Ox warble fly, VI:487D
- Oxygen: in iron and steelmaking, II:
174A-175A;
use in blast-furnaces, III:184D, 194B;
use in melting down scrap iron, II: 182A
- Oxygen, gaseous: use in iron and steel manufacture, II:176-79
- Oyashio cold current, VII:100C
- Oyster culture: combating enemies and diseases, VII:48D-49A;
Netherlands, VII:47B-49C
- Oysters: harvesting and marketing, Netherlands, VII:49B
- Pabellón (irrigation district), Mexico, IV:
389D
- Pacific Coast (U.S.A.): log transportation by motor truck, V:257-59;
Nacrocystis Pyrifera, I:133D
- Pacific Explorer (fishing vessel), VII:
105B-106A, 107-8(illus.)
- Pacific Islands: agricultural pattern, I:
339B;
grazing land, VI:559B
- Pacific Ocean: fishery resources, I:311D;
percentage of world fish production, VII:28B
- Pacific Portland Cement Company (Venezuela), III:16C
- Pacific Prairie, U.S.A., VI:510B
- Packaging: use in preservation of crops, I:86a
- Paddy, *see* Rice
- Padi, *see* Rice
- Paint: use as wood preservative, V:318D;
use in protection of steel, II:225B;
as preventive of corrosion, II:214C,
220C
- Paints, cementiferous: as metal-coating material, II:223D
- Pakistan: agriculture, VI:6-9, 327-29;
cement industry, II:21-24;
coal fields, II:22C;
conservation education, I:274D;
control of livestock diseases, VI:467-70;
fisheries, VII:184C;
fishery statistics, VII:112D;
forest policy, V:179A;
gypsum deposits, II:22D;
irrigation, IV:355B, 370D, 391-94;
river basin development, I:399A;
soils, VI:239B;
standard farm land, I:27C;
water-control policy, IV:274D;
water resources, IV:168B

UNSCUR PROCEEDINGS: INDEX

- Pakistan (*cont.*):
— Forest Departments, VI:8C
Pakistan, East: soils, VI:245-49
Palestine: agricultural projects, I:217D; effects of forest destruction, V:135C; fish culture, VII:135C; fish culture in ponds, VII:120D, 131B; land-use legislation, VI:40D; potash deposits, II:273D;
see also Israel
- Palestine Potash Limited, II:262A
- Palmerston, North New Zealand: grasslands tests, VI:517D-521C, 536B, 536C, 537D, 538A, 538C
- Palmito Dam, Nazas River (Mexico), VI: 389C
- Palouse Grasslands, Oregon and Washington (U.S.A.), VI:510B
- Palo verde, *see* Rain trees
- Pampa area, Argentina, VI:21-22; erosion, VI:159A-160A
- Panama Canal, IV:223B; corrosion protection of steel gates, II: 216B; health factors in building, I:335B
- Pan-American Commission on Natural Resources and Soil Conservation, I: 365C
- Pan American Union: experience in international co-operation, I:356B
- Pannonia, Yugoslavia: forest belts, V: 147C
- Paper manufacture: deforestation for, I:56D; Egypt, I:245B
- Paper packages, water resistant, I:141a
- Paper products, I:141a
- Paper pulp, *see* Wood pulp
- Pará, Brazil: jute production, VI:600C; land reclamation, VI:599A
- Parachute fire fighters, V:37B, 48A
- Paraffin: control of, in motor fuels, III: 98B
- Parana pine, *see* Pines – parana pine
- Parasites: on cotton, VI:618B; tolerance, VI:497A
- Parasites, external: control in Costa Rica, VI:496C; feasibility of eradication or control, VI:492B; of livestock, VI:488-93
- Parasites, internal: of livestock, VI: 481-85
- Parasitic diseases, VI:485-88; control, VI:481D, 486C; economic loss from, VI:485D-486C; Haiti, I:362A
- Parasiticides, VI:486D
- Parker Dam, Colorado (U.S.A.), IV:250C
- Parks, national: as animal refuges, I: 410D; as conservation measure, I:292A; Belgian Congo, VII:216A, 222-26, 253B; economic returns, VII:217B; India, IV:447B; South Africa, VII:210C; U.S.A., IV:436B, 437D, 438D-439A, VII:198A, 199B
- Partially developed areas: resource surveys, I:179A
- Partridge, VII:190A; diseases of, VII:193D; environmental requirements, VII:192B -194A;
- Pas-de-Calais basin: adoption of technique to metallurgical coking, III:171A
- Passamaquoddy Project (U.S.A.), I: 105B; III:227B
- Passenger traffic: on inland waterways, IV:339A
- Pasteurellosis, VI:468D
- Pasteur Institutes: in French territories, I:344C
- Pastoral industry, *see* Livestock breeding
- Pastoral peoples: diet, I:338D
- Pasture plants, *see* Forage plants
- Pastures, *see* Grassland; Grazing lands
- Patagonia: continental shelf, I:100A; fish population of continental shelf, VII:30D
- Patino Mines and Enterprises Cons., Inc. (Bolivia), II:114A, 114C
- Patli Doon, India, IV:447B
- Peace: interdependence on abundance, I:84B; relation to conservation, I:206B, 207A, 319B, 418D
- Pea moths, VI:314D
- Peanut grass, VI:559C
- Peanuts: chemurgy, I:137B; field crop in teakwood plantation, V:110C; imports from South America to U.S.A., VI:295A
- Pears: storage, VI:369A
- Peas: seed treatment, VI:326A
- Peasant farming, *see* Family-farm system
- Peasants: rehabilitation, I:333A
- Peat, I:135A; effect on soil, VI:47D, 48C; useful products from, I:131D
- Peat bogs: use for grazing, IV:214D
- Peccary, VII:239B
- Pecos River (U.S.A.): salt concentrations at 14 gauging stations, IV:360 (*tab.*)
- Pecos River Basin (U.S.A.): salinity problems, IV:359D-361B
- Pecos River Joint Investigation (U.S.A.), IV:359D
- Pectin: industrial use, I:158C
- Pectinates: from citrus, I:134C
- Pedigree breeders, *see* Poultry breeding – pedigree breeders
- Pelagic species of fish, VII:11D-12A
- Pellagra: effect on productivity, I:336D; Haiti, I:363C
- Pelletizing, III:184C
- Pengaron irrigation project (Indonesia), VI:565A
- Penguins: determination of population levels in New Zealand, VII:234B-234C
- Penicillin, I:137C; production, I:158C; use for bovine mastitis, VI:465B
- Pennsylvania, U.S.A.: secondary oil recovery operations, III:50D
- Pennsylvania State College (U.S.A.): conservation projects, I:273A
- Pentoses, I:147A
- People, *see* Population
- Pepper plant, Guinea: field crop in teakwood plantation, V:110C
- Pepper plants: disease control, VI:335A
- Perch, VII:13B; transplantation, VII:145D
- Pereiro (Brazilian wild pear): VI:74A; source of wax and resin, V:312-15
- Pereskia nicoyana*, VI:593B
- Perfume plants: Morocco, VI:618D
- Perie, South Africa: hatchery, VII:156A
- Permeability of oil reservoir rock, III:49C
- Personnel, trained: *see* Technicians
- Perticara mine (Italy), II:86B, 88D, 89C, 90B, 92C
- Peru: brown algae, VII:185D; cattle breeding, VI:432C; copper mining, I:123D; fishing industry, VII:44C; livestock breeding VI:434B; management of bird resources, VII: 231-33; *Nucrocystis Pyrifera*, I:133D; nickel, II:16C; vanadium production, I:120A
- Peruvian Current: disturbances of, VII: 232A
- Pests, agricultural: surveys, I:194C; *see also* Insect pests; Livestock diseases; Parasites; Plant diseases and pests
- Petawawa Forest Experiment Station, Canada, V:41C, 42C
- Petrels: New Zealand, VII:234C-234D
- Petrol, *see* Gasoline
- Petroleum: catalytic reactions, I:103A; chemicals from, III:72D; chemistry, III:70-76, 81-84; Chile, I:236C; competition with coal as fuel, I:55D; composition, III:70A; consumption, I:101D; III:82A; control by American interests, I:126B; cost of conservation, I:204B; cost of scarcities, I:206A; depletion, I:407A; displacing fluids, III:33B-34C; economy necessary, I:59D; Ecuador, I:250C; Egypt, I:244D; factors controlling incidence, I:108B; geological evidence, I:95A, 96A; hydrogenation, III:96D; importance, III:32B; India, I:312B; lag in opening new fields, I:212D; Middle East, I:39C; III:30-32; mining, III:47B, 48D; part in world consumption of energy, I:102C; Philippines, I:242B; prospective world demand, I:40C; shortage in Germany, I:312D; substitutes for, I:101A; UK, III:77C; units of measurement of productivity, I:108C;

SUBJECT INDEX FOR VOLUMES I TO VII

- Petroleum (*cont.*):
 use for household fuel, I:207D;
 waste, I:204C;
 see also Fuel oil; Gasoline; Shale oil
- Petroleum, synthetic: III:266A
- Petroleum, unrecovered, III:51A
- Petroleum exploration, I:171B, 413C;
 costs, III:6A;
 electric methods, III:4C, 7C, 24B;
 geophysical methods, I:41A;
 magnetic method, 4C;
 Middle East, III:31B;
 seepage-drilling, III:3A, 4D;
 seismic methods, III:4C, 7D;
 techniques, III:2-5, 6-8
- Petroleum formation: identification, III: 12B
- Petroleum gas, liquefied, III:72B
- Petroleum industry: Mexico, I:248D;
 proteinic residues, I:157C;
- Petroleum industry: Venezuela, I:239B;
 III:14-21
 conservation, III:32-36
- Petroleum production cooperation, I:104
 (*chart*); III:36A;
 cost, I:110BD;
 increase, I:13D;
- Petroleum production: India, II:67B;
 rate, I:104B; III:35B;
 Venezuelan law (1920), III:37B;
 world production, I:48A(*tab.*): III:
 2B
- Petroleum recovery, III:32B;
 control of the producing mechanism,
 III:44A;
 costs of secondary recovery operations,
 III:50B;
 dissolved-gas drive, III:33C, 34C, 35A;
 efficiency, III:40-45;
 factors involved, III:34C;
 gas-cap drive, III:34A, 34C, 35A, 41B,
 42B, 48A;
 methods, III:33B;
 pressure maintenance operations, III:
 43B;
 secondary recovery operations, III:
 43B, 46-51;
- Petroleum recovery solution-gas-drive,
 III:44A;
 U.S.A., III:46-51;
 waste prevention, III:42A;
 water-drive, III:34B, 34C, 35B, 35D,
 41C, 43A, 44C;
 water-flooding in, III:47A, 48B, 50C
- Petroleum refining: Philippines, I:242D;
 UK, III:76-78
- Petroleum reserves, III:84B;
 Brazil, II:18B;
 estimated undiscovered reserves, I:96C;
 103C-104D, 106B, 107D, 108A-110B;
 estimated world reserves, II:4A;
 known, I:94B;
 secondary in U.S.A., III:48D;
 undiscovered, I:94-110, 96D(*tab.*);
 U.S.A., I:39C, 59n; III:264A
- Petroleum reservoirs: characteristics, III:
 40D
- Petroleum well drilling, III:10-14;
 by gun perforation, III:30C;
 cost III:13A-14A, 26D;
 deep drilling, III:25D;
 directional drilling, III:26C;
 equipment, III:15A;
 hydraulic systems, III:11D;
 lake drilling, III:15A;
 muds, III:11D, 16A, 18C, 27B
 Poulter method, III:7D;
 rigs, III:11D, 17C;
 rotary method, III:25C, in U.S.A.,
 III:10-14, in Venezuela, III:10-14;
 sampling equipment, III:12D, 17B
 (*tab.*), 18B;
 test drilling, I:98B;
- Petroleum wells: cementing, III:13B,
 16C, 19A-19C;
 completion, III:19C-21A, 26C;
 depth, III:2C;
 logging methods, III:12B;
 prevention of choking by sand, III:
 15C;
 reinjection, III:38C-39D
- Peyrebrune, France: lead and zinc mines,
 II:118C
- Phaeophyceae*, I:133C;
 chemical composition, I:134A
- Pheasant: diseases, VII:193D;
 environmental requirements, VII:192B
 -194A
- Phenothiazine, VI:484D;
 in treatment of roundworms, VI:483B;
 treatment of lambs with, VI:497A;
 treatment of sheep with, VI:497C;
 use as parasiticide, VI:487A
- Phenotypic merit, *see* Livestock breeding
 - selection
- Philippine Islands: assessment of resources, I:240-43;
 fish culture, VII:134C, 142-45;
 fish culture in ponds, VII:120D;
 forest clearing and replanting in, I:79C;
 forest policy and law, V:181-83;
 industrialization, I:240-43;
 iron production, I:120B;
 logging techniques, V:243-46;
 mineral resources, I:224A;
 ponds, VII:160D;
 protein supply, VII:142B;
 water power development, I:395D;
 water resources, IV:168D
 — Bureau of Fisheries, VII:144D
 — Bureau of Forestry, V:181-83; VII:
 144D
- Philippine Oil Development Company, I:242B
- Phosphate deficiency of soils, VI:459C
- Phosphate fertilizers, VI:218B-D, 243D;
 I:88B; II:270B-273A;
 British Caribbean Region, VI:251B,
 252B, 253C;
 sources of, II:276B
- Phosphate rock: estimated world reserves, II:3D;
 fertilizer, I:38C;
 methods of mining, II:132D;
 world reserves, II:272C, 276C
- Phosphate rock deposits: U.S.A., III:
 303B
- Phosphates: Algeria, II:272A;
 as inhibitors of metal corrosion, II:
 229B;
 Brazil, II:272B;
 Chile, II:276C;
 China, II:276C;
 Curaçao, II:272B;
 effect on grasses, VI:518A;
 effect on soils, VI:519B;
 Egypt, I:245B; II:272B, 276C;
 French West Africa, II:276C;
 high-grade deposits, II:272D;
 Indo-China, II:276C;
 Ireland, II:276C;
 Korea, II:276C;
 methods of recovery, II:282D-283C;
 Mexico, II:272B;
 Morocco, II:272A, 272C;
 New Zealand, II:285-87;
 Nigeria, II:276C;
 North Africa, II:276C;
 Pacific area Nauru, II:272B;
 Poland, II:272B;
 Rhodesia, II:276D;
 Spain, II:272B;
 Sweden, II:276D, 278D;
 Tunisia, II:272A, 272C;
 Uganda, II:276D;
 Union of South Africa, II:276D;
 U.S.S.R., II:271B-271D, 276C;
 Venezuela, II:276D;
 world production, II:276D
- Phosphates, soluble: production and consumption in Europe, I:61C;
 trade balance in Europe, I:62A
- Phosphoric acid: main sources of, II:270C
- Phosphoric oxide, II:276C
- Phosphorite, II:270C, 279A
- Phosphorus, II:276A-277A;
 as alloying element, II:232B;
 in animal feeding, VI:460B
- Phosphorous deficiency: in animal feeding, VI:452C
- Photo-biosynthetic processes, I:414C
- Photographs: use in conservation education, I:287A
- Photography, aerial, *see* Aerial photography
- Photography, under-water, VII:186D
- Photo-interpretation of forests, V:25B-D
- Photosensitive diseases: in livestock, VI:417D
- Photosynthesis: biochemistry, I:133B;
 in ocean compared with land, VII:
 115D;
 production of food constituents from,
 I:131D;
- to supply industrial fuel, I:415A
- Phycology, *see* Algae
- Physical fitness, of workers, I:331A
- Physical measurements: variability, I:
 197C
- Physical output per worker, I:61C
- Phytoflagellate *Prymnesium parvum*, VII:149D
- Phytopathology: research, VI:334B
- Piano di Corsa mine (Italy), II:92C
- Pierrefitte, France: lead and zinc mines,
 II:118C

- Pig iron: annual requirements, I:39n; coke essential to production, III:164A; consumption in U.S.A., I:40B; production costs in Canada, III:191 (fig.); production in Sweden, III:177B; production since 1900, I:39D; step in steel production, III:183
- Pig-iron industry: relative sizes in UK, Germany and U.S.A., III:158B(tab.)
- Pigment industry: lead economizing in, II:196B; titanium oxide in U.S.A., II:253C
- Pigmies, *see* Pygmies
- Pigs, *see* Swine
- Pig-tin: exports from Far East, I:114A
- Pike, VII:13B; transplantation, VII:145D; use for hatching and stocking, VII:145D-146D
- Pike perch: transplantation, VII:145D
- Pilchard: in Amazon region, VII:32B; production, Pacific coast (U.S.A.), VII:116A; New Zealand, annual catch, VII:32A; South African catch, VII:32B; *see also* Sardine
- Piles: chemical protection against marine borers, V:274D
- Piles, reinforced concrete: use in oil-well drilling, III:14D
- Pilot-stage investigations, I:193D, 195D; technique, I:316B
- Pilot type of course, I:356B
- Pindus mountains, Greece, IV:381B
- Pineapples: production, Hawaii, VI:193D-194D; production, Venezuela, VI:302C
- Pines: jack pine, V:248C; Pines lodge-pole pine, V:293D; not easily pulped by sulphite liquors, I:142C; parana pine, V:315-17
- Pinhão bravo shrub: Brazil, VI:73B
- Pipelines: conservation by control of corrosion, II:234-37; corrosion of metals in, II:221D; cost of protection against corrosion, II:237A; ground-water composition as affecting durability, II:235A; soil conditions as affecting durability, II:234D; specifications for pipe coatings, II:235D-236B
- Piperonyl butoxide: use against animal parasites, VI:489D
- Pipes: substitutes for lead in manufacture of, II:195C
- Pistachio nuts: introduction into U.S.A., VI:294B
- Pithecellobium pachyphus*, *see* Guajiniquil atorador
- Pithecellobium saman*, *see* Rain trees
- Pitting: for flood water conservation, VI:545D
- Pittsburgh Plate Glass Company (U.S.A.), II:136A
- Placer mining of gold, II:150A
- Plaice: Belt Sea fishery yield, VII:55A; effect of cold on, VII:52D; fishing grounds, VII:60C; growth of transplanted North Sea forms in Belt Sea, VII:56D(fig.); Icelandic grounds, VII:22B(graph); marketed as "fillet of sole," VII:30B; North Sea, VII:166A, 167C, 168(chart); propagation experiments (Scotland), VII:58B; transplantation experiments from the North Sea to the Belt Sea, VII:56A (map); transplantation in Belt Sea (Denmark), VII:55A-56A; transplantation in the Limfjord (Denmark), VII:53D-55A, 54B(map); typical catches, North Sea trawling, VII:21(ill.); unexploited stocks, VII:30A
- Plan for modernization of overseas territories, VI:578A, 584A
- Plankton, I:133D; content of extracts of, VII:38C; feed for carp, VII:125B; in rice paddies, VII:126A; source of protein, VII:38B
- Planning, economic, I:346D
- Plant breeding, I:195B; VI:273-308, 530-34; colchicine method, VI:282A, 532B; Denmark, VI:289-92; experiments, VI:280-281; for disease control, VI:323D, 327B-328D, 338B; genetics, VI:274-81; genetic stocks, VI:286-92; inbreeding, VI:532C; India, VI:284-85; local strains, VI:531B; New Zealand, VI:534-40; production characters, VI:276C; purity concept, VI:278B, 304D; resistance characters, VI:276B; surveys, I:194C; Sweden, VI:297-301, 531-33; *see also* Chromosomes - polyploidy
- Plant capacity: shortage, I:49A
- Plant diseases and pests: chemical control, VI:325B-327A, 329C; control, I:85A, 268D; VI:319-24; control by cultural practices, VI:323C, 328D, 332A; control by development of resistant varieties, VI:331B; control by international co-operation, VI:320B, 324A; control in French Overseas territories, VI:333-36; control in Hawaii, VI:330-33; control in Pakistan, VI:327-29; control with fungicides and soil fumigants, VI:330D; dissemination, VI:320A; eradication campaigns, VI:323B; problem of new diseases, VI:321C-323A. "solar energy method" of control, VI:329B; surveys, I:194C
- transportation of pathogens, VI:320B;
- Plant diseases and pests (*cont.*): UK, VI:325-27; *see also* Forest diseases; Insect pests
- Plant exploration, *see* Botanical exploration
- Planting: machinery, VI:187B; precision in, VI:200A
- Plant introduction, VI:532A, 543B; U.S.A., VI:292-96, 530D
- Plant nutrients, *see* Fertilizer materials
- Plant pathogens, *see* Plant diseases and pests
- Plant quarantine, *see* Quarantine, plant
- Plants: adaptation to environment, I:84D; VI:292-96, 530A, 541D; Brazil, VI:70-75; disease-resistant varieties, VI:323D; Egyptian delta lakes, VII:129A; exports from U.S.A., VI:295C; health certification schemes, VI:327A; high-yielding varieties, VI:291D; Plants, cultivated: catalogue proposed by FAO, VI:275C
- Plants, index, *see* Index plants
- Plants, poisonous, VI:523B
- Plant succession: deer in relation to, VII:205B-206A
- Pla-salit: culture in Philippines, VII:143C
- Plastics, I:42A, 141B; from petroleum products, III:74B; Paraná pine as source of, V:317B; use in oil-well cementing, III:13B
- Plastics industry, I:134D
- Plastometer tests of coal, III:159A
- Platinum: as alloying element, II:232D; recovered from copper-nickel ores, I:41C; shortage, I:113B; sources, I:121A
- Ploughing: Argentina, VI:25D-28A; effect on soil, VI:162B; effects, VI:621C; in land reclamation, VI:613A; tests, VI:27A
- Ploughs: improvements, VI:180D-181D; India, VI:176A, 176C
- Plums: storage, VI:369B
- Plywood: preservative treatment, V:275A, 278C
- Poaching: in Western U.S.A., VII:209D
- Point Four Programme (President Truman's), I:33B, 236A, 239C, 254C, 309B, 320D, 429A
- Poland: agreement with Czechoslovakia on development projects, I:59A; agriculture, I:25B; coal industry, III:104-15; conservation activities for school children, I:259B; phosphate deposits, II:272B; potash deposits, II:277D
- Polder waters: fish culture, VII:146D
- Poles, wooden: chemical treatment for durability, V:274D
- Political boundaries: relation to flood control, IV:148-58, 167A, 176A
- Political education: necessary for large-scale developments, I:388D

SUBJECT INDEX FOR VOLUMES I TO VII

- Political measures: for technical development, I:311B
 Pollution, wind, VI:542D
 Pollution of water, *see* Water, polluted; Water pollution
 Polynesians: population restriction, I: 14D
 Polyploidy, *see* Chromosomes polyploidy
 Polysaccharides, starch-like, I:135A
 Polyvinyl chloride: manufacture from petroleum, III:80D
 Ponds: areas, VII:160D; construction, VII:121B, 132A-133C, 149A; dragging, VII:121A; drainage, VII:160B; fertilization, VII:121B, 122C, 135A, 139C-140A, 143C, 149A, 150C, 161A, 162A, 162C; Pond culture of fish, I:411A; IV:121C, 124C; VII:120-24, 131-35, 160B, 161A, 189C; as food source, VII:135B; Borneo and Indo-China, VII:163B; cooperation, VII:121C; Far East, VII:162B; Indonesia, VII:136-38, 163A; Israel, VII:147-50; Japan, VII:134C; Netherlands, VII:146B; New Zealand, VII:152D; Philippines, VII:142-45; relation to soil conservation, VII: 138-42; Sweden, IV:444B-D; Yugoslavia, VII:158B; land-use devise on farms, VII:189B-189C; localities suitable for, VII:132A; management, VII:143B-144D; purification of sewage in, IV:124-27; size, VII:121B; stocking with fish, VII:121D, 122B, 133D-134D, 139B, 143D-144B, 149B, 162A; types of fish for cultivation, VII:121C; utilization, VII:123B-C, 133A; varieties of fish for, VII:131B-132A, 161A; water regulation, VII:133B; yields and food requirement, VII: 132B(*tab.*)
 Ponds, brackish: fertilization, VII:143C; fish culture, VII:163C; Indonesia, VII:137A-D; utilization, India, VII:172B
 Ponds, farm, VI:6A
 development for fishing, VII:140B; relation to erosion, VII:141A; U.S.A., VII:139B-141A
 Ponds, fresh-water: Indonesia, VII:137D
 Ponds, perennial, VII:121B
 Pond sanitation, VII:121A, 133B, 149D, 160D
 Pontamafrey torrent, Valley of the Maurienne (Savoie), V:156D
 Pooling of resources, international, I: 356B
 Pools of technical advisers and experts suggested, I:352C
 Population: Africa, VI:573(*map*): Egypt, I:243D; French tropical Africa, VI:572D; Haiti, I:361C, 365D(*tab.*); Honduras, VI:590B; humid, tropical regions, VI:563B; industrialization and income, I:209(*tab.*); Jamaica, I:295B; Philippines, I:241A; relation to economic development, I:247D; relation to energy production, I:105C; relation to food supply, I:30B, 32A; relation to renewable resources, I:14D; relation to resources, I:15-28, 131A; resettlement, Africa, VI:577C, 582D; resettlement, East Africa, VI:596D; shift from agriculture to industry, I:203A, 209A
 Population density: Bulgaria, IV:382A; Canada, IV:382A; France, IV:382A; Germany, IV:382A; Greece, IV:382A; Italy, IV:382A; Romania, IV:382A; tropics, VI:619A
 U.S.A., IV:382A; Yugoslavia, IV:382A
 Population increase, I:13C, 16C; effect on land and resource values, I:205A; effect on mineral supply, I:40A; relation to farm production, I:18A, 26(*tab.*); relation to food supply, I:202B, 212B; relation to land, I:390D; relation to living standards, I:418C; relation to resources, I:214A, 414C
 Pork: importance in diet, VI:443B; percentages of gross energy in feed eaten, VI:443D; preservation, VI:380A; quality of meat from pigs fed on fish meal, VII:92D(*tab.*)
 Port-au-Prince, Haiti: census, I:366A; middle class, I:361D
 Port Fouad, Egypt: fisheries, VII:127B-130A
 Portland cement: India, II:21D; Pakistan, II:21B; substitute, II:204A
 Portland (Oregon, U.S.A.), Equitable Building, III:213C, 214B
 Porto Rico, *see* Puerto Rico
 Portugal: agriculture, VI:307B; birth rate, I:21B; forest protection, V:72B; tungsten production, I:120A
 Portuguesa, Venezuela: forestry, V:209D
 Posters: use in conservation education, I:287A
 Potash, I:133D;
 Alsace, II:273C;
 as fertilizer, I:38C;
 Australia, II:277B;
 Canada, II:277D;
 Potash (*cont.*):
 China, II:277B;
 Denmark, II:277D;
 estimated world reserves, II:3C, 277B; extraction by evaporation, II:262B; extraction methods, II:273A;
 France, II:121A, 273C, 277D; from waste factory gases, II:280B;
 Germany, II:273C;
 India, II:277D;
 Italy, II:277B;
 Korea, II:277B;
 mining methods, II:121B, 132B;
 Palestine, II:273D;
 Poland, II:277D;
 processing of ores, II:283D;
 production and consumption in Europe, I:61C
 Spain, II:273D;
 Sweden, II:280B;
 Ukraine, II:277B;
 U.S.S.R., II:273D, 277B;
 UK, II:277D;
 U.S.A., II:273B, 277B, 277C, 284A; wastage in mining, II:122A;
see Potassic fertilizers
 Potassic fertilizers, II:273A-274A; VI: 218D, 243D;
 British Caribbean Region, VI:251D, 252B, 253C;
 sources of, II:277A
 Potassium, II:280B;
 from brines, II:277A;
 sources of, II:277A
 Potassium nitrate, II:283D
 Potatoes: breeding, VI:275C, 280C, 281D-282B;
 Canada, VI:197B;
 disease control and adaptation, I:85A;
 disease-resistant varieties, VI:294B;
 diseases, VI:328B;
 harvesting machinery, VI:188D;
 imports from Mexico by U.S.A., VI: 295A;
 seed treatment, VI:326B;
 spraying, VI:326C;
 storage, VI:345D, 378B;
 use for fodder, VI:355C
 Potential scarcity, *see* Metals - potential scarcity
 Pottery, *see* Clay products
 Poultry: diseases, VI:467A, 468B (see also Ranikhet disease); diseases caused by parasites, VI:484B-485A; effect of sunlight on, VI:417B; freezing, VI:365B; parasites, VI:489C; production of human food, VI:438B
 Poultry breeding, VII:228B;
 breeding seasons, VI:388B, 415B;
 hatching results of breeds, VI:389C;
 Netherlands, VI:387-90, 434C;
 UK, VI:434C
 Poultry meat: percentages of gross energy in feed eaten, VI:443D
 Power, *see* Electric power; Energy; Hydroelectric power

UNSCUR PROCEEDINGS: INDEX

- Power generation: use of lower grades of fuel, III:266D
 Power grid: Europe, III:250-55; *see also* Electric power grid
 Power plants: for oil wells, III:11C; fuels, III:292B
 Power plants, mine-mouth: France, III: 256-59
 Power sprayers, *see* Spraying equipment
 Power systems, integrated: III:223-62; as basic mechanism for power supply, III:224-43; automatic control of system frequency and power loading, III:230D; carrier current methods, III:231A; components, III:226C-229A; distribution system, III:228D; economic factors, III:232C-234A; economy of operation, III:248B; Europe, III:250-55; factors favorable to, III:232D; factors unfavorable to, III:233A-234A; interconnexions between systems, III: 231D-232C, 255A; Norway, III:261B; personnel, III:231B-231D; social-economic objectives, III:224B- 225B; synchronous condensers and static capacitors, III:230B; technical bases and requirements, III: 225B-226C; tools, III:229A-231B; transmission requirements in Europe, III:251D-254D; voltage regulation, III:230B
 Power transmission systems: Sweden, IV:424B
 Prague, Czechoslovakia: annual consumption of coal for heating, III:218B (*tab.*)
 annual output of heat energy, III:218D (*tab.*)
 Prairie, VI:510A
 Prairie dogs: reduced in number (U.S.A.), VII:197D
 Prairie provinces, Canada: cropping systems, VI:227D-229A
 Prairie Resources Laboratory, Saskatoon, Canada, I:134D
 Prawns: culture in Indonesia, VII:137B
 Pre-Cambrian shields, I:104A
 Precipitation: records, IV:58B
 Precipitation, induced, IV:6D-25B, 90D- 91D;
 Canada, IV:27-36
 Precipitation, natural: causes, IV:5A-8C; processes, IV:2D;
see also Rainfall; Snow
 Precision planting, *see* Crops - precision of production operations; Planting - precision in
 "Precooling", *see* Refrigeration
 Predatory animals, *see* Animals, predatory
 Prediction: theory of, I:191D
 Preliminary examination: term, I:179B
 Preserves: Haiti, I:361B
 Press drills: use in range land seeding, VI:545C
 Pre-vocational education, I:349B
 Pribilof Islands: fur seal herd, VII:30D- 31A
 Price-fixing: in World Wars, I:204D
 Prices, I:215C;
 lack of reduction, I:308C;
 of farm products, I:19A, 19D, 27A
 Price system vs. conservation, I:203C, 204C
 Prickly pear, VI:547B;
 destruction in Australia, VI:547C;
 elimination, VI:559C
 Prime movers: improvement of efficiency, III:272C;
 trends in development, III:273C-277C;
 utilization of exhaust heat, III:272D
 Prisoner of war camps: starvation in, I:340D
 Private owners of resources: costs of conservation to, I:203D;
 large corporations in relation to con- servation, I:205C;
 prevention of waste by, I:6A
 Privies: as health measure, I:337A
 Probability theory: application to hydro- logical problems, IV:85-90
 Processing of agricultural products: cooperation, I:222A
 Producer gas: generation in the mine, III:151D
 Production: as source of wealth, I:207B;
 balance in relation to consumption, I:51C;
 increased by statistical control, I:190B;
 manufacturing step, I:189D
 Productive land: avoidance for housing, I:67A;
 encroachments on, I:79B;
 factor in international relations, I:76B;
 impermanence, I:74A;
 limitations of supply, I:73D;
 practicability of new areas, I:75A;
see also Farms
 Professional tradition, in under-devel- oped countries, I:315A
 Profit motive: as cause of misuse of resources, I:219D
 Progeny testing, *see* Livestock breeding - progeny testing
 Progil Company (France), V:280B
 "Project Cirrus" (General Electric Com- pany), IV:5C, 8B, 10A-15C
 Pronghorn antelope: increase in numbers on ranges, VII:197C;
 increase in numbers, Wyoming, VII: 202B-202C
 Propaganda: for conservation, I:260A, 289-93
 Propaganda, agricultural: Belgian Congo, I:300B;
 methods, I:297C
 Propylene: chemistry, III:83D
 Prospecting, *see* Mining exploration
 Protection: Egypt, I:244D, 246A;
 Germany, I:206D
 Protection of forests, V:33-74
 Protective coating, *see* Metal-coating
 Protective forests: on mountains, V:78B, 118D
 Protective functions: forests, V:133-74
 Protein: animal food as source, VI:443B;
 from micro-organisms, I:132B;
 human consumption of, VII:11B;
 improved utilization from fat yeast, I: 148B;
 Indonesia, VII:136A;
 in *Rhodotorula gracilis*, I:145B;
 seas as a source of, VII:38B;
 synthesis by yeast, I:152D;
 synthesis from inorganic nitrogen, I: 149A;
 waste products utilization, I:159A
 Protein, vegetal: hydrolyzation, I:159B
 Protein deficiency, I:340C;
 Asia, I:340B;
 in diets of primitive agricultural communities, I:339B
 Protein supply: Israel, VII:147B;
 Philippines, VII:142B
 Prymnesium, *see* Phytoflagellate Prym- nesium parvum
 Psychology: use in conservation educa- tion, I:263C
 Publications: on conservation, I:260A, 276C, 288A, 301A
 Public employment services, I:328A, 331A;
 as labour recruiting agencies, I:348A; recruiting workers for resource develop- ment, I:348C
 Public health: control, I:337A;
 Haiti, I:361-64
 relation to economic development, I:335C;
 techniques, I:325-66;
see also World Health Organization
 Publicity: in labour recruiting, I:332A
 Public land, *see* Land, public
 Public utilities: Chile, I:238D
 Public utility corporation: device for land development, I:218A
Puccinia graminis (stem rust of oats), VI:321A-322D
 Puerto Rico: age distribution, I:22C;
 agriculture, VI:334C;
 cloud study, IV:5C, 6B;
 grassland, VI:557B;
 grazing land, VI:558C
 Pulp and paper industry, V:212D
 Pumps: China, I:226D
 Punjab: climate, IV:212B;
 experiments in artificial breeding of fish, VII:163D;
 grazing land depletion, VI:500D;
 reclamation project, IV:174-77
 Punjab, West, Pakistan: crops, IV:391D, 392B(*tab.*);
 farms, IV:393B;
 gypsum deposits, II:22D;
 irrigation, IV:168C, 355B;
 soils, VI:239B;
 water requirements, IV:391B-393A
 Purdue University (U.S.A.): nutricultural research, I:132B
 Pygmies: example of hunting community, I:338C;
 studies of, VII:225A; 225C
 Pyrenees: forest protective work, V: 154B;
 petroleum exploration, III:4C

SUBJECT INDEX FOR VOLUMES I TO VII

- Pyrethrum insecticides: recommended for control of insects on milk cows, VI: 491D
 Pyrethrum synergists: use against animal parasites, VI:490D
 Pyrites: consumption and production, I:62B;
 France, II:117C
 Pyrites, cupriferous: Sweden, II:63B
 Pyrolysis methods of shale oil recovery, III:52A
- Quail: extinction of native species in New Zealand, VII:235D;
 introduced species in New Zealand, VII:235D;
 preservation by legislation, VII:229A-229B
 Quality: assurance by statistical control, I:190B, 191A;
 common standards, I:191B;
 of farm products, I:27B
 Quantity, *vs.* quality in production, I: 308D
 Quarantine, livestock, VI:493B;
 Argentina, VI:479B
 Quarantine, plant, VI:320B, 322A, 323A, 332B
 Quarrying, II:106-10;
 undercutting, II:128C
 Quartz: Brazil, II:19A
 Quattrofinaite mine (Italy), II:92C
 Quebec (province), Canada: credit unions, I:221D;
 cropping systems, VI:227A-C;
 4-H Clubs, I:259A;
 iron ore deposits, II:13C, 16B;
 iron-titanium ore deposits, II:61D;
 log transportation, V:260A;
 mineral deposits, I:171A;
 titanium, II:16B
 Quebracho, red, *see* Red quebracho
 Queensland, Australia: grazing land depletion, VI:501C;
 minerals, II:53D
 Quick-freezing: use in preservation of crops, I:86A;
 see also Refrigeration
 Quiriquire oil field, Venezuela, III:38B
 Quito, University of (Ecuador), I:316C
- "Rabbing", *see* Burning of paddy seed beds
 Rabbits: destruction of grazing land in Australia, VI:501C;
 reduction in number (U.S.A.), VII: 197D
 Rachitic symptoms: from excess of food yeast, I:154A
 Radar use in aeromagnetic surveys, III: 10A;
 use in fishing, VII:99B
 Radiant heat, III:269A
 Radio: use in fire-fighting, V:49A
 Radio-active isotopes, use in fertilizer, I:85C
 Radio-active minerals, sources, I:121A
 Radio broadcasts, *see* Broadcasting
 Radio location systems, III:10A
 Radio-telephone: use in fishing, VII:99A
- Raglan, New Zealand: fertilizing field trials, VI:550A
 Railway cross-ties, *see* Railway sleepers
 Railway locomotives: fuel, III:265C, 270C
 Railways: corrosion prevention as affecting, II:221C;
 steel substitutes on, II:254D-255C;
 use in preservation of crops, I:86A;
 see also Electrification of railways
 Railway sleepers: chemical treatment for durability, V:274A-D, 278A, 288B-D;
 use of Indian pine, V:277D
 Railway workers: training in U.S.A., I:353A
 Rainfall, I:388D;
 appraisal, IV:64B-66B;
 Argentina, VI:401B, 428A;
 effect on soil, VI:2A;
 surveys, I:194C;
 Tennessee Valley, I:369D;
 UK, IV:41A;
 U.S.A., IV:56B, 94B-C;
 see also Precipitation, natural
 Rainfall, tropical: effect on soils, VI:563C
 Rainfall run-off: appraisal, IV:66B
 Rain forests: Colombia, V:122B-123C;
 forest fires infrequent, V:53B;
 reclamation for agriculture, VI:564C;
 West Africa, V:114-16
 Rain making, *see* Precipitation, induced
 Rain trees, VI:592B
 Rainwater: effect on soil, I:56C
 Rajputana, India: gypsum deposits, II: 22D;
 run-off, IV:76B(*tab.*)
 Rance River estuary, France, III:330B
 Randomization, I:193A, 197B
 Rangeley oil field, Colorado (U.S.A.), III:12C
 Range land, *see* Grassland; Grazing lands; Livestock grazing; United States of America, Western-range lands
 Range management, *see* Grazing lands, management
 Range method: of making sedimentation survey, IV:293B
 Rangiora, New Zealand, I:285D
 Ranikhet disease, VI:469A
 Rape seed: as source of protein, I:344B
 Rastovica, Yugoslavia: insect control, V:67C-69A
 Rats: control in Malaya, VI:590A;
 feeding tests, I:154B;
 food destruction, VI:359C
 Raw materials: accessibility, I:117D;
 assessment, I:236C;
 consumption, I:163B;
 export *vs.* local processing, I:59C;
 imports, I:61A;
 prices, I:205A;
 primary and secondary, I:130A;
 production in community of growing industrialization, I:233C;
 proximity to, factor in economic development, I:49C;
 sea water as source of, II:260C;
 standard of living lowered by sole export of, I:60B;
- Raw materials (*cont.*):
 technical progress not sole determinant of welfare of countries producing them, I:309B;
 UK, I:64C
 Raymond Concrete Pile Company (Venezuela), III:14D
 Rayon production, I:141C, 165A; Chile, 237A; Egypt, 245B
 Rays (fish): North Sea, VII:166A
 Reafforestation, *see* Forest planting
 Reclamation farms: Punjab, IV:393D
 Reclamation of land, *see* Land reclamation
 Reconnaissance: term, I:179B
 Recreation areas: development of reservoirs and waterways for (U.S.A.), IV:436-39;
 see also National parks
 Recreational facilities: as work incentive, I:348D;
 benefits, I:392A;
 for workers, I:329B;
 TVA, I:381A;
 UK, I:64C
 Recruitment of labour, *see* Labour recruiting
 Red algae, VII:185D;
 as source of agar, VII:174B;
 iodine content, VII:179A
 Redfish: unexploited populations, VII: 60D
 Red fox, *see* Fox, red
 Red lead: as inhibitor of metal corrosion, II:225B, 242A
 Red peas: Jamaica, I:294D
 Red quebracho, V:17A, 18C, 19C;
 economics of exploitation, V:192A;
 source of tannin, V:192A
 Red Sea: poor fish production, VII: 127A;
 shark population, VII:44B
 Red spiders, VI:311D
 Reducing gases, I:103A; III:82C
 Reefer King (fishing vessel), VII:104A, 104D
 Reforestation, *see* Forest planting
 Refrigerated trucks: use in preservation of crops, I:86A
 Refrigeration, VI:342B;
 see also Freezing preservation
 Refugees: brought to Canada as skilled labour, I:330A
 Regional cooperation in developing resources, I:58-63
 Regional planning: river basin as unit, IV:37B
 Reheating furnaces: gas as fuel, III:295B
 Reina Del Mar (fishing vessel), VII:106A
 Reindeer: preserved in Norway, VII:210D
 "Relative well-being": term, I:139A
 Renewable resources: mishandling, I: 14A;
 shortages, I:414C;
 soil not to be classified as, I:74B
 Replication, I:193A
 Reproducible experiments: limits, I:188C
 Reproduction: in livestock, VI:411D

UNSCCUR PROCEEDINGS: INDEX

- Reproduction, human, I:17A, 23A, 24A(*tab.*);
changes, I:195B;
decline, I:17D
effect of impact of urban society on agricultural, I:17C
rate, I:17B;
statistical techniques, I:21A
Republic Steel Corporation (U.S.A.), III:167A
Research Laboratory of the Norwegian Canning Industry, VII:177B
Research work: necessary in teaching agriculture, I:359C;
see also Scientific research
Reservoir areas: administration and management, IV:437D-438B;
recreational development (U.S.A.), IV: 436B-438C
Reservoirs: capacity, IV:243D-246A;
fishery resources, VII:123C, 152B;
fishing in, VII:152C;
linings, IV:109B-110C;
relation to soil conservation, VII:160B;
Rio Negro, I:394C;
sedimentation, IV:306-7;
silting, IV:292D-293A;
surveys, I:184A, 184D;
TVA, I:371A, 374D;
use for fish culture, VII:150C
Reservoirs, earth: impermeabilization, IV:108D-110C
Reservoirs, multiple-purpose: U.S.A., IV: 98D
Resins: from petroleum products, III: 74B;
pereiro as source of, V:312-15
Resource development: labour for, I: 346-53;
technological factors, I:59-60
Resources: appraisal, I:167-200;
assessment in relation to industrialization plans, I:231-54;
depletion, I:289B;
development, IV:56D;
economic factors, I:60A-61A;
education in use of, I:219-26;
interdependence, I:7A, 55-69, 418B;
interrelation, I:5D, 416B;
inventories, I:6D, 311C;
joint development by nations, I:59A;
misuse, I:219A;
programmes, I:201-30;
relation of use to history, I:13B;
statistical control of utilization, I: 188-92;
techniques, I:307-23;
utilization, I:192-96, 246D, 257C
utilization in Haiti, I:361A;
world situation, I:11-51
Resources, creatable: *see* Creatable resources
Resources, marine, *see* Marine resources
Resources, renewable: *see* Renewable resources
Resource surveys, I:173-87, 317D, 321B;
financing, I:174-75;
general coverage of area, I:178C, 180C;
inventory, *vs.* "treasure hunting"
method, I:177B;
- Resource surveys (*cont.*):
preceding public improvements, I: 177C;
relation to experiments, I:194A;
schedule, I:178A;
specific fact-gathering in area, I:178C, 180D;
techniques, I:177A
Retarded areas, *see* Under-developed areas
Re-vegetation of grazing land, *see* Grazing land - seeding and restoration
Rhine Commission, I:398B
Rhine River, I:402D; IV:327(*map.*);
erosion, IV:271C;
estuary, VI:611C;
flood control, IV:345D, 346A;
hydro-power developments, IV:135C;
silting, IV:345D;
traffic, IV:343D;
transportation speed, IV:341D
Rhinoceros: behavior when habitat is invaded, VII:219A;
protection in Bengal, IV:447B
Rhinoceros, white, VII:216C, 253B
Rhodesia: chromite production, I:120A;
copper deposits, II:97D-98A;
elimination of rinderpest, VI:497C;
phosphate deposits, II:276D
Rhodesia, Northern, *see* Northern Rhodesia
Rhodesia, Southern, *see* Southern Rhodesia
Rhodotorula (Yeast), I:145A, 414D;
amino-acid composition of protein, I:147D;
component acid composition of fat, I:147D;
fat from, I:144D
Rhodotorula gracilis, I:133A;
cultivation of fat and yeast, I:145C
(*tab.*)
Rhône Basin: development, I:57C, 390A
Rhône River, Switzerland and France, IV:185C;
development, IV:135C, 136B;
financing of development, IV:171D;
power installations, III:298B;
transportation speed, IV:341D
Riboflavin, I:137C;
content of dried yeast, I:153(*tab.*);
in *Rh. gracilis*, I:147D
Rice: drying, I:86A;
export from Ecuador, I:250B;
relation to carp yield, VII:125D;
undermilling, I:342C;
undesirable as field crop in teakwood plantation, V:110C;
varieties, VI:293D
Rice cultivation: China, I:226B, 228A, 228D
Rice-field ponds, VII:138A
Rice paddies: carp culture in, VII:124-26;
construction, VII:126A;
fertilizing for fish production, VII: 125B;
fish culture, VII:123B, 126C;
fish culture, Indonesia, VII:40D;
nitrogen content, VII:125D
- Rice plants: cultivation, VII:126B
Rice production: Africa, VI:577C-578D, 580D;
Belgian Congo, VI:596B;
Brazil, VI:599D-600C;
British Caribbean Region, VI:254C;
Hawaii, VI:195A;
land surveys, VI:589A;
Lebak method, VI:597B;
Malaya, VI:588-90;
south-eastern Asia, VI:259A-260D;
Surinam, VI:565D;
Western Pakistan, VI:240C, 244D
Rinderpest, VI:468A, 471D;
danger of spread through wild animals (Africa), VII:217B;
eradication in South Africa and Rhodesia, VI:497C
Rio Grande, South America, I:394D; VI:402A
Rio Grande Basin, Upper (U.S.A.):
salinity problems, IV:358D-359C
Rio Grande Joint Investigation, IV:359A
Rio Grande Reclamation Project (U.S.A.):
salt concentrations at nine control stations, IV:359(*tab.*)
Rio Grande River, North America:
sedimentation, IV:213B
Rio Negro (Uruguay): dams, I:394C
Rio San Francisco (Brazil): project, I: 57D
Rio Tercero, Argentina, VI:31B
Rippaz torrent, Commune of Magland (Haute-Savoie), V:158A-D
Risk factor: in conservation, I:203B, 212C, 215B
River and harbour programme (U.S.A.), IV:337A;
supervision, IV:335D-336A
conservancy, IV:178-79;
engineering (U.S.A.), IV:425D;
logical unit for land classification and development, I:80B;
management, VI:578C;
unwise land clearing in, I:78B;
value of intangible factors, I:396A
River basin development, I:367-403.
397(*map.*);
comprehensive development, IV:131-72;
economic test, I:395A-395C;
financial aspects, I:389D;
integrated development, IV:162-65, 169D;
key to problems, I:416D;
national value, I:392B;
Netherlands, I:393D;
objectives, IV:132-36, 166D;
unified administration, I:389A;
Uruguay, I:394B;
see also Water resources
River-development projects: construction, IV:256-60;
definition, IV:256B;
experiments with models, IV:257C;
silting, IV:257D
River engineering works: use of scale models in planning, IV:268-73
River hydraulics, *see* Hydraulics, river
River research: scale models, IV:275-76

SUBJECT INDEX FOR VOLUMES I TO VII

- Rivers: Australia, IV:142B; China, IV:322D; development in U.S.A., IV:335-38; erosion problem, IV:271C; fish, VII:145-47; hydrologic studies, IV:52-55; India, I:310D; Philippines, I:241C; regulation in Netherlands, IV:326-31; South Africa, VII:157B; Switzerland, IV:206D-207D; *see also* Waterways
- River silting, *see* Silting
- Roach (fish): transplantation, VII:145D
- Roads: cause of soil erosion, IV:190A; necessary for agricultural settlement, I:82B; Nyasaland, I:285A
- Road transport, *see* Motor fuels
- Robena Mine, Pennsylvania (U.S.A.); coal-mining methods, II:137B-139D
- Rockefeller Foundation: Payne Mission to Haiti, I:362B
- Rockets: attempted use in rain-making, IV:91B
- Rockfish: increased yield possible, VII:30A; *see also* bass, striped
- Rock formations: geologic maps, I:180C
- Rocks: geologic mapping, I:180C
- Rock salt: UK, II:46D
- Rocky Grove, Pennsylvania (U.S.A.), III:48D
- Rocky Mountain front: petroleum resources, III:4A
- Rohita, VII:133A; culture in India, VII:133D
- Romania: consumption of nitrogenous fertilizers, I:61C; use of agricultural equipment, I:61C
- Root crops: storage, VI:369D
- Roots: removal, VI:569B
- Rosa multiflora, *see* Multiflora rose
- Rosefish: annual yield (Atlantic coast, U.S.A.), VII:30A
- Rose hips: preservation, VI:371D
- Rotation in forest planting and cutting, V:79A
- Rotation of crops, *see* Crop rotation
- Rotation of grazing land, VI:460A-C, 496B, 497B, 534D, 555B, 558D
- Rothamsted Experimental Station, VI:210B, 210D, 212B; nutricultural research, I:132B
- Roundworms, VI:483B, 484B
- Row crops, VI:179C-180C
- Royal Commission on the Geographical Location of the Industrial Population (UK), I:66C
- Royal Dutch Shell Group, III:79C
- Royal Institute of Technology, Stockholm, I:145A
- Royal Society (UK): sponsorship of investigation of knowledge of food yeast, I:149B
- Royal Society Empire Scientific Conference, VII:123C
- Royal Statistical Society (UK): objective, I:188B
- Rubber: export from Ecuador, I:250B; manufacture in Philippines, I:242D; soil treatment, VI:262C;
- Rubber, synthetic: from petroleum, III:74A
- Ruhr River, Germany: purification, IV:114B
- Ruhr Valley: coal resources, I:117B, 120D
- Run-off: effects of land management on, IV:193-204; measurements, VI:164D; studies, VI:128A; *see also* Watershed management
- Run-off, flood, *see* Flood run-off
- Run-off of rainfall, *see* Rainfall run-off
- Rupperswil plant, Aar (Switzerland), IV:272C
- Rural advisers, *see* Extension work
- Rural communities, I:407D; public employment services for, I:348D
- Rural electrification, VI:186A; Pacific Northwest, III:305A
- Rural hygiene: in humid tropics, VI:564D
- Rural labour, *see* Labour, agricultural
- Rural land use: adviser (British), I:67A
- Rural leaders: training at Inter-American Institute of Agricultural Sciences, I:355C
- Rural life, I:333A; work of Inter-American Institute of Agricultural Science, I:354C
- Rural population: community action, I:265B; conservation education, I:293A; educability, I:262D; organization for resource conservation and utilization, I:219-26
- Rural school teachers: use in conservation propaganda, I:299B
- Rural services, I:222D
- Russell moving-wall oven, III:159A
- Russia: reproduction rate, I:17B; *see also* U.S.S.R.
- Russian Revolution: effect on population, I:16C
- Rutland, England: iron beds, II:45D
- Rwindi-Rutshuru plain (Belgian Congo): report on fauna of, VII:223D
- Rye, VI:530D; breeding, VI:298A
- Ryegrass, VI:557D; breeding, VI:535A; inbreeding, VI:532D; New Zealand, VI:535A-537B; production in winter, VI:539B
- Ryegrass, Italian, VI:536A-C
- Ryegrass, perennial, VI:535B-536A
- Ryegrass, short-rotation, VI:536C-537A
- Ryegrass, western wolds, VI:537A
- Saar mines: coal washing, III:141D
- Sacramento River, California (U.S.A.); shad stocking, VIII:53A
- Sacramento-San Joaquin Delta, California (U.S.A.): salinity problem, IV:361B
- Sacramento Valley, California (U.S.A.), IV:139B
- Safety measures: needed to prevent labour turnover, I:329B
- Sagebrush, VI:503A, 541D
- Sahel-Sudan: reclamation zones, VI:581A
- St. Anthony Falls Hydraulic Laboratory, University of Minnesota (U.S.A.), IV:281B
- St. Etienne-Cantalès Dam, France, IV:241A
- St. Francis River, U.S.A., VI:604D
- St. Francis Xavier, University of, Antigonish, Nova Scotia, I:220C; adult education, I:220C
- St. Ignace Island Ontario (Canada): overpopulation of moose, VII:255D
- St. Joseph Lead Company (U.S.A.), II:147C
- St. Lawrence River: hydro-electric development, I:105B, 400C, 403A
- St. Michel Dam, France, IV:234D
- Saipan (fishing vessel), VII:106A
- Sal (*Shorea robusta*): India, V:96D; resistance to termites and fungi, V:271B
- Sal de Venado, VI:593B
- Saline soils, *see* Salinity, soil
- Salinity: control, IV:414A; control in Sacramento-San Joaquin Delta, IV:361C-362A; in reservoirs, IV:358D; of Polder-Water (Netherlands), IV:402C-403B; problems in irrigation agriculture, IV:358C-362A; Upper Rio Grande Basin, IV:358D-359C; *see also* Sea water; Water, brackish
- Salinity, soil, VI:129C; control, Israel, IV:414A; in relation to irrigation and drainage, IV:357-62; Netherlands, IV:365C; Punjab, IV:356D, 393D; reclamation in Punjab, IV:393D
- Salmon: Canada, VII:170C; conservation measures needed, VII:30B; experiment in stocking New Zealand rivers, VII:26A; hatching and stocking, VII:146D-147C; increased alaskan yield possible, VII:30A; migration, IV:134C; migration in Norway, VII:14A; New Zealand, VII:153D; Norway, VII:14A-16C, 25A; percentages caught in sea and rivers (Norway), VII:14B; possibility of introducing new species in to Norway, VII:25D; transplantation, VII:53B; unexploited populations, VII:60D
- Salmon, Atlantic, VII:13B; acclimatizing, South Africa, VII:155B; New Zealand, VII:151A; protection of young fish, VII:169B
- Salmon, Australian: in Micronesian region, VII:32C
- Salmon, Chinook: New Zealand, VII:151A; naturalization, South Africa, VII:155B; New Zealand, VII:151A, 151C;

UNSCCUR PROCEEDINGS: INDEX

- Salmon, Chinook (*cont.*) :
 proposal to introduce in Norway, VII: 16C, 25A, 25D
 Salmon, pink: protection of young fish, VII: 169B
 Salmon, quinnat; New Zealand, VII: 151C;
 transplantation to New Zealand, VII: 53B
 Salmon, sockeye: VII:53B, 151B
 Salmon fisheries: catch (1876-1946) in relation to number of bagnets, VII:15 (*graphs*);
 Norway, VII:14A-16C
 Salmon fishing: economic aspects, VII: 117D
 Salmonids, *see* Salmon; Trout
 Salt: importance to chemical industry, I:38C;
 necessary to livestock in hot climates, VI:417D
 Salta, VI:401D
 Salt nuclei process of precipitation, IV: 5C-6D
 Salt water, *see* Salinity; Sea water; water, brackish
 Salvador, El, *see* El Salvador
 Salvadora lode (Bolivia), II:114A
 Saman, *see* Rain trees
 Sample plots for forest surveys, V:4C-D, 12B-16C, 30B
 Sampling methods in forest surveys, V: 4A-5A, 12B-13A
 Sampling surveys: advantages, I:198C
 Samson fox, *see* Fox, Samson
 Sanctuaries, *see* Wildlife refuges; Waterfowl refuges
 Sand: secondary recovery of oil from, III: 49C
 Sand, electrified: use in rain-making, IV:7A
 Sand culture, *see* Nutriculture
 Sand-dunes: binding, VI:31D-33A
 Sand lovegrass, VI:545B
 Sandplum, VI:547B
 Sand reservoirs: petroleum production from, III:30B
 Sand-sage, VI:547B
 Sandstone: pinch-out, lensing, or truncation as cause of oil concentration, III: 3B
 San Gabriel Mountains, California (U.S.A.), IV:307C;
 avalanche control, V:173D
 Sanitation: as factor in mineral utilization, II:15C;
 as objective in river basin development, IV:133A;
 element in food preservation, VI: 342B;
 relation to increased productivity, I:335A
 San Joaquin oil field, Venezuela, III: 18D, 38B
 San Joaquin Valley, California (U.S.A.), IV:139B
 Sankuru, Africa, I:270A
 San Luis Valley, Colorado, (U.S.A.), IV:359B
 Santa Bárbara oil field, Venezuela, III: 38B, 39A
 Santa Bárbara-Jusepin oil area, Venezuela, III:18D
 Santa Fé mine (Bolivia), II:115A
 Santee Cooper project, South Carolina (U.S.A.), IV:456C
 Santiago, Chile: copper plant, I:235D
 Santiago River, Mexico, IV:389B
 São Paulo State, Brazil: shale oil resources, III:63C
 Sap stain: chemical control, V:275A
 Sardine: California catch, VII:64C;
 Japanese production, VII:29C;
 Pacific population, VII:60B;
 West Pacific, VII:32B;
see also Pilchard
 Sardine meal, *see* Fish meal
 Sardine fisheries: research in U.S.A., VII:64C
 Sardinia: lead, II:70-75, 100B;
 mineral production, value, and manpower employment, II:72-73 (*graphs*);
 mineral production, II:70-71A, 72-73 (*graphs*);
 mineral reserves, II:71(*tab.*);
 mineral resources, II:70-75, 100B;
 mining industry, II:70D;
 principal mineral areas, II:74A;
 zinc, II:70-75, 100B
 Sargasso Sea, Atlantic Ocean: utilization of algae from, VII:186C
 Saskatchewan Province Canada: cropping systems, VI:227D-229A;
 forest conservation, V:180B
 potash deposits, II:277D
 Sassafras: source of essential oils, V: 299A
 Saudi Arabia: agricultural improvement, I:272C;
 irrigation and crop production, IV: 385-88;
 oil fields, I:99D
 Saury fishing: annual catch (Japan), VII:100A;
 by drift-net in north-eastern sea of Honshu, Japan, VII:101C(*map*);
 by lift-net, VII:101D(*map*);
 using lift-net and light, VII:100A-102D
 Savanna regions: Equatorial Africa, VI:579C
 Savanna wood: utilization, V:48B
 Sava River, Yugoslavia: carp stocking, VII:159D
 Sawah ponds, *see* Rice-field ponds
 Sawlogs: production and transportation, V:238D
 Sawmill refuse: composition, V:305B-306A;
 utilization, V:305-10
 Sawmills: Chile, I:238B
 glossary of terms, V:223A-C;
 importance of proper erection, V:222A;
 Siam, V:228B-229C;
 types, V:217D-221;
 U.S.A., V:217-23
 Sawmills, co-operative, I:222C
 Sawmills, portable, V:237D, 244D, 264A
 Sawmill techniques: Belgium, V:231-33;
 debarking before sawing, V:222D;
 dimension-stock sawing, V:222B;
 hardwood practices, V:227-30;
 New Zealand, V:225-27;
 sawing for grade, V:222D-223;
 softwood sawing practices (New Zealand), V:226A-D;
 Sweden, V:230;
 Thailand, V:227-30
 Saws: toothed, V:231D-233A
 Saws, chain, V:235B-C
 Saws, power-driven, V:264A
 Scallions: Jamaica, I:294D
 Scandinavian countries: electric power, III:253D;
 forest protection, V:72A
Scenedesmus obliquus, I:133B
 Scheldt River, Western Europe, IV:327 (*map*):
 estuary, VI:61C
 Schlumberger Company, III:4C
 Scholarships: for Haitian agricultural students, I:360B
 School courses in conservation, I:258B, 276B, 290-92;
 Africa, I:298-300;
 British colonies, I:273D;
 Cuba, I:279-82
 School farms: Nigeria, I:302B-304C
 School gardens, I:274A
 School of Manual Arts, Venezuela, I: 318C
 Schools: necessary for agricultural settlement, I:82B
 Science: applications, I:415D, 422B;
 fuller use in peace time, I:2C;
 international aspects, I:4A;
 value to humanity, I:4D, 424C
 Scientific communications service, at Inter-American Institute of Agricultural Sciences, I:355C
 Scientific institutions: collaboration between, I:359D;
see also Cultural institutions
 Scientific knowledge: use in conservation education, I:263B;
 widespread dissemination of, I:263B
 Scientific methods: in utilizing raw materials, I:189C;
 limitations, I:191D
 Scientific papers: use for conservation education, I:288A
 Scientific research: Africa, I:277C;
 India, I:312C
 Scientists: advice on agricultural investigations, I:195D;
 dissemination of knowledge on conservation, I:73A;
 need of making arguments clear to consumers, I:175B, 176A;
 exchange of views, I:407C
 Scotland: agriculture, VI:384A-385A;
 brown algae, VII:186A;
 deer hunting, VII:210B;
 deer population, VII:256D;
 experiments with plaice propagation, VII:51B, 58A, 58B;
 fishing statistics, VII:166A;
 grazing land, VI:506-9;

Scotland (*cont.*):
 shooting code, VII:250B-250C
 — Department of Agriculture, VI:
 384A;
 Scott Committee, *see* Committee on Land
 Utilization in Rural Areas
 Scottish Plant Breeding Station, VI:280A
 Scottish Seaweed Research Association,
 VII:174D
 Scrap aluminium, II:28B, 198C
 Scrap copper, II:26B-27B
 Scrap iron, II:29B;
 conservation practices, II:173C-174B;
 use of oxygen in smelting, II:182A;
 war-time use, II:173C
 Scrap lead, II:27B-27D
 Scrap metal: conservation of, II:173B;
 element in world's store of metals,
 II:26A;
 importance as raw material, II:25C;
 importance as source of non-ferrous
 metals, II:197D;
 industrial applications, II:24-32, 38C;
 industry in U.S.A., II:34A;
 recovery factor, II:29C(*tab.*);
 refining, II:198D;
 re-use, I:41C;
 sources, II:24B, 24D;
 storing, II:199D;
see also Metals-in-use
 Scrap nickel, II:29A
 Scrap steel, II:205B;
 from open-hearth slag dumps, II:
 150B;
 importance, II:173B
 Scrap tin, II:28D
 Scrap zinc, II:27D-28B
 Scurvy: effect on productivity, I:336D
 Sea, *see* Ocean
 Sea bass, *see* Bass, sea
 Sea-bed: importance of study in fisheries
 investigation, VII:62B
 Sea fisheries, *see* Fisheries
 Sea Horse (fishing vessel), VII:103D
 Seal: further utilization possible, VII:30D
 Seal, Atlantic: breeding stations, VII:
 251D;
 products from, VII:251D;
 status in UK, VII:250-52
 Sea lochs, Scotland: fertilization, VII:
 162C-D
 Sea Plain, Israel: fish culture, VII:148C
 Seaports: development, IV:343D-344A
 Searles Lake, California (U.S.A.): potash
 deposits, II:273C, 284A
 Sea trout, *see* Trout, sea
 Sea-water: as source of magnesia and
 magnesium, II:257-61;
 as source of raw materials, II:260C;
 chemical analysis of, II:258A(*tab.*);
 mineral analysis of, II:258C(*tab.*);
 productiveness, I:133D;
 utilization, I:7C; IV:98-102, 128A-
 129A;
see also Water, brackish
 Seaweed: France, VII:180-83;
 harvesting, VII:182B-D;
 iodine compounds, VII:178D;
 preservation, VII:183C;

Seaweed (*cont.*):
 quantitative assessment, VII:175B-D;
 trace elements, VII:178B-D;
 use as fertilizer, I:57D;
 use as food, VII:182D;
 use for soil improvement, VII:183C;
 useful products from, I:131D, 133C;
 utilization, Norway, VII:177-80;
 utilization, UK, VII:174-77;
see also Algae; Kelp
 Seaweed, brown, *see* Brown algae
 Seaweed, sub-littoral: mechanical har-
 vesting, VII:176B-D;
 utilization of cast, VII:175D
 Seaweed beds, littoral: Scotland, VII:
 175A
 Seaweed colloids, VII:178C
 Seaweed industry: products, VII:183A
 Seaweed meal: animal feeding, VII:179B;
 digestibility, VII:179C;
 effect on animal diseases, VII:178D
 Seaweed proteins: digestibility, VII:
 179C-180A
 Secondary raw materials, *see* Renewable
 resources
 Sediment: transportation by flowing
 streams, IV:281C
 Sedimentary basin: defined, I:95B;
 distribution, I:95B, 109B;
 distribution of petroleum, III:7A;
 unconformities, I:96B
 Sedimentary rocks: distribution of petro-
 leum, I:109A;
 incidence, I:95B;
 petroleum accumulations, I:95B
 Sedimentation, *see* Siltting
 Seed beds: preparation, VI:179D;
 requirements, VI:199D
 Seeded pastures, *see* Grazing lands -
 seeding and restoration
 Seeding: by aircraft, VI:550C-551C;
 machinery, VI:187B;
 of range lands, VI:544D-545D;
 systems, VI:558D;
 through cattle droppings, VI:558D,
 559C
 Seeding of clouds, *see* Precipitation,
 induced
 Seed production, VI:531C, 533B;
 for forage plants, VI:541D, 542D-543B
 Seeds: chemical treatment, I:85B;
 improvement, I:33B;
 improvement in Indonesia, I:90A;
 pelleting with fertilizers, VI:559A;
 selection of disease free, VI:332A;
 storage, VI:343B-D
 Seed treatment: for plant disease control,
 VI:325B-326B
 Seepage, IV:212C
 Seine River, France: transportation
 speed, IV:341D
 Seismic methods in oil finding, III:4C, 7D
 Selection, *see* Livestock breeding-selec-
 tion; natural selection
 Selenium: toxicity, VI:452D
 Semal, V:84B
 Semen: shipment, VI:394A
 Semi-arid regions: Argentina, VI:23-34;
 Brazil, VI:70-75;
 Venezuela, VI:301-3
 Semi-precious stones: Brazil, II:19B
 Senegal Basin, West Africa: fish culture,
 VII:162C
 Senegal River, Africa: regulation, VI:
 578D, 581A
 Senna tree, VI:591D
 Sentein, France: lead and zinc mines,
 II:118C
 Serpentine superphosphate: future of,
 II:287B
 Serrières-en-Chautagne, Savoie (France):
 landslide, V:162-68
 Settling chambers, for metal recovery
 from waste gases, II:183B-184C
 Severn Barrage Scheme (UK), III:227B
 Sewage: purification, IV:124-27;
 reclamation in Israel, IV:130B;
 reclamation in U.S.A., IV:99D;
 stream pollution by, IV:111-15
 Sewell, Chile, I:119B
 Seyssel Dam, France, IV:220D
 Shad: conservation measures needed,
 VII:30B;
 transplantation, VII:52D-53A
 Shale: research on, III:59B
 Shale-oil: Brazil, III:62A;
 composition, III:54A;
 economic considerations, III:56D, 61B;
 mining, III:57-59;
 refining, III:61A;
 research on, III:59B;
 retorting methods of production, III:
 92A;
 Sweden, III:51-57;
 U.S.A., III:57A, 91D
 Shale oil recovery: Industrimetoder
 system, III:52C;
 Ljungström system, III:52C;
 pyrolysis methods, III:52A;
 Rockesholm system, III:52C
 Shansi Province, China: terracing, I:
 228A
 Shari basin, Africa: regulation, VI:579A
 Shark: Red Sea population of, VII:44B
 Shark fisheries: Africa, VII:63A;
 Atlantic coast, annual catch, VII:33B;
 Pacific coast, annual catch, VII:33B;
 South Africa, annual catch, VII:33C
 Shark liver oil: chemical properties,
 VII:46A(*tab.*);
 physical properties, VII:46A(*tab.*);
 project for exploitation of, VII:46C;
 vitamin content, VII:44D
 Shasta Dam, California (U.S.A.), IV:
 139B; 139D
 Shasta Lake, California (U.S.A.), VI:
 603A
 Shearwater, sooty: population estimates,
 New Zealand, VII:234C
 Sheep: adaptability to snow and frost,
 VI:418B;
 browsing habits, VI:418B;
 danger from grass seed, VI:418C;
 diseases, VI:468B, 471B, 497C
(see also Sheep-pox; Sheep scab);
 diseases caused by parasites, VI:483A,
 487A;
 effect of low temperature on, VI:415C;
 effect of nutrition on, VI:419B;
 fat deposits, VI:418A;

- Sheep (cont.) :**
- French tropical Africa, VI:576A;
 - grazing, VI:504A;
 - inheritance of skin folding, VI:397B;
 - parasites, VI:489C;
 - spraying and dipping, VI:496B;
 - susceptibility to stomach worms, VI:497A;
 - tests of effect on grasslands, VI:520B;
 - weight gain, VI:515C;
 - see also* Ewes; Lambs
- Sheep breeding, VI:386D;**
- Argentina, VI:402C-407C, 429B-C;
 - breeding season, VI:414D, 415B;
 - disappearance in France, VI:496D;
 - experiments, VI:426A;
 - fleece weight, VI:395B;
 - on Navajo Indian Reservation (U.S.A.), VI:425B
 - selection, VI:432C;
 - selection of techniques, VI:397-99;
 - Tunisia, VI:610B
- Sheep-pox, VI:469A**
- Sheep scab, VI:487B;**
- campaign against in Argentina, VI:495A;
 - eradication in Australia and New Zealand, VI:471B, 487D, 488A
- Sheep scab mite, VI:487D**
- Sheep tick: eradication, VI:492C**
- Shellfish: increased production possible, VII:33C;**
- unexploited resources, VII:30C
- Shellfish industry: Netherlands, VII:47-51**
- Shell Group (Venezuela), III:16A**
- Shell Oil Company, I:250D**
- Shelterbelts: U.S.A., V:143B-144D, 172A; Yugoslavia, V:147-48**
- Shipbuilding: aluminium alloys in, II:248C**
- Shippegan, Canada, I:223B**
- Shipping regulations on livestock, *see* Livestock - shipping regulations**
- Ships: fuel, III:265D**
- Ships' plate: cathodic protection of, II:230A;**
- wastage by corrosion, II:221B
- Shrimp: Alaskan waters unexploited, VII:30A;**
- harvesting in Philippines, VII:144D;
 - South Atlantic and Gulf coasts, VII:33D
- Shrubs, noxious, *see* Woody plants, noxious**
- Sianyuan, China, IV:310A**
- Siberia: forests, I:143D;**
- phosphate deposits, II:271D
- Sicily: characteristics of sulphur deposits, II:87A-88D;**
- genetic characteristics of sulphur deposits, II:88D-90D;
 - sulphur migration, II:90D-91C
- Sickness: costs, I:335A**
- Siderite, Austria, II:164D**
- Sierra Leone, West Africa: iron deposits, I:120B;**
- minerals, II:102B
- Siglo Veinte lode (Bolivia), II:114D**
- Sigmolina oil zone, Venezuela, III:39B**
- Si-kiang, *see* West River**
- Silage, VI:350B-352C, 355A, 508C;**
- effect on grassland, VI:554A;
 - Netherlands, VI:451A
- Silesia: coal fields, I:120C**
- Silica: abundant supply, I:42C**
- Silicates: as inhibitors of metal corrosion, II:229B**
- Silicon: as alloying element, II:232B**
- Silicon carbide, I:42C**
- Silicone compounds: as metal-coating material, II:223D**
- Sillimanite: India, II:68D**
- Silos, VI:354D, 356-58;**
- see also* Silage
- Silt, I:388D;**
- experiments, IV:255A;
 - load of streams, IV:291D-292D;
 - origin, IV:291A-C;
 - see also* Desilting works
- Siltation, VI:623A**
- Silting, IV:271B; control, IV:291-96, 306-8;**
- China, IV:322D;
 - estimation of rate, IV:293B-295D;
 - measurement, IV:291-96;
 - reservoirs, IV:213C, 292D-293A;
 - surveys, IV:293A
- Silt problem: North China Plain, IV:309-14**
- Silver: as alloying element, II:232D;**
- Peru, I:124A;
 - Philippines, I:242B;
 - price control in London, I:127A;
 - shortage, I:113B
- Silver iodide: use in cloud-seeding, IV:9D, 20A, 91A**
- Silvicultural Conferences (India), V:11-13**
- Silviculture, V:3C**
- application of statistical methods, V:99D;
 - artificial regeneration, V:98B;
 - control of forest diseases by, V:56D;
 - coppice system, V:77C, 98A;
 - definition, V:96A;
 - economic principles, V:92C;
 - mixture of species, V:92A;
 - research programmes, V:93B-95C;
 - Taungya method, V:200D;
 - techniques, V:82D-83A, 90-95;
 - techniques in Burma, V:117-20;
 - techniques in India, V:95-100;
 - theory of compensatory plantations, V:97D;
 - West Africa, V:114-16;
 - see also* Forest management; Forest planting
- Sin Bou An, China, IV:310A**
- Sinclair Oil Company, III:39A**
- Sind, West Pakistan: soil fertility, VI:244B**
- Sind Government Experiment Station, Karachi, (Pakistan), IV:274D**
- Singhbhum, India, I:114C**
- Sintering, II:172C; III:184C**
- Sires, *see* Livestock breeding-sires**
- Skadar Basin, Yugoslavia, IV:397C-398D**
- Skate: North Sea, VII:166A**
- Skellefte district, Sweden, II:62B**
- Skill requirements, for development projects, I:347C, 350A**
- Skunkbush, VI:547B**
- Slaughter-houses: prophylactic inspection in Argentina, VI:494D;**
- regulations in Argentina, VI:480B
- Sleeping sickness: campaigns against by Pasteur Institutes, I:344C**
- Sleet: protection of power systems against, III:230A**
- Slides: use in conservation education, I:287B, 290C**
- Slope farming, *see* Hillside farming**
- Small holdings: relation to soil conservation, VI:50D;**
- Uganda, I:297D;
 - see also* Farms, small
- Smallpox: Haiti, I:363C**
- Smelting furnaces, electric: III:187 (illus.):**
- Tysland-Hole furnace, III:188C, 194B
- Smelting industries: consumption of electricity, I:103A**
- Smith-Putnam turbine, III:311D**
- Smithsonian Institution (U.S.A.), IV:438D, 439A**
- Snake weed, VI:503A**
- Snapper: harvesting in Philippines, VII:144D**
- Snow: effect on sheep, VI:418B;**
- study of, V:154A
- Snow storms, IV:16B**
- Snowy River, Australia: diversion scheme, IV:141-47, 167A, 167C**
- Soaking pits: gas as fuel, III:295B**
- Soap: disadvantages, III:79C;**
- manufacture in Egypt, I:245C
- Soap-waste: use in ponds, VII:122D**
- Socavon Patino lode (Bolivia), II:114D**
- Social aggregates: food supply in terms of, I:212A**
- Social change: produced by extension education, I:263D**
- Social groups: teaching, I:269C**
- Society of American Foresters, VII:197B**
- Soda: use in hardwood pulping, V:293C**
- Sodium alginate: production from seaweed, VII:178A**
- Sodium alkyl sulphates: manufacture from petroleum, III:79B**
- Sodium fluoride: in treatment of roundworms, VI:484B**
- Sodium nitrate: methods of recovery, II:284C;**
- preservative for meat, VII:90D, 114A
- Sodium nitrite: preservative for fish, VII:90D**
- Sodium salts: India, II:69A**
- Softwood: sawing practices (*see* Sawmill techniques - softwood sawing practices)**
- Soil biology, VI:160-63**
- Soil chemistry, VI:163C;**
- study, I:57A
- Soil classification, I:85D; IV:355D; VI:114A;**
- Guatemala, VI:111D
- Soil colloids, VI:213B-215A**

SUBJECT INDEX FOR VOLUMES I TO VII

- Soil conservation, I:32C, 56B, 73-83, 77-83, 407D, 426B; antiquity, VI:2B; Argentina, VI:23-34, 66-67; banquette method, VI:608C; basic technology, I:73B; Burma, VI:13-16; by reclamation management, IV:366-69; Canada, VI:120-22, 196-98; China, I:228B; Colombia, VI:89-94; combination of measures, VI:3A; costs, I:203C; Cyprus, VI:10-12; decentralizing administration, VI:59A; design of structures, IV:279D-280C; economics, VI:75-79, 95-97; education, I:292B; effect of mechanization on, VI:189-91; El Salvador, VI:17-21; engineering techniques, I:311C; farmers' interest in, I:82D; farming systems in relation to, VI:79-85; farm practices, VI:2-9, 230-32; government subsidies, VI:110B; Guatemala, VI:62-66; history, VI:95A-96A; impossible for poor farmers, I:81A; inorganic fertilizers as factor in, II:282A; international cooperation, VI:42B; Italy, IV:178-79; land-use regulations as aid, VI:35-43; local organization, VI:59B-C; main hope of civilization, I:76B; methods of organization, VI:62-66; Mexico, VI:68-70; national organization, VI:56-60; New Zealand, I:285-89; VI:445-50, 555D; North Africa, VI:609B; North China plain, IV:310D-311D; Norway, VI:43-49; Nyasaland, I:283-85; Pakistan, VI:6-9; Philippines, I:241B; physical methods, VI:2-9, 13-21; private investment in, VI:77C-78B; programmes, VI:55-111; propaganda in Africa, I:261B; propaganda in Jamaica, I:261B; public contributions to, VI:78B-D, 80B, 84D-85C; relation to forests, I:409C; relation to pond culture of fishes, VII:138-42; research, VI:58B; role of grassland, VI:548-52; scientific knowledge, I:74A, 75B; social aspects, VI:77A; Switzerland, IV:183-85; VI:61-62; teaching of methods, VI:66-67; technicians, VI:59D; U.S.A., I:266A; VI:85-88; varied benefits, I:75D; Soil deficiencies, VI:440B; Soil erosion, *see* Erosion
- Soil fertility, VI:187B; conservation, VI:129A; cycle, VI:520C-521C; interrelated with forests and water supply, I:14B, 317B; New Zealand, VI:517-21; relation to nutrition, I:340A; Surinam, VI:565D
- Soil key: for undeveloped regions, I:183B
- Soilless culture, *see* Nutriculture
- Soil loss: studies, VI:128A
- Soil management, VI:97-102, 260D
- Soil maps, I:79D; VI:114A, 160B, 168A; India, VI:126C; need of, I:57A, 87D; principal uses, VI:115A
- Soil percolation, I:75C; VI:215A-216D
- Soil physics, VI:163B
- Soil productivity, *see* Land - Soil fertility; productivity
- Soil research, I:85C; India, VI:128-30; relation to soil conservation, VI:128-30, 163-67
- Soil research, biological, VI:160-63
- Soils: as mineral resource, II:281B; Brazil, VI:136-38; burning (*see* Burning - effect on soils); calcium content, VI:213-16; characteristics in relation to irrigation and drainage, IV:357-62; crop yield, I:182D; detailed surveys, I:182B; effect of irrigation on, IV:356B; effect of water control on, IV:355-57; French tropical Africa, VI:572A-C; geologic maps, I:180C; India, VI:620C; in relation to metal corrosion, II:236C; in resource survey, I:173C; inventories, VI:58C; investigation for land settlement, VI:615A; Jamaica, I:294B; Java, IV:353C; "mining" cf, I:426A; moisture, IV:356B, 358B; organic matter, VI:160-63; reactions of forests on, V:136D; reconnaissance surveys, I:181C; relation of water control to (Netherlands), IV:363-65; relationship of characteristics to irrigation programmes (Indonesia), IV:353-55; relation to livestock breeding, VI:496D; removal, I:74B (*see also* Erosion); semi-detailed surveys, I:181D; structure, VI:236A; structure in relation to irrigation, IV:358B; Tennessee Valley, I:370A; texture, IV:356B; texture in relation to irrigation, IV:358A; utilization control, IV:368D; waterlogging, IV:356C; weights, IV:356A
- Soils, alkaline, VI:129D; India, 566D
- Soils, alluvial, VI:601D
- Soils, calcareous, IV:320C
- Soils, cultivable; depletion, I:290A
- Soils, ground-water laterites, VI:620B
- Soils, laterite, *see* Laterite soils
- Soils, limestone, *see* Limestone soils
- Soils, loess, *see* Loess soil
- Soils, marl, *see* Marl soils
- Soils, natural: *vs.* managed productivity, I:85D
- Soils, primary: U.S.A., IV:357D
- Soils, saline, *see* Salinity, soil
- Soils, sandy: reclamation, VI:31D-33A
- Soils, secondary: U.S.A., IV:357D-358A
- Soils, tropical, VI:620B
- Soil salinity, *see* Salinity, soil
- Soil scientists, VI:119C
- Soil surveys, I:181-83, 194C, 311C; V:32B; VI:209B-D; Austria, VI:130-35; Canada, VI:120-22; Chile, I:237C; costs, VI:118D; data, VI:118B; India, VI:126-27; international co-operation, VI:119B; interpretation, VI:116A; methods, VI:115B, 130-35; Mexico, VI:172A; New Zealand, VI:123-24; Philippines, I:241B; relation to soil conservation, VI:114-24, 126-35; relation to soil productivity, VI:125-26; UK, VI:125-26; *see also* Index plants
- Soil tests, VI:170C, 217-20
- Soil treatment: for plant disease control, VI:326B
- Soil utilization: Mexico, VI:68-70
- Solar energy, I:102B; Dead Sea, I:392D; for evaporation of brine, II:261-64; Sweden, I:415A; U.S.A., III:215-18; utilization, I:7B
- Solar heat, III:215-18; efficiency of collection, III:216B; storage, III:216B
- Sole: Egyptian delta lakes, VII:130A
- Solikamsk-Bereziniki, U.S.S.R.: potash deposits, II:273D
- Sologne, France, IV:186C-188A
- Sorbitol, I:134D
- Sorghum, I:134C; *see also* Dura
- Soupfin (fishing vessel), VII:106D
- South Africa, Union of: barriers to employment of natives, I:351B; capital export, I:19C; coal fields, I:120D; forest policy, V:180D; decline of veldt, VI:503B; elimination of rinderpest, VI:497C; fisheries, VII:154-57; grazing research programs, VI:505B; land-use legislation, VI:39C; livestock imports, VI:471A; national parks, VII:210C;

UNSCUR PROCEEDINGS: INDEX

- South Africa, Union of (*cont.*):
 phosphate deposits, II:276D
 — Division of Fisheries, VII:36D
 — Forest Products Institute, V:272C
 — National Park Administration, VII:
 217A
- South America: agricultural pattern, I:
 339B;
 anchovy off west coast, VII:60C;
 botanical exploration, VI:295A;
 economic development, I:316C;
 fat deficiency, I:132D;
 forests, 36A, 143D;
 latent fisheries resources, VII:36B;
 mineral exploration, II:48-51, 55B;
 outlook for mineral discovery, II:50A;
 population before 19th cent., I:17C;
 possible ore deposits, I:41B;
 projected population, industrialization
 and income, I:209(*tab*);
 prospects of fisheries expansion, VII:
 33A;
 tuna resources, VII:62B;
 undiscovered petroleum reserves, I:
 100B;
 unused land, I:19B
- South Australia: grazing land depletion,
 VI:50C
- South Carolina, U.S.A.: forest survey,
 V:8B
- South Celebes: fish culture, VII:137C
- Southeastern Electric Exchange (U.S.A.),
 III:214B
- Southeastern Experiment Stations,
 (U.S.A.), VI:453B
- Southern California Edison Company
 (U.S.A.): use of heat pumps, III:213B
- Southern Research Institute, Birmingham,
 Alabama (U.S.A.), III:149B, 214B
- Southern Rhodesia: barriers to employment
 of natives, I:351B;
 coal fields, I:120D
 land-use legislation, VI:39D
 — Game Department, VII:217A;
- South Holland, Netherlands: reclamation
 of war-flooded areas, IV:403D
- South Island, New Zealand: agriculture,
 VI:540C;
 erosion, VI:124B-D;
 fish culture, VII:151A, 151C
- Southwestern Range and Sheep Breeding
 Laboratory, Fort Wingate, New Mexico
 (U.S.A.), VI:426A-B
- Sovereign* (fishing vessel), VII:103D
- Sowing time: in insect control, VI:
 312D;
 in plant disease control, VI:328D
- Soybean meal: fermentation, I:137B
- Soybeans: chemurgy, I:137B;
 drying, I:86A;
 experiments in southeastern U.S.A.,
 I:86C;
 in diet, I:345C
- Space heating, *see* Heating
- Spade fish: harvesting in Philippines,
 VII:144D
- Spain: agriculture, I:25B;
 birth rate, I:21B;
- Spain (*cont.*):
 experiments in rain-making with
 rockets, IV:91B;
 phosphate deposits, II:272B;
 potash deposits, II:273D
- Spark-ignition engines, III:287A
- Spartina grass, VI:611D
- Specialists: training of, I:360A
- Specialization, industrial, I:244C
- Species: combinations, VI:277D
- Specifications: manufacturing step, I:
 189D
- Spencer, Cape, Alaska: fishing grounds,
 VII:18B
- Spillways, *see* Dams - spillways
- Spitsbergen: coal resources, III:173B;
 increase in navigation period resulting
 from temperature rise, VII:9A;
 rise in average winter temperature for
 period of 1930-1940, VII:8D
- Sponge iron, II:206D, 210C;
 production, III:180A-182A
- Spraying: for plant disease control, VI:
 326C
- Spraying equipment: for livestock, VI:
 491A
- Spraying of forests, *see* Forests - spraying
- Springbok (Union of South Africa), VII:
 253D
- Springs: inventories, I:184D;
 reconnaissance of, I:184A
- Spruce: source of essential oils, V:299A;
 pulping by sulphite process, I:142C
- Spruce, black, *see* Black spruce
- Spruce budworms, V:59B
- Spruce sawfly, VI:316C
- Staffordshire, England: coal fields, II:45C
- Stainless steel: alloying elements used
 to produce, II:231D-232D;
 manufacture, II:206A
- Standardizing, international, I:191B
- Standard of living, I:417-18;
 affected by world prices, I:309A;
 aim of Conference, I:5C;
 criteria, I:119D;
 effect on productivity, I:336D;
 factor in depletion of minerals, I:40B;
 Haiti, I:362A;
 higher, a key to peace, I:2B;
 history, I:424B;
 increases, I:212B;
 inequalities, I:327B;
 main objective of United Nations, I:
 308B;
 metals in relation to, II:97A;
 possibility of raising, I:420C;
 post-war, I:59n;
 raised through "know-how", I:7B;
 relation to industrialization, I:243B;
 relation to metals, I:113-21;
 relation to peace, I:425C;
 relation to population in Egypt, I:244B;
 role of light metals, II:251B;
 Venezuela, I:239D, 240A;
- Standard of living, rural, I:353B
- Standard Oil Company of Bolivia, II:82C
- Stanley Dam, Cauvery River (India),
 IV:448C
- Starch: enzymatic degradation and synthesis of components, I:135A
- Starlings: damage to crops, VII:236D;
 problem of controlling, VII:237A
- Starting materials, I:131C;
 agricultural products as, I:157;
 for grazing lands, VI:530C
- Starvation, *see* Food supply
- Starvation, chronic, I:340C
- Stassfurt, Germany: potash deposits, II:273C, 283D
- State enterprise: credit claimed for
 higher living standards, I:118C
- Statistical control: contributions to industry, I:190A;
 future of, I:190D;
 theory of, I:189C
- Statistical methods: application to forest inventories, V:6-13, 30D;
 in resource appraisal and utilization, I:196-200
- Statistics: application to industrial problems, I:188-92, 193A;
 international comparisons, I:200B
 of fisheries, VII:68-83
- Steam power: Finland, III:307D-308D;
 Sweden, III:248B
- Steam turbines, III:295B;
 condensing units, III:278B;
 for integrated power systems, III:
 226D
- Stearns-Rogers Manufacturing Company,
 II:143B
- Steatite: India, II:69A
- Stebnik, U.S.S.R.: potash deposits, II:
 273D
- Steel: annual loss due to rusting, II:
 218D;
 basic to industrial revolution, I:119D;
 consumption in Europe, I:61B;
 cost of corrosion prevention in Germany,
 II:241B;
 cost of corrosion prevention in UK
 II:219B;
 design as factor in conserving, II:
 204C;
 for oil well drilling, III:11B;
 future trends in manufacture, II:
 176A;
 importance of pre-coating treatment,
 II:225C-226A;
 manganese conservation in, II:175B;
 metallurgy, I:407B;
per capita consumption as index of
 material civilization, II:5B;
 production in Europe, I:62D;
 surface preparation to prevent corrosion, II:220D;
see also Building materials
- Steel, stainless, *see* Stainless steel
- Steel industry, *see* Iron and steel industry
- Steel-mill workers: standards of living, I:118A
- Steel-borer: control through fish breeding, VII:123B
- Stem rust, *see* *Puccinia graminis*
- Stend Agricultural School (Norway), VI:45D
- Stereoscope: use in aerial mapping, V:
 21C, 32A

SUBJECT INDEX FOR VOLUMES I TO VII

- Sterility: in cows, VI:441B-442A, 458B, 458D-459A
 Stewart Mountain Dam, Arizona (U.S.A.), IV:250D
 Stewarts and Lloyds Ltd. (UK), II:160C
 Stomach worms, VI:483A
 Stony Gorge Dam, California (U.S.A.), IV:253B
 Storage: of farm products, I:316A
 Storehouses: equipment, VI:356A
 Storms, self-perpetuating, IV:91D
 Stratus clouds, *see* Clouds, stratus
 Straw, VI:259C, 298A;
 burning, VI:190D;
 prehydrolysates, I:147a
 Stream banks: revegetation, VII:189A
 Stream control, IV:111-15;
 effect on water yields, IV:205-9
 Stream diversion: China, I:226D, 227B
 Stream flow, I:388D;
 analyses of data, I:184C;
 effect of forests on, V:134D;
 records, IV:58A
 Stream gauging: geologic mapping, I: 180C
 Stream pollution, *see* Water pollution
 Streams: classification, IV:113B
 Streams, international: importance of agreement on development of, IV: 374C
 Streptomycin, I:137C
 Strip-cropping, I:75B, 217A, 217B, 218B; VI:165A, 228C;
 Burma, VI:15C;
 El Salvador, VI:17C;
 Mediterranean area, I:57A;
 Pakistan, VI:8B;
 Uganda, I:297A, 297C;
 use to combat wind erosion, VI:31A;
 see also Contour strip-cropping
 Strip mining, I:79A;
 India, III:117-19;
 Strongyloides, VI:484A
 Strontium: India, I:116B
 Stubble-mulching, I:75B, 75C; VI:166A-D, 228D, 259C
 Stud breeding, *see* Livestock breeding - stud breeding
 Students: advanced training abroad, I: 313C
 Styrene compounds: as metal-coating material, II:223C
 Styrian Iron Mountain: siderite deposit, II:164D
 Sub-arid regions: protection against soil deterioration, I:57B
 Sub-irrigation culture, *see* Nutriculture
 Sublimation nuclei, *see* Nuclei - types in atmosphere
 Submarginal farms, *see* Farms, submarginal
 Subsistence farming: British colonies, I:315D
 Subsoil: crop production experiment, I:74C;
 production in, I:74B
 Substitute materials, I:412C;
 development, I:7C, 13D;
 see also Fuels, synthetic
 Substitutes for metals, I:41D
 Sub-tropics: agricultural research needed in, I:87A
 Sucrose: transformations, I:134D
 Sudan: fish culture, VII:162C, 163C;
 ownership of date palms, I:217C
 Sudan-Guinea: reclamation zones, VI: 581A
 Sudan Plantations Syndicate, I:217C, 218B
 Sudbury, Ontario (Canada), I:41C
 Suez Canal: profitability, I:169B
 Sugar: Cuba, I:353A;
 Egypt, I:245B;
 Uganda, I:297A
 Sugar, wood, *see* Wood sugar
 Sugar beet industry: northern Europe, I:305B
 Sugar-beet production: Canada, VI:197B; France, VI:606D;
 harvesting machinery, VI:188C;
 Morocco, VI:618D;
 UK, VI:190A
 Sugarbeets, I:414D;
 breeding, VI:281A;
 disease control and adaptation, I:85A;
 hybridization, I:85A;
 seed treatment, VI:325C
 Sugarcane: disease control, VI:335A;
 disease-resistant varieties, VI:331B;
 diseases, VI:327B;
 Indonesia, I:89B;
 production, British Caribbean Region, VI:250B-252A;
 production, Hawaii, VI:192C-193D;
 production, Western Pakistan, VI:240B
 Sugarcane growers: associations of, VI: 263B
 Sugarcane molasses, *see* Molasses, sugarcane
 Sukumaland, East Africa: agricultural development, VI:585-88;
 organization for agricultural development, VI:586B
 Sulphamezathine: in treatment of coccidioides, VI:487C
 Sulphate industry: Sweden, I:415A
 Sulphide ores: prospecting in northern Sweden, II:62-63
 Sulphite: use in pulping, V:293C, 320C
 Sulphite industry: Sweden, I:415A;
 waste, I:134C
 Sulphite process, I:142A
 Sulphur: banded ore theory, II:92B-93C;
 export from U.S.A. to Europe, I:62B;
 importance to chemical industry, I: 38C;
 Italy, II:85-95;
 possible bacterial origin, II:85C-86B;
 production from petroleum, III:31A;
 theories of origin of deposits, II:85-95
 Sulphuric acid, I:62C;
 in treatment of tropical kudzu, VI: 558C;
 in weed prevention, VI:558C;
 Peru, I:124A
 Sumac, VI:547B
 Sumatra: Indonesia; continental shelf, I:100A;
 irrigation, VI:564A
 Sundown (fishing vessel), VII:104D
 Sun drying of foods, I:86A
 Sun energy, *see* Solar energy
 Sunfish: culture in U.S.A., VII:139B;
 stocking of farm ponds with, VII:189C;
 transplantation, VII:145D
 Sunflowers, VI:595A
 Sunlight: effect on livestock, VI:417B-D
 Supercooled clouds, *see* Clouds, supercooled
 Superior, Lake: iron ore deposits, I:56A; II:6B, 49A
 Superior Oil Company (U.S.A.), III:2C
 Superphosphate: in fertilizers, II:279D-280B;
 manufacture, II:283A;
 manufacture in Egypt, I:245C;
 reverting with serpentine, II:286C;
 spraying by aircraft, VI:549B
 Supersonic waves: detection devices employing, VII:95B
 Superstitions: interference with agricultural progress, I:315B
 Supervisory workmen, *see* Foremen
 Surface tension: factors in efficiency of secondary oil recovery, III:50A
 Surface water, *see* Water, surface
 Surinam or Dutch Guiana: agricultural development, VI:564D-566C;
 bauxite deposits, I:120B; II:247B;
 fish cultivation in irrigated fields, VII:41A;
 land colonization, VI:620D;
 land reclamation, VI:565D
 Surveys of resources, *see* Resource surveys
 Satleg Valley canal project, West Pakistan, I:274D; IV:391E
 Svalof Swedish Seed Association, VI: 532C
 Svea coal mines (Norway), III:173C
 Swamps: development into fish ponds, VII:144D
 Sward, non-leguminous, VI:518D
 Sweating: in animals, VI:417D, 433A
 Sweden: agriculture, I:18B, 24D; VI:
 182-85;
 birth rate, I:21A;
 blast-furnace practice, III:176-83;
 capital export, I:19C;
 cereal crops, VI:297-301;
 electric power systems, III:247-49;
 fertilizer industry, II:278-80;
 fish catch (1947), VII:90A;
 fluctuations in herring fishing, VII:4D;
 forest management, V:85-88;
 forestry, I:14C;
 forest surveys, V:2-5, 9-11;
 game, VII:210C;
 hydro-electric power, III:328D;
 industrialization, I:60B;
 iron ore, I:56A;
 iron ore reserves, II:6C;
 mineral conservation, II:203-4;
 mining methods, II:110-15;
 moose population, VII:255C, 255D;
 phosphate deposits, II:276D, 278D;
 plant breeding, VI:531-33;
 potash deposits, II:280B;
 preservation of foodstuffs, VI:370-74;
 protection of fisheries, IV:439-45;

- Sweden (*cont.*):
 protection of wildlife, IV:445A;
 saw mill industry, V:230;
 shale oil industry, III:51-57;
 wood-pulp industry, V:289-91;
 sterility in cows, VI:458B;
 sulphide ores prospecting, II:62-63;
 training of supervisory workmen, I:
 351A;
 use of multipurpose food, I:344A;
 water power, IV:422-25;
 water supply, IV:102-4;
 wildlife important in farm economy,
 VII:208A
 — Agricultural Research Council, VI:
 370B;
 — Central Operating Management
 (*Centrala Driftledningen, CDL*), Swe-
 den, III:248D; IV:424D
 — Forest Research Institute, V:10A,
 86A-88C, 287
 — Royal Board of Waterfalls, IV:441B
 — State Institute of Fresh-Water
 Fishery Research, Drottningholm, IV:
 443C
 — State Power Board, IV:424B
 Swedish Hunters' Association, IV:445B
 Swedish Salmon and Trout Association,
 IV:444B
 Swine: diseases, VI:466D, 498C (*see also*
 Swine fever);
 diseases caused by parasites, VI:483D-
 484B;
 effect of heat on, VI:417B;
 effect of low temperature on, VI:415C;
 effect of nutrition on, VI:419B;
 effect of sunlight on, VI:417B;
 feeding, VI:459B;
 feeding on fish by-products, VII:92B
 (*tab.*), 115B;
 milk as feed, VI:484B;
 production efficiency, VI:438D;
 production of human food, VI:438B;
 skin color, VI:417D;
 winter shelter, VI:441A;
 see also Peccary; Pork; Wild boars
 Swine breeding, VI:386C, 434D;
 changes in different characters, VI:390
 (*tab.*);
 Denmark, VI:390B;
 selection, VI:432C
 Swine fever: methods of control, VI:466D
 Switzerland: agriculture, VI:61-62;
 capital export, I:19C;
 forest legislation, V:177A;
 forest protective work, V:154B;
 heat pumps, III:213B;
 training of supervisory workmen, I:
 351A;
 use of agricultural equipment, I:61C;
 water control, IV:183-85, 205-9
 — Federal Institute of Forest Research,
 Zurich, V:153A
 — Federal Water Supply Department,
 IV:135B;
 Symposium: as a teaching device, Inter-
 American Institute of Agricultural
 Sciences, I:355B
- Syndicat général des industries de traite-
 ment des sous-produits de la pêche
 maritime (France), VII:111C
 Synthetic ammonia process of nitrogen
 fixation, II:275D
 Synthetic food, I:414C, 421A;
 to supply balanced diet, I:343D;
 see also Multipurpose food
 Synthetic fuel, *see* Fuel, synthetic
 Synthetic liquid fuel: economic aspects,
 III:327D;
 see also Petroleum, synthetic
 Synthetic Liquid Fuels Act, (U.S.A.,
 1944), III:57B
 Synthetic products, I:103B;
 chemicals used in, I:42B;
 used in place of metals, I:42A
 Synthetic resin industry, I:134D
 Synthetic rubber, *see* Rubber, synthetic
 Synthetic scrap, II:173D
 Syphilis: effect on productivity, I:336D
 Syria: effects of forest destruction, V:
 135C;
 grazing land depletion, VI:501A;
 strip cultivation, I:217A;
 water resources, IV:149D
 Szczecin, harbour of Czech-Polish border,
 I:59B
- Taboos: in land use, I:217A
 Tachira, Venezuela, V:209D
 Tacoma, Washington (U.S.A.): financing
 of public undertakings, I:391C
 Taconite, II:7B, 143D, 148C, 172B
 Tagouinit, Morocco: agricultural experi-
 ment, VI:617B
 Taiping Rebellion: effect on population,
 I:17C
 Taiwan: fish culture, VII:135B
 Takerne, Lake, Sweden, IV:445C
 Tallapoosa River, Alabama and Georgia
 (U.S.A.), IV:426D
 Tambaks, *see* Ponds, brackish
 Tanganyika, East Africa: game depart-
 ment, VII:216D;
 Mlalo rehabilitation scheme, VI:88-89;
 see also Sukumaland
 Tanks, spawning, VII:133A
 Tannin: extraction from wood residues,
 V:299B
 Tannin compounds: as inhibitors of metal
 corrosion, II:229B
 Tanning: Latin America, V:321A
 Tanning wood, V:18C
 Tannin industry: Argentina, V:192A-B
 Tantalum: as alloying element, II:232D;
 Brazil, II:19A;
 Cuba, II:80B;
 new uses, I:40C
 Tapeworms, VI:483C;
 preventive action against in Argentina,
 VI:494D
 Tar, coal, *see* Coal tar
 Tariff laws: U.S.A., I:234B
 Taro: Hawaii, VI:195A
 Tar paint: as metal coating material,
 II:223D
 Tarpon: harvesting in Philippines, VII:
 144D
 Tars: hydrogenation, III:96D
- Tartrates: from winery wastes, I:134C
 Tasmania: brown algae, VII:185D;
 Nacrocystis Pyrifera, I:133D
 Taungya method, *see* Silviculture —
 Taungya method
 Taxation: effect on game conservation
 in UK, VII:209B;
 mineral production, I:119C
 Tax-delinquent land: public recreation
 rights preserved, VII:199C
 Tax legislation: suited to growing in-
 dustrialization, I:233D
 Taylor Grazing Districts, VI:527C
 TDE: effects on milk, VI:491C;
 relative harmlessness, VI:491B;
 use against animal parasites, VI:489D
 Tea: Nyasaland, I:284C;
 Uganda, I:297A
 Teachers: training in Nigeria, I:302C
 Teachers' colleges: courses in conser-
 vation, I:270D;
 New Zealand, I:286A
 Teak: Burma, V:117B-118D;
 India, V:98B;
 Java, V:106-14;
 milling method, V:228A;
 resistance to marine borers, V:271D
 Teak Selection System, *see* Teak —
 Burma
 Technical assistance: to peasants, VI:
 263A
 Technical assistance programme, *see*
 United Nations — technical assistance
 Technical development: history, I:308C
 Technical schools: for industrial training,
 I:328B;
 importation of trained personnel, I:
 313C
 Technical services: for conservation, I:
 290A
 Technicians: Chile, I:238B;
 disavowal of concern for national use
 of resources in Germany, I:207A;
 for oil production, III:37D;
 lack of, in Philippines, I:243A;
 lack of, in under-developed areas,
 I:337A;
 necessary for economic development,
 I:6C;
 need of, I:407C;
 need of cooperation with economists,
 VI:622C;
 need of making arguments clear to
 consumers, I:175B, 176A;
 recruiting, I:352B;
 training, I:248A, 250A, 271A, 311B,
 311C, 313B, 314D, 353-56;
 training abroad, I:352C;
 training in Ecuador, I:316D;
 training in Haiti, I:357-60
 Technique: definition, I:308B
 Technological knowledge, I:60A
 Technological research, I:192B
 Technology: application to agriculture,
 I:353D;
 fuller use in peace time, I:2C
 Teddington, England: food yeast pro-
 duction, I:149-51
 Telephone cables: use of lead in, II:195A

SUBJECT INDEX FOR VOLUMES I TO VII

- Telluric method in oil finding, *see* Electric methods in oil finding
- Temperate climates: agriculture, VI: 209-13
- Temperature: element in food preservation, VI:342B; records, IV:58B
- Temperature, air: effect on livestock breeding, VI:415C-417B
- Temperature control in animals, VI:498C
- Tenants, I:219D; protection in Argentina, I:268B; risks in competitive system, I:205D
- Tench: culture, Israel, VII:148A; use for hatching and stocking, VII: 145D-146D
- Tennessee, U.S.A.: phosphate deposits, II:271C
- Tennessee River, U.S.A.: government resources necessary for harnessing, I: 369C; navigation, I:377C; traffic, I:371B; under TVA, I:380C
- Tennessee River system, I:370D
- Tennessee Valley: conservation of natural resources, I:413C; dam construction, IV:320C; depletion of resources in, I:379D; drainage, IV:169D; per capita income (1933), I:370A
- Tennessee Valley Authority (U.S.A.), I: 105B, 290A, 369-85; IV:37B, 137A, 455B; accomplishments, I:408A; Act of 1933, I:370C; as method of integration and decentralization, I:373-75; benefits, I:57C, 369D; complementary use of steam and hydro power, IV:458A; connexions with adjacent power systems, III:261D; costs, I:384A; economic progress due to, I:372A; evidence of interdependence of resources, I:2C; experience, I:367-85; financial aspects, I:371C; fish culture in reservoirs, VII:123C; impact upon region, I:379-83; impulse to development, I:6B; industrial development under, I:376-79; major problems, I:369-70; organization, I:373D, 402B; purpose of development, I:370D; recreation opportunities, I:372B; relation to public, IV:166B; technical element, I:389C; "test-demonstration" farms, VI:101B
- Tennessee Valley Fertilizer Cooperative, I:377C
- Ten pounders: harvesting in Philippines, VII:144D
- Terms of trade, I:206D(*tab.*)
- Terracing, I:57A, 75B, 88B; Burma, VI:15B; China, I:228A; El Salvador, VI:18A-19A; Italy, V:169C;
- Terracing (*cont.*): Pakistan, VI:7D; tropics, VI:564A; U.S.A., VI:3D-4B
- Tertiary sequence of rocks: in continental shelves, I:97C
- Teso District, Uganda, I:297C
- Test-demonstration farms: Tennessee Valley, I:381D
- Teszin-Gieszyn, Czech-Polish border, I:59B
- Texas, U.S.A.: beef cattle, VI:423C; continental shelf, I:97A, 97B; elimination of noxious shrubs, VI: 546B; potash deposits, II:277C; secondary oil recovery operations, III: 50D
- Texas fever, VI:472B
- Texas fever tick: eradication, VI:472B
- Textile industry: Chile, I:236D; Egypt, I:244C, 245A; Philippines, I:242D; use of algae, VII:186D
- Textularia oil zone, Venezuela, III:39B
- Thailand: agriculture, VI:260D, 262B; fish culture, VII:135C; fish culture in ponds, VI:122B; metal resources and exports, I:II4D; sawmill techniques, V:227-30; water supply, IV:101B
- Thal Project, Pakistan, IV:391B
- Thallium: recovery from lead-zinc refineries, I:41C
- Thermal insulation, *see* Insulation of buildings
- Thermal power generation, III:278-83; by-products, III:282A; costs, III:280A; improvement in boiler efficiency, III: 279D; superposed units, III:279D; use of electrically-driven auxiliaries, III:279D; use of hydrogen cooling, III:279C; use of regenerative feedwater heating, III:279E; use of re-superheating, III:278D; Thiamin: in *Rh. gracilis*, I:147D
- Thorium (monazite): Cuba, II:80B; India, I:114C, 116C; required for atomic energy, I:312B
- Three-field system, *see* Strip cropping
- Threshing, VI:177B
- Thunderstorms: prevention, IV:19D-20A
- Tick fever: immunization, VI:429C-430C
- Ticks, VI:489B; resistance to insecticides, VI:492D
- Tidal power: experiments in utilization in France, III:330B; for integrated power systems, III:227B
- Tide, lunar: effect ascertained by statistical methods, I:199D
- Tien Shui Soil and Water Conservation Station (China), I:228B
- Tigris River: flood control, I:393C; utilization, IV:148-58
- Tigris Valley: development proposed, I:2C; irrigation projects, IV:151B, 167A
- Tilapia, I:411A; VII:122A, 161C, 162B, 162C, 163B; culture, Israel, VII:148A; Egyptian delta lakes, VII:129C
- Tilapia mossambica*, VII:123D
- Tilcara Mountains, Argentina, VI:402A
- Tiles, *see* Clay products
- Tillage, VI:180D-181D, 186D, 210B, 228D; Algeria, VI:608A-D; effect on soil, VI:45D, 162A; El Salvador, VI:19A; implements, VI:178D; in insect control, VI:312C, 317A; Pakistan, VI:9A; precision, VI:200B; relation to soil conservation, VI:187A; surveys, I:194C; *see also* After-cultivation
- Tillage, subsurface, VI:28C-31A
- Timber: as factor in mineral utilization, II:15C; consumption, I:20C; damage caused by *Platypus cylindrus* and *Xyleborus monographus*, V:283D-284A; economy necessary, I:59D; "toxicity", V:283A-D; grading, V:229D; post-war demand, India, V:83B; trade agreements, I:62C; *see also* Forests
- Timber diseases, *see* Forest diseases
- Timber experts: cooperation with forestry experts, I:37C
- Timber-floating: effect on fish, IV:443A
- Timber industry: Haiti, I:361B
- Time studies: in mining, II:110D-111A
- Timing of resource development, I:208C
- Timothy, VI:530D; inbreeding, VI:532D; New Zealand, VI:537C
- Tin: as alloying element, II:232C; as cathodic coating, II:224B; Asia, I:116C; Belgian Congo, I:169A; Bolivia, I:120C; Burma, I:114C; depletion, I:407A; diminishing reserves, I:113B; estimated world reserves, II:3C; exported from Far East, I:113D; found only in regions of acid granites, I:169C; French West Africa, I:169A; Peru, I:124A; production since 1900, I:39D; recovery from tailings, II:144B; relative scarcity, I:39C; shortage, I:42A; sources, I:121A; southeast Asiatic countries, I:114D; UK, II:47C; ways to conserve, II:201C; *see also* Pig-tin
- Tin, scrap: *see* Scrap tin
- Tin cans: metal wastage through jettisoning, II:244B; substitutes for tinplate in dairy cans, II:256C

UNSCUR PROCEEDINGS: INDEX

- Tinian* (fishing vessel), VII:106A
 Tin mining: Bolivia, II:114A-115D
 Tinsplate: conservation by use of aluminum alloys, II:256C;
 electrolytic production and its benefits, II:191-93
 Tissa River, Central Europe: carp stocking, VII:159D
 Titanium: amount in earth's crust, I:39B;
 as alloying element, II:232A;
 as replacement of stainless steels, I:412C;
 as substitute for stainless steel, II: 253D;
 Canada, II:267C;
 corrosion resistance, II:253A;
 Cuba, II:80C;
 from low-grade ores, II:149D;
 future of, II:250D, 252-54;
 India, I:114C, 116C; II:68B;
 Labrador, II:13C;
 method of extraction, II:252B;
 new uses, I:40C;
 probable ore reserves, II:267B;
 future cost, II:253B;
 raw materials, I:407B
 Tobacco: disease control and adaptation, I:85A;
 drying, I:86A;
 Jamaica, I:294D;
 Nyasaland, I:284C
 Tobacco production: Australia, VI:615D;
 Canada, VI:197B.
 Tobar (fish): Egyptian delta lakes, VII: 130A
 Tolerance range: for manufactured products, I:189B;
 minimized by statistical control, I: 190C
 Tomatoes: disease control, VI:331A;
 disease-resistant varieties, VI:331D;
 hybridization, I:85A;
 Jamaica, I:294D;
 storage, VI:364A, 369C;
 wilt-resistant variety, VI:294B
 Tools: common ownership of, VI:583D
 Topographic maps, I:179D-80B;
 basis of resource survey, I:178B;
 essential for land-use surveys, I:79D;
 essential to vegetation surveys, I:185C;
 lack of, I:176B;
 U.S.A., I:176D
 Topography: basis of resource survey, I:173C, 177A;
 in relation to mineral utilization, II:14D
 Topsoil: crop production as compared to subsoil, I:74C;
 destruction through mechanization, VI:564C;
 reduction, I:32B
 Torrents: control methods, V:155-61, 168-70;
 relation to forests, V:152B-153C
 Torry Research Station (England): fish preservation experiments, VII:93C
 Torsion balance: use in oil finding, III:4B
 Torula yeast, I:414D
Torulopsis lipotera, I:133A
Torulopsis utilis, I:132C, 145B;
 growth rate, I:150B;
 logarithms of total population, I: 150C-52, 155(*fig.*);
 reproduction adversely affected by certain salts and by amino acids and peptides, I:156A;
 temperature effect, I:156C;
 use as food, I:149B
 Towing systems: U.S.A., IV:349A
 Town and Country Planning Act (UK, 1947), I:67C
 Town planning: UK, I:66D
 Toxaphene: toxicity, VI:491B;
 use against animal parasites, VI:489D, 490B
 Trace elements, VI:213A
 Trachoma: Haiti, I:363C
 Traction: average hook efficiency, III: 290(*diag.*)
 Tractors, VI:183D, 186B;
 operation costs of diesel and gasoline engines compared, III:284(*diag.*);
 UK, VI:189B
 Tractors, crawler, V:235D, 238A
 Trade: between under-developed and industrialized countries, I:59C;
 conditions for expansion, I:60C;
see also Terms of trade
 Trade, international, I:425D
 Trade agreements, I:60A
 Trade balance, *see* Balance of trade
 Trade centers, I:120D
 Trade unions: as labour recruiting agencies, I:348A;
 consultation in labour recruiting, I: 332A;
 Haiti, I:361D;
 interest in conservation, I:420D
 Traditional foodstuffs: substitutes for, I:343D
 Traditions: labour recruitment must fit, I:331D
 Transect method (for appraising bird populations), VII:230C
 Trans-Jordan, I:400D; grazing land depletion, VI:501A
 Transmission, electric: *see* Electric transmission
 Transplantation of fish, *see* Fish - transplantation
 Transportation, I:415C;
 as factor in utilization of mine products, II:14B;
 Chile, I:238D;
 Egypt, I:246A;
 factor in economic development, I: 49C;
 for growing industrial area, I:234A;
 for workers, I:329B;
 importance to agricultural development, I:317C;
 increase of useful load through light-metal construction, II:254D;
 of mine products, I:170C;
 UK, I:64D
 Transportation, water, *see* Water transport
 Transvaal: gold fields, II:61B
 Trash cover, *see* Stubble mulching
 Trawlers, VII:117D-118A;
 number registered in England and Wales (1899-1913), VII:166C(*diag.*)
 Trawling, VII:32C-33A;
 average annual income and expenditure for (1929-34), VII:22A;
 designation of areas suitable for, VII: 62B-C, 63B;
 North Sea, VII:166A
 Tree crops, VI:262C;
 Africa, VI:584B;
 in humid tropics, VI:563D
 "Tree Days", I:259B
 Tree planting: Italy, V:169C;
 New Zealand, VI:448A;
 tropics, VI:563D;
see also Forest planting
 Trees: annual growth, V:3B;
 felling, V:3D;
 girdling, V:247D, 249C, 265A;
 growth measurement, V:130A;
 Honduras, VI:591B-593C;
 import prohibition of certain species in UK, V:61A;
 study of species in forest area, V:2D;
 tropics, VI:619B;
see also Forests
 Trichinopoly (South India): gypsum deposits, II:22D
 Trichomoniasis, VI:482B, 489C
 Trichomoniasis, bovine, VI:466D
 Trichostrongyles, VI:483B
 Trinidad: agriculture, VI:269A
 Triumph Pool, Pennsylvania: use of vacuum in, III:46D
 Trondheimsfjord, Norway: experimental hatching of plaice, VII:58B
 Tropical and subtropical waters: types of fish, VII:31B-32C
 Tropical forests, *see* Forests, tropical
 Tropics: agricultural research needed in, I:87A, 87C;
 agriculture (*see* Agriculture, tropical);
 effect of under-nutrition on workers, I:341B;
 fresh-water fishery resources, I:312A;
 increased cultivation, I:32D-33A;
 land resources, I:47B;
 livestock breeding, VI:422C;
 nutrition problems, I:338A, 342C;
 soil fertility, I:315D;
 soil survey, I:183A;
 training of technicians, I:353-56;
 use of scientific farming methods, I: 89B
 Trout, VII:133D;
 culture, Japan, VII:133B;
 culture, Yugoslavia, VII:159D;
 effect of water-works on, VII:152C;
 naturalization, South Africa, VII: 155A-157C;
 New Zealand, VII:152C, 153D;
 productivity, South Africa, VII:157C;
 stocking, New Zealand, VII:152A;
 transplantation, VII:53B
 Trout, brown, VII:13B;
 New Zealand, VII:151B, 151C;
 South Africa, VII:155B

SUBJECT INDEX FOR VOLUMES I TO VII

- Trout, rainbow: culture, Israel, VII: 147D;
New Zealand, VII:151B, 151C;
South Africa, VII:155B;
transplantation to New Zealand, VII: 53B
- Trout, sea, VII:13B; hatching and stocking, VII:146D-147C;
Norway, VII:14A
- Trucks: operating costs of gasoline and diesel, III:289(*diag.*)
- Trucks for logging, 239D-241A
- Trypanosomiasis, VI:497D;
attempts to control (Northern Rhodesia), VII:221D-222B;
conference on (1948), VII:217D
- Tsetse fly, VI:489B, 497D;
carriers of trypanosomes, VII:220D;
conference on (1948), VII:217C;
control attempts, Northern Rhodesia, VII:221D-222B, 227B;
destruction, VI:621A;
destruction, East Africa, VI:586A, 586C;
disappearance from Kruger National Park, VI:497D
- Tuberculosis: effect of under-nutrition, I:341A;
effect on productivity, I:336D;
Haiti, I:363C;
transmission from animals to man, VI:498A
- Tuberculosis in cattle: control, VI:466B, 472C
control in Denmark, VI:474A-D
- Tuberculosis in man: infection from cattle, VI:474A
- Tucuman Province, Argentina, VI:401D;
erosion, VI:158C-159A
- Tula River, Mexico, IV:389C
- Tumut River proposals, Australia, IV: 146B-D
- Tuna: annual world catch, VII:31B;
Asiatic species, VII:60D;
in eastern tropical waters of the Atlantic, VII:63B;
in South American waters, VII:62B;
knowledge of habits useful in fishery, VII:64B;
need of research on migrations and composition of stocks, VII:31B;
Pacific population, VII:60B;
potential development, VII:31D;
tropical waters, VII:31C
- Tuna fishing: economic aspects, VII:117D
- Tung nuts: introduction into U.S.A., VI:294B
- Tungsten, I:120A;
Asia, I:116D;
as molybdenum byproduct, II:150B;
Brazil, II:19A;
Burma, I:114C;
China, I:114C;
Cuba, II:80C;
diminishing reserves, I:113B;
essential to steel industry, I:38C;
estimated world reserves, II:2D;
exports from Far East, I:113D, 114A;
France, II:116C;
from low-grade ores, II:149D;
- Tungsten (*cont.*):
production since 1900, I:39D;
reserves in U.S.A., I:59n
UK, II:47D
- Tung tree: Nyasaland, I:284C
- Tunisia: agriculture, VI:610;
land reclamation, VI:610;
phosphate deposits, II:272A, 272C
- Tunny, *see* Tuna
- Turbo-jet engines, III:275B, 287C
- Turbot: North Sea, VII:166A;
potential development, VII:30B
- Turkey: botanical exploration, VI:295A;
chromite production, I:120A;
land ownership, I:217B;
plant exports to U.S.A., VI:295A;
use of electric power, I:61C;
water resources, IV:149D
- Turner Valley Field, Alberta, I:100C
- Turpentine: wood pulp by-product, V: 291C
- Turrialba, Costa Rica: *see* Inter-American Institute of Agricultural Sciences
- Turrialba Journal, I:355C
- TVA, *see* Tennessee Valley Authority
- Twenty Grand (fishing vessel), VII:103D
- Twins: in sheep, VI:415B;
weakness of, VI:497C
- Typhoid: Haiti, I:363D
- Typhus epidemic: effect on population, I:16C
- Ubangi, Central Africa: forests, VI:579B
- Ucuuba tree, VI:599A
- Uganda, East Central Africa: agricultural education, I:296-98;
climate and topography, I:296B;
forest policy, V:179B;
game, VII:216C;
livestock feeding, VI:526B;
phosphate deposits, II:276D;
power scheme on Lake Victoria, IV: 84D
— Game Department, VII:216D
- Ukiriguru, Suknumaland, VI:586C
- Ukraine: potash deposits, II:277B
- Ultrasonic method for treating factory gases, II:188C
- Ultra-violet light: use in ore prospecting, I:41B
- Uncertainty principle, I:197B
- Unconformities, *see* Sedimentary basin — unconformities
- Undecalactone, I:158D
- Undecylenic acid, I:158D
- Under-developed areas, I:310B;
agricultural labour, I:331C;
agricultural programs for, I:87B;
agricultural research needed in, I:87A;
assessing resources in relation to industrialization, I:235-39;
capital for development, I:419D;
credit, I:60D;
credit costs, I:205A;
definition, I:346B;
diet, I:343B;
economic development, I:246B;
education, I:315B;
energy and fuel not only factors in development, I:50D;
- Under-developed areas (*cont.*):
food supply, I:211D;
human resources, I:336A;
impulse to development needed, I:6B;
industrialization and income, I:210
(chart);
industrialization of, I:207B, 213C, 215D, 232C, 250-53;
labour, I:327-34, 347B;
labour relations, I:327D;
lag in substitution of power machines for manual labour, I:327A;
livestock breeding, VI:432A, 432C, 433D;
mineral deposits, I:412D;
mining exploration, I:169B;
necessity for control of livestock diseases, VI:497C;
outside aid for industrialization, I: 407C;
pre-employment training, I:350D;
present most serious conservation problem, I:416B;
resource surveys, I:178D;
resource techniques, I:307-23;
soil survey, I:183A;
technical aid to, I:2C, 427A;
terms of trade unfavorable, I:208B;
trade with industrialized countries, I: 59C;
training of young workers, I:350A;
unfavorable local economic and social conditions, I:419D;
utilization of resources, I:202B;
waterway development, IV:347D, 348D, 349D;
youth training programmes, I:349D;
see also Partially developed areas
- Underground water, *see* Water, underground
- Under-nutrition: effect on work output, I:341D;
effects on health, I:340D;
relation to resistance to infection, I: 341A
- Understocking, *see* Livestock breeding — management
- Undulant fever: infection from cattle, VI:475A; *see also* Brucellosis
- Unemployment: Haiti, I:361D
- Unemployment, technological: in logging, V:264C, 265A
- Union of Associations for Artificial Insemination (Denmark), VI:393A
- Union of South Africa, *see* South Africa, Union of
- Union of Soviet Socialist Republics:
accelerated industrialization, I:20A;
age table, I:22C;
coal gasification experiments, III:152A, 154B
coal industry, III:154B, 155C;
electrical development, I:50A;
fertility rate, I:17D, 23A, 24A;
forest resources and consumption, I: 35D;
industrialization, I:60B;
coal and iron resources, I:117B; II: 7A;

UNSCCUR PROCEEDINGS: INDEX

Union of Soviet Socialist Republics
 (cont.):
 lack of statistics on minerals, I:39B;
 manganese production, I:120A;
 mineral deposits, I:171A;
 natural resources, I:58n;
 phosphate deposits, II:271D;
 population transfers, I:19B;
 potash deposits, II:273D, 277B;
 standard farm land, I:27C;
 undeveloped land, I:32D

Unit control: in Iranian oil fields, III: 31A

United Kingdom: agriculture, I:18B, 24D; VI:178-80, 189-91, 221-24, 325-27, 515A;
 alginic acid production, I:134B;
 anhydrite, II:46D;
 ball clay, II:46D;
 barytes, II:47B;
 capital export, I:19C;
 china clay, II:46C;
 coal and iron resources, I:117B;
 coal mining, III:124C;
 cobalt deficiency in animal diet, VI: 454C;
 coking industry, III:158-64;
 copper deficiency in animal diet, VI: 455B;
 corrosion prevention, II:218-22;
 effect of rise in food prices, I:19D;
 economic difficulties, I:384D;
 economic planning, I:252B;
 electric energy, III:244-47;
 evaporites, II:46D;
 experiments with tuberculosis of cattle, VI:498C;
 exports (1937), I:60n, 234A;
 fertilizer rationing, VI:221D-222B;
 fishery research, VII:185B;
 fluorosis, VI:456C;
 fluorspar, II:47B;
 food shortages, I:31C;
 forest policy, V:100-103, 180C;
 forest protection, V:60-62;
 forests, V:212A;
 forest surveys, V:30C;
 fullers' earth, II:46D;
 game conservation, VII:190-95, 208D, 209A, 209C, 250-52;
 grazing land, VI:514-16;
 gypsum, II:46D;
 health conservation, I:204D;
 heating, III:206-8, 267A;
 herring production, VII:29A;
 increase in production, I:249C;
 iron and steel industry, II:152-62;
 iron ore, II:6D, 45C-46C;
 land-use planning, I:64-69;
 lead, II:47A;
 livestock breeding, VI:384-86;
 livestock diseases, VI:464-67, 486A;
 magnesia production from sea-water, II:257B;
 outlook for mineral discovery, II:44-47, 55A;
 petroleum production, III:30B, 30D;
 petroleum refining industry, III:76-78;
 potash deposits, II:277D;

United Kingdom (*cont.*):
 power generation, III:266D;
 preservation of foodstuffs, VI:366-70;
 public employment services, I:331A;
 red seaweed resources, VII:174B;
 research in food yeast, I:149A;
 rock salt, II:46D;
 smoke prevention, III:267B;
 soil surveys, VI:125-26;
 sterility in cows, VI:458B;
 tin, II:47C;
 training of supervisory workmen, I: 351A;
 tungsten, II:47D;
 use of agricultural equipment, I:61C;
 use of synthetic detergents, III:80B;
 water supply, IV:40-42;
 well boring, IV:92B-C;
 witherite, II:47B;
 wood preservation, V:269-70;
 zinc, II:47A

— Central Electricity Board (UK), III:244B, 244D, 245C

— Forest Products Research Laboratory, V:270B;

— Forestry Commission, V:60B, 212A

— Geological Survey, II:44B, 45A; IV:40C

— Ministry of Agriculture and Fisheries, VI:384A; VII:26B;
 Central Planning Branch, I:67A

— Ministry of Health, IV:40B

— Ministry of Town and Country Planning, I:67B

— Ministry of War Transport, VI: 364C

— National Agricultural Advisory Service, VI:212B

— National Coal Board, II:45A; III: 245D

— National Institute of Agricultural Engineering, VI:179B, 190D

United Mining and Milling Corporation (U.S.A.), II:143B

United Nations: agencies interested in problem of "food for health", I:338A; assistance in recruiting and training manpower, I:352C; Charter, I:334D; concern for effective co-operation with specialized programmes, I:354B; objectives, I:212B, 308B; sponsorship of forest-fire control units proposed, V:49D, 72A; technical assistance to under-developed areas, I:33C, 247C, 309D, 406B, 418B, 427A;

United Nations Educational, Scientific and Cultural Organization: co-operation with WHO, I:337B; education project, I:349A; interest in nutrition problems, I:338B

United Nations Food and Agriculture Organization, *see* Food and Agriculture Organization of the United Nations

United Nations Relief and Rehabilitation Administration, VI:501B

United Nations Scientific Conference on the Conservation and Utilization of Resources, proposed, I:2A; review, I:405-30; shortcomings, I:320A; social problems, I:344D; wide distribution of views proposed, I:419C

United Provinces, India: forest surveys, V:12C

United States Industrial Chemical Corporation (Baltimore, Maryland), VI: 489C

United States Army: Corps of Engineers, IV:62B, 307D, 436B; river and harbour improvement work, IV:335A, 336A

United States of America: acres under irrigation, IV:370E; administration of big game resources, VII:239-41; alginic acid production, I:134B; agricultural technology in, I:88A; agriculture, I:18B, 24D; as market, I:234B; balance of resources and population, I:105C; blast-furnace practice, III:176B, 186A; capital available, I:19B; chemurgic developments, I:135B; coal industry, III:128-30; coal resources, I:107C, 117B; coking industry, III:162A; conservation, I:203B, 318D; consumption of pig iron, I:40B; copper deposits, I:120C; crop yields, I:84C; dairying, VI:395C; dams, I:57B; decrease in rural labour, I:18C; development of industrial resources of biological origin, I:134D; development of synthetic detergents, III:80A; diesel traction, III:265C; drainage of agricultural land, IV:405-407; electrical development, I:50A; employment service organization, I: 348D; exports (1937), I:60n; fisheries statistics, VII:81-83; fishery technology, VII:103-9; food supply needed, I:31D; forest acreage, V:184B; forest legislation, VI:85B-186B; forest policy, V:184-87; forest protection, V:34-40, 55-57; forestry, V:234-42; forest surveys, V:2C, 6-9, 24-27; geological research, I:11:3C; grasslands research, VI:528C; grazing research programs, VI:505B; heating, III:204-6, 267A; heat pumps, I:11:214B; herring production, VII:29D; high industrial development, I:249B; importation of livestock from northern Europe, VI:422A;

SUBJECT INDEX FOR VOLUMES I TO VII

United States of America (*cont.*):
 inland fish resources, VII:138-42;
 iron ore reserves, II:7B, 49A;
 iron resources, I:117B;
 land classification in, I:80A;
 land reclamation, VI:602-5;
 land-use legislation, VI:38A-C;
 laws of mineral ownership, I:98D;
 laws protecting birds, VII:236A;
 livestock breeding, VI:451-53;
 livestock diseases, VI:486A;
 logging, V:234-42;
 livestock losses caused by parasites, VI:489B;
 losses from metal corrosion, II:213-218;
 metal consumption, I:125B;
 metals-in-use, II:33A-35D;
 mineral exploration, II:49B;
 mineral reserves, I:39C, 59n;
 mining, I:407A;
 mixed fertilizers, II:284B;
 national forests, V:185B;
 natural resources, I:58n;
 need to expand economy, I:232B;
 origin of sulphur deposits, II:94B;
 petroleum consumption, III:84D;
 petroleum industry, III:11B, 13D,
 46-51
 petroleum reserves, I:94B, 96D, 109C;
 II:48D-49A; III:2A, 14C;
 petroleum supply, III:264A;
 phosphate deposits, II:271B-271D,
 276C;
 plant introduction, VI:292-96;
 population of big game mammals,
 VII:239B
 potash deposits, II:273B, 277B, 284A;
 power generation, III:266D;
 prairie, VI:510B;
 price-fixing experience, I:204D;
 protective forestry, V:143-46;
 public employment services, I:331A;
 recognition of need of resource surveys,
 I:176C;
 safety measures, I:329B;
 sawmill techniques, V:217-23;
 scrap collection industry, II:34A;
 scrap lead, II:33B;
 scrap zinc, II:33B;
 shale oil industry, III:57-61;
 skilled labour supply, I:328D;
 standard farm land, I:27C;
 state forest services, V:186B;
 synthetic fuel production, III:85A,
 97B;
 training of railway workers, I:353A;
 training of supervisory workmen, I:
 351A;
 undeveloped land, I:32D;
 utilization of sawmill refuse, V:305-10;
 water control, IV:111-15;
 water resources, IV:37-39;
 water supply, IV:98D-100C;
 wildcatting in oil discovery, III:3C, 5B;
 wind-velocities, III:315B;
 wood preservation, V:288-89;
 wood pulp industry, V:292-302
 — Bureau of Agricultural and Industrial Chemistry, I:135B

United States of America (*cont.*):
 — Bureau of Entomology and Plant Quarantine, V:55B; VI:489D, 491D
 — Bureau of Land Management, VI:
 510D, 559A;
 — Bureau of Mines: coal tests, III:
 159A;
 survey of coke-oven and blast-furnace operations, III:164D;
 survey of coking coal reserves, III:
 166B;
 underground coal gasification experiments, III:144-50
 — Bureau of Plant Industry, Soils, and Agricultural Engineering, IV:
 355D; V:55D;
 nutritional research, I:132B
 — Bureau of Plant Pathology, V:72D
 — Bureau of Reclamation, I:265D,
 IV:62B, 137-41, 247-54, 307B, 317D
 — Coast and Geodetic Survey, V:24C
 — Department of Agriculture, I:74C;
 V:24B, 24D; VI:85-88, 423D, 489B,
 503C
 — Department of the Army, V:24C
 — Department of the Interior: mission to study Chilean fishery resources,
 VII:42B-44C
 — Extension Service of the United States Department of Agriculture, I:259C
 — Employment Service, I:329C
 — Farmers Home Administration, VI:
 101B
 — Federal Housing Administration: heat requirement figures, III:204C
 — Federal Power Commission, IV:
 425B, 426C
 — Field Production and Marketing Administration, V:24B
 — Fish and Wildlife Service, IV:
 450B; VII:198B-198C;
 bird population surveys, VII:230D;
 campaign for preserving hawks and owls, VII:209A;
 fisheries studies, VII:83D;
 midwinter inventory of waterfowl,
 VII:237D;
 statistical activities, VII:82A
 — Fishery Market News office (of Fish and Wildlife Service, U.S.A.): value of reports of, VII:82D-83D
 — Food and Drug Administration, VI:491D
 — Forest Experiment Stations, V:25D
 — Forest Products Laboratory, V:
 297B, 301A, 309D
 — Forest Service, I:265D; V:6-9, 24B-
 27A, 34-40, 203-7, 240A, 289A; VI:
 510D; VII:197A
 — Geological Survey, IV:38E, 58A,
 91D, 92A; V:24B;
 estimate of recoverable supply, I:107B;
 survey of coking coal reserves, III:
 166B
 — Indian Service, VI:510D
 — National Bureau of Standards: test for thermal insulating materials, III:
 205B

United States of America (*cont.*):
 — National Park Service, IV:436B,
 437D, 438D-439A;
 — Office of Foreign Agricultural Relations, I:266B
 — Office of River Basin Studies, IV:450B
 — Plant, Soil and Nutrition Laboratory, Ithaca, New York, VI:453C
 — Production and Marketing Administration, I:265D
 — Public Health Service, IV:111D,
 115A
 — Range Livestock Experiment Station, Montana, VI:503D
 — Soil Conservation Service, I:73C,
 75D, 259C, 265D; V:24B; VI:3B,
 100C, 511C, 512B; VII:188B, 189B,
 189D, 208B;
 Nursery Division, VI:543A
 — Vegetable Breeding Laboratory, Charleston, South Carolina, VI:453C
 — Weather Bureau, IV:58B, 90D
 United States of America, North Central: drainage projects, VI:604A
 United States of America, Pacific Northwest: hydro-electric power, III:301-5;
 logging improvements, V:239B-242C
 United States of America, South-eastern: erosion, I:78D;
 forest survey, V:8A
 United States of America, Southern: drainage projects, VI:604B;
 unprotected forests, V:72B
 United States, Southwestern: livestock raising, VI:425A
 United States of America, Western: annual rainfall, VII:195B;
 factors involved in ownership of land and wildlife on range land, VII:
 199A-C;
 farm production, I:25A;
 game and fur conservation on range lands, VII:201-4;
 grazing, VII:198A;
 grazing experiments, VI:503D;
 ownership of lands, VII:198C-199C;
 precipitation on range land, VII:
 196A-196B;
 public grazing lands, VI:502D;
 range land depletion, VI:500D, 503B;
 rangeland hunting and fishing areas,
 VII:204B-C;
 rangeland recreation and wildlife problems, VII:195-200;
 range lands, VI:410D, 502A, 511A-
 512C, 525A, 541A, 544-48;
 restoration of grazing lands, VI:504C;
 soils of range land, VII:196A;
 spaciousness, VII:197B-C;
 temperature variation on range land,
 VII:196C;
 winds, VII:196A-196B
 United States of America - Canada boundary: water questions, I:399C
 United States Steel Corporation: coal mines, II:137B

UNSCUR PROCEEDINGS: INDEX

- Universities: India, I:313A; leadership in the development of statistical hypotheses, I:191C; New Zealand, I:286A; United Kingdom, I:314D
- University of St. Francis Xavier, *see* St. Francis Xavier, University of
- Upemba National Park (Belgian Congo), VII:223A; exploration of, VII:225C
- Upper Egypt Electricity Scheme, Aswan, IV:298D, 303B
- Upper Niger River, VI:570D
- Uranium: concentration, I:39C; Cuba, II:80B; deposits, I:120C; India, I:116D; source of atomic energy, I:40C, 312B;
- Urea: as nutrient, I:343D
- Urea nitrogen: in cattle feeding, VI:452B
- Uruguay, Venezuela, V:210A
- Uruguay: agricultural labour, I:332C; importation of livestock from northern Europe, VI:422A; joint project with Argentina, I:399A; standards of living, I:118A; water resources, I:394B; waterways, IV:349C
- U.S.S.R., *see* Union of Soviet Socialist Republics
- Utah, U.S.A.: aspen forests, V:172D; floods, IV:181C; phosphate deposits, II:271C; potash deposits, II:277C; reduction of range forage, VI:503B
- Utah Copper Company, II:142C, 144A
- Vaccination: for foot-and-mouth disease, VI:480C
- Vacuum: use in oil recovery, III:46D, 47C
- Vaessen, Netherlands: hatchery ponds, VII:146B
- Valkenswaard, Netherlands: hatchery ponds, VII:146B
- Valleys: agricultural production in, I:80B
- Vanadium, I:120A; Cuba, II:80B; India, I:114A; II:68B
- Vancouver Island, British Columbia (Canada): investigations of herring, VII:5-7
- Vanilla plant, VI:334C, 335B
- Vapour pressure process of precipitation, IV:5B
- Var, France: bauxite mines, II:118A
- Variability: in measurements, I:197C; in products, I:189A, 190B; of plants, VI:530B, 534D
- Variations: factors of, in experiments, I:198A
- Vaucluse Alps, V:153B
- Vegetables: amount needed, I:32A, 33A; effect of dew on, IV:46C; Egypt, I:244C; Hawaii, VI:195A; preservation, VI:368B, 371B-372D; quick freezing, VI:343A; storage, VI:342C, 369C
- Vegetables, dehydrated, VI:362A
- Vegetation, I:194D; ecological study, I:186A; effect on erosion, VI:164D; in fish ponds, VII:164A; inhibiting of fish culture by, VII:121B; Mexico, V:98B-99B; stabilization in El Salvador, VI:20A; stabilization in Pakistan, VI:8C; surveys, I:173C, 185B
- Venango County (Pennsylvania) oil field, III:47A
- Venda-Nova, Portugal: dam, IV:235D-237D
- Venezuela: agriculture, I:239D; VI:301-3; education, I:318C; forests, V:148-50, 171D-172A; forest surveys, V:32D; grassland development, VI:525D; grazing land, VI:558D; grazing land depletion, VI:527A; industrialization, I:239-40, 254A; investment opportunities, I:414A; iron-ore deposits, I:120B; II:16B; iron-ore reserves, II:7C, 49B; livestock breeding, VI:431D, 433C; natural gas, I:413D; petroleum industry, III:14-21, 37-39; phosphate deposits, II:276D; semi-arid regions, VI:301-3; soil conservation, V:174B; VI:54C; waterways, IV:349D
- Botanical Division, V:209D
- Forest Service, V:208-10
- Forestry Investigation Division, V:209A
- General Service for Game, V:210B
- Land Division, V:209A
- Ministry of Agriculture and Stock-breeding, V:209B
- Reafforestation Division, V:209C-D
- Soil Conservation Service, V:208D, 209C
- Technical Office of Hydrocarbons III:37C
- Tree Felling, Clearing and Firing Service, V:299A
- Venezuelan Oil Concessions, III:14B, 15C-16A
- Ventilation: effect on heat requirements, III:202D; of coal mines, III:121D
- Veterinary medicine, VI:471B; desirable for agricultural students, I:360A
- Vicksburg, Mississippi (U.S.A.): hydraulic laboratory, IV:275D
- Victoria, Australia: Forest Commission, V:55A
- State Electricity Commission, V:55A
- Victoria, Lake, Africa: power scheme, IV:84D
- Vidal Gormaz* (Chilean hydrographic survey vessel): used in study of fisheries, VII:42B-43C
- Vignerons-Dahl trawl, VII:166D
- Vigny torrent, Valley of the Maurienne (Savoie), V:156B
- Villa Apacheta mine (Bolivia), II:115A
- Village communities, I:417C
- Village groups, *see* Group training
- Village life: improvement, I:302A
- Village ownership of land, *see* Communal ownership of land
- Villages: as units in underdeveloped countries, VI:109A
- Vineyards: France, VI:606A; relation to soil conservation, I:57A; VI:5D; *see also* Grapes; Wine production
- Vinyl compounds: as metal-coating material, II:223C
- Virdilio Mintinella mine (Italy), II:88B
- Viscosity of oil, III:49D
- Vitamin B: food yeast as source of, I:154B
- Vitamin B₁: content of dried yeast, I:153(*tab.*)
- Vitamin B₂: *see* Riboflavin
- Vitamin B₁₂, I:137C
- Vitamin content: in yeast, I:148(*tab.*)
- Vitamin D: deficiency in livestock, VI:417B-D
- Vitamin inadequacy: Asia, I:340B
- Vitamin products: animal feeding, VI:452B
- Vitamins, I:137C; discovery, I:340C; shark liver oil content, VII:44D, 46B
- Vocational education: co-operation in providing equipment, I:353A; general education as basis, I:349A; in specialized schools, I:349B; more productive at locale of trainee, I:355D; of adult workers, I:350C
- Vocational instructors: training, I:351B
- Volga river-development project (U.S.S.R.), IV:257C
- Volta Redonda, Brazil: metallurgical plant, II:17B
- Volume tables for forest inventories, V:30D-31B
- Vouraikos River watershed, Greece, VI:501B
- Waal River, Netherlands, IV:327D, 328B
- Wadden Zee, Netherlands, IV:409B
- Wadi Araba, Israel: climate, IV:106C
- Waelz process of lead and zinc recovery, II:145B
- Wages: Africa, VI:584B; as work incentive, I:335A, 348D; Venezuela, I:240A
- Wagon Wheel Gap, Colorado: forest experiments, V:134D
- Waiau River system, New Zealand: salmon culture, VII:151A
- Walcheren, Netherlands, IV:403B
- Wallboard, *see* Fibreboard
- Wall Street Journal, I:190A
- Wanganui River, New Zealand: attempts to stock with salmon, VII:151A
- Wanyamwezi (tribe, East Africa), VI:585B
- Wapiti: increase in numbers (Colorado), VII:202C; increase in Utah, VI:203C; population counts, VII:240D; preserved in U.S.A., VII:255C

SUBJECT INDEX FOR VOLUMES I TO VII

- Wapiti: (*cont.*):
reduction of herds to prevent over-population, VII:241A;
U.S.A., VII:197C, 239B
- War: effect on mineral depletion, I:42D, 122C;
fear of, I:424C;
population losses from, I:21C
- Warbles, VI:487B
- War Disease Control Station, Gross Isle, Quebec, VI:472A
- Warping, VI:623A
- Warwickshire, England: coal fields, II: 45C
- Wasatch Mountains, Utah (U.S.A.), VI: 51D
- Waste gases: treatment of, II:180-90;
see also Factory gases
- Waste land, arable: India, VI:566B-D, 567D, 568D-569D
- Waste waters, *see* Water, polluted
- Wasukuma (tribe, East Africa), VI:585B, 586C
- Water: chemical and physical properties, I:184D;
condensation in clouds, IV:3B, 4B;
recreational use (U.S.A.), IV:436-39;
structures for measuring and dividing, IV:263-67;
use in industry and agriculture, I: 184D
- Water, brackish: desalination, IV:115-19, 130C
- Water, ground: artificial recharge, IV: 102-4;
chemical and physical qualities, IV: 38A;
conservation in UK, IV:40-42;
drop in water level, IV:214B;
effect of land management on, IV: 193-204;
observations, I:184B
- Water, polluted: utilization, IV:111-15, 119-24
- Water, salt, *see* Salinity; Sea water;
- Water, brackish
- Water, surface: chemical and physical qualities, IV:38A;
filtration, IV:102-4;
observations, I:184B;
pollution, IV:120A;
utilization, IV:98-102
- Water, underground: control, IV:188A-189B;
utilization, IV:98-102
- Water buffalo: effect of heat on, VI:417B
- Water conservation, I:73-83;
Argentina, VI:25C-28A;
basic technology, I:73B;
North China plain, IV:310D-311D
relation to soil conservation, VI:165B;
research, VI:58B;
U.S.A., I:266A
- Water consumption: estimation, IV: 85C-87B
- Water control, IV:119-24;
by reclamation management, IV:366-69;
definitions, IV:193B-D;
- Water control (*cont.*):
effect on soils, IV:355-57;
France, IV:186-88;
India, IV:212C;
Italy, IV:178-79;
Malaya, VI:590A;
Punjab, IV:174-77;
relation of soils to programmes for (Netherlands), IV:363-65;
structures, IV:217-323;
Switzerland, IV:183-85, 205-9;
U.S.A., IV:180-82
- Water-control works: channel studies, IV:282B;
scale models in planning, IV:274, 276-82, 323A
- Water culture, *see* Nutriculture
- Water Economy Programme (Greece), IV:408B
- Water-flow control: Sweden, IV:423C
- Water-flow problems, IV:277D-278D
- Waterfowl: adverse effects of drainage projects on, IV:453A;
banding, VII:238C;
decline in New Zealand, VII:235C;
diseases, VII:238D-238C;
extinction threatened, VII:229B-229C;
methods of estimating the breeding population, VII:237C-238B;
midwinter inventory of North American population, VII:237C;
migration routes (North America), VII:231B, 239A;
shooting seasons (Europe), VII:254B;
system for regulating shooting (U.S.A.), VII:254C;
technique for population appraisals, VII:230C
- Waterfowl refuges (U.S.A.), VII:238B
- Water gas: production, III:266B
- Water hyacinth, VII:160D, 164A;
eradication, VII:121B
- Water-impoundment projects: effects on fish and wildlife populations, IV: 453A-453D;
planning in relation to wildlife conservation, IV:455A-456D; *see also* Dams
- Watering places for livestock, *see* Livestock - watering places
- Water legislation, IV:121A;
U.K., IV:92C;
Water Act (Scotland, 1946), IV:40B;
Water Act (UK, 1945), IV:40B
- Water levels: Norway, VI:45B
- Water-logged land, VI:129C
- Water management, IV:432-35
- Water-management programmes: coordinated planning of, to aid wildlife, IV:454B
- Water outlets, I:75C
- Water pollution, I:305D; IV:97-130;
control, IV:130A;
effect on wildlife, IV:454A;
Haiti, I:363D;
see also Water, polluted
- Water power: as objective in river basin development, IV:133C;
Canada, III:200D;
- Water power (*cont.*):
Finland, III:305D-307D;
joint development by nations, I:59A;
Sweden, III:247B;
see also Hydro-electric power
- Waterpower registers, *see* Hydraulics, measurement
- Waterpower stations: construction, IV: 258D-259B;
planning of, IV:432-35;
Sweden, IV:423B
- Water projects: planned as part of a unified programme for entire drainage basins, I:388C
- Water purification: Colombia, IV:128C
- Water resources: appraisal, IV:1-95;
appraisal by geologic maps, I:180C;
appraisal in U.S.A., IV:37-39, 56-64;
Australia, IV:141-47;
Czechoslovakia, IV:78-80;
Egypt, IV:81-84;
French tropical Africa, VI:570C;
India, IV:72D-77C;
intensive investigations, I:184B;
inventories, VI:58C;
Middle East, IV:148-58;
need for world inventory, IV:430-32;
observational network, I:184B;
protective measures, IV:203A-D;
sediment control important to, IV: 306-8;
statistics of yield, IV:52-55;
surveys (*see* Hydrologic surveys)
- Water rights: Cyprus, I:217C
- Waterschappen (Netherlands), IV:400C-402C
- Watershed management: effects on water yields, IV:203-4;
France, IV:186-88;
Punjab, IV:174-77;
U.S.A., IV:180-82
- Watersheds: forest protection for, V: 173B;
Italy, V:169B;
see also Shelterbelts
- Water storage, V:173A;
Israel, IV:105-11
- Water supply, I:218B;
as health measure, I:337A;
Australia, IV:158-62;
Canada, IV:100C;
Chile, I:237C;
China, I:226D;
depletion, I:290A;
domestic requirements, IV:134B;
East Africa, VI:586A, 586D;
forecasting, IV:59D-60C, 95B-C;
India, IV:101B-D;
industrial requirements, IV:134C;
in relation to mineral utilization, II: 14D;
interrelated with soil fertility and forests, I:14B;
Israel, IV:167D-168B; VII:150C;
Jamaica, I:295A;
limits on excessive abstraction, IV: 92D;
Mexico, IV:167D;
Netherlands, JV:100D;

UNSCUR PROCEEDINGS: INDEX

- Water supply (*cont.*):
 Philippines, I:241C;
 pollution, IV:97-130;
 protection, I:77-83;
 surveys, I:194C;
 Sweden, IV:102-4;
 Thailand, IV:101B;
 UK, IV:40-42;
 U.S.A., IV:98D-100C;
 utilization in TVA, I:374B
- Water table: influence on crops (Netherlands), IV:363(*tab.*)
- Water transport: global distribution, IV: 343B;
 prime cost, IV:340B-341A;
 speed, IV:341C
- Water utilization, I:184A; relation to flood control, IV:92B;
 surveys, I:185A;
 U.S.A., IV:56C
- Waterways: costs, IV:349C;
 development in U.S.A., IV:335-38;
 economically undeveloped countries, IV:339A;
 effect of development on fish and wildlife, IV:453D-454A;
 effect on rail tariffs, IV:344B;
 France, ancient, IV:338B;
 highly-developed countries, IV:339A-344D;
 international character, IV:344B;
 South America, IV:349B;
 Tennessee River, I:371B;
 U.S.A., IV:338D-339A, 348C
- Waterways, inland: utility, IV:338-45
- Water-works: effect on fish, VII:152C
- Water yield: effects of forests on, V:172B
- Wax: pereiro as source of, V:312-15
- Way Sekampung irrigation project (Indonesia), VI:565A, 565D
- Wealth: results only from increased production, I:207B
- Weather conditions: effect on young game birds, VII:192D;
 in continental shelf development, III: 23A
- Weather control, *see* Precipitation, induced
- Weather forecasting: Australia, V:53-55
- Weather ships: value in predicting periodic fluctuations in northern fisheries, VII:10D
- Weed killers: from petroleum, III:73D
- Weeds: chemical control, VI:547A, 621D;
 control, I:85B;
 control in China, I:229A;
 India, VI:566D, 568A-C;
 machinery for control, VI:187C;
 protection of crops from, I:85B;
 sulphuric acid treatment, VI:558D;
See also Woody plants, noxious
- Weir installations, IV:258D
- Weissfluhjoch Institute (Switzerland), V:154A
- Welland Canal, Ontario (Canada), IV: 223B
- Wells: inventories, I:184D;
 reconnaissance of, I:184A
- Wells, water: UK, IV:92B-C
- Wendover, Utah (U.S.A.): potash deposits, II:284A
- West Africa, *see* Africa, West
- Western Australia: fire-weather research, V:54A;
 water supply, IV:158-62
- Western civilization: demographic impact, I:17D
- Western Kusara, Yugoslavia: insect control, V:67C-69A
- West Indies: molasses utilization, I:148n.
 West Indies Sugar Company, London, I:154D
- West Punjab, *see* Punjab, West
- West River, South China, VII:131A;
 fish, VII:133C
- Weyerhaeuser Timber Company (U.S.A.): bark products plant, V:308C
- Whale-fishing: systematization, I:58C
- Wheat: Argentina, VI:356-58;
 Australia, VI:345A;
 breeding, VI:274B, 297D;
 China, I:227D;
 diseases, VI:321D, 328A;
 effect of improved pasture strains on production, VI:539C;
 production, VI:83D;
 production, Western Pakistan, VI: 240B, 244D;
 sample conservation investments, I:210 (*chart*);
 storage, VI:345A-C, 377D;
 storage in underground silos, VI:356-58;
 varieties, VI:286A, 293D;
 varieties resistant to leaf rust, loose smut, and hessian fly, I:85A;
 varieties resistant to temperature and moisture extremes, I:85B
- Wheatgrass, VI:545B;
 production on dry lands, VI:543B
- Wheeler Dam, Tennessee River (U.S.A.), IV:257C
- Whitebait: New Zealand, VII:151B
- "White" fish: preservation by chilling, VII:93B;
 preservation by freezing, VII:94B
- Whitefish, VII:13B;
 failure to naturalize in New Zealand, VII:151A
- White Fish Commission: report on trawler fishing, VII:22B
- White Nile River, Sudan, IV:297D;
 water volume, IV:81C
- White pine blister rust, V:56A
- White River Basins project (U.S.A.), IV:428A
- White Sea, U.S.S.R.: brown algae, VII: 186A
- Whiting: North Sea, VII:166A
- Whitney, Mount, Washington (U.S.A.): elevation, VII:196B
- Wieringermeerpolder, Netherlands, IV: 403B
- Wild boar, VII:239B;
 introduced into Argentina, VII:252B
- Wildcatting: in petroleum discovery, III: 3A, 3C, 5B
- Wildfowl: migration studies helpful to management of, VII:249A
- Wildlife: conflict between human interests and (Africa), VII:252D-253A;
 conservation from the ecological point of view, VII:210A;
 educational programme needed, VII: 254D;
 effect of drainage projects on, IV: 452D-453A;
 extermination to control epizootic diseases (Africa), VII:227A;
 important in farm economy (Sweden), VII:208A;
 on croplands, VII:188-89, 255D;
 ownership (UK), VII:208B-208C;
 ownership (U.S.A.), VII:188A, 198C-199C;
 problems peculiar to rangelands of western U.S.A., VII:195-200;
 program for restoration, VII:241B-241C;
 protection in India, IV:446-49;
 protection in Sweden, IV:445A;
 protection of, in water-use projects, IV:449-57
 reduced in sugar-cane plantation regions (Cuba), VII:208C;
 relation to forests, V:139B;
see also Game
- Wildlife areas, VI:6A; income from, VII: 140D
- Wild-life conservation: as objective of river basin development, IV:134D;
 India, IV:446-49;
 modification of operation programmes, IV:457A;
 Sweden, IV:445A
- Wildlife legislation: Act for the Preservation of Wild Birds and Game (India, 1887), IV:446D;
 Bengal Rhinoceros Preservation Act, IV:447B;
 Punjab Wild Birds and Wild Animals Protection Act (1933), IV:447B;
 U.S.A., VII:188B;
- Wild Birds and Animals Protection Act (India, 1912), IV:447A;
see also Game laws
- Wildlife management, VII:213-56, 247-49;
 Africa, VII:215-17, 226-28
 Canada, VII:210B;
 in the multiple land-use programme, VII:202A-204B;
 need for greater public understanding of, VII:199D-200D;
 unsolved problems, VII:198B-200D
- Wildlife refuges: requirements of, VII: 227C-228C;
 U.S.A., VII:198A, 208A;
see also Waterfowl refuges
- Wild-life wardens: Belgian Congo, I: 299D
- Wild plants, VI:531B;
 useful products from, I:131D
- Wilson Dam, Tennessee River (U.S.A.), I:372D, IV:257C, 458B
- Wind: agent in disseminating plant pathogens, VI:320D
 intermittency and other vagaries of, III:311A;

- Wind (*cont.*):
 velocity averages, III:317(*diag.*);
 velocity measurements, III:315A,
 320C;
 velocity trends, III:316(*chart*);
 zones, III:323(*map*)
- Wind-break plantings (U.S.A.), I:75C;
 VII:189B
- Wind erosion, *see* Erosion, wind
- Wind intensifiers, VI:32A
- Windmills, I:55C;
 Netherlands, III:320B
- Wind pollination, *see* Pollination, wind
- Wind power, III:310-19;
 aerodynamics, III:323B;
 costs, III:324C-325B;
 for integrated power systems, III:
 227C;
 Netherlands, III:319-22;
 storage, III:323D;
 technical aspects, III:322D;
 transformation, III:323D;
 utilization, III:325C
- Wind-stripping, I:75C
- Wind turbines, I:55C;
 aerodynamics, III:317B;
 construction, III:324A;
 costs of operation, III:315D;
 for electric utility supply, III:310-19
- Windward Islands: land-use legislation,
 VI:40C
- Wine industry: training of workers, I:
 353A
- Wine production: France, VI:606A;
see also Vineyards
- Winter feeding of game, VII:203A
- Winter hardiness of plants, VI:281B;
 282A
- Winter shelter of livestock, *see* Livestock
 - winter shelter
- Wireworms: control, VI:312B, 314C;
 survey, VI:310D
- Wisconsin (U.S.A.): regulation of land
 use, I:81B
- Wisconsin, University of, Forest Products
 Laboratory, V:185C
- Witherite: UK, II:47B
- Witwatersrand gold fields (South Africa),
 I:170D; II:61B
- Wolf: reduction in number (U.S.A.),
 VII:197D
- Wolfram, *see* Tungsten
- Woman labour: economic foundation of
 family farming, I:216D;
 Haiti, I:362C
- Wood: as substitute for metals, I:42A;
 basic raw material, I:139D;
 chemical utilization, V:268-321;
 consumption, I:101D;
 destructive agents, V:248D-285A;
 effect of chemical bark removal, V:
 248B-249A;
 elimination in construction, I:56A;
 prehydrolysates, I:147A;
 use as criterion of relative well-being,
 I:139A;
 use for road transport, I:106D;
see also Building materials; Forest
 products
- Wood, tropical: Mexico, V:90C
- Wood alcohol: production from wood
 residues, V:300B
- Woodall-Duckham Company (UK), III:
 158D, 161D, 163B
- Wood as fuel, VI:49B;
 in Canada, III:201B;
see also Firewood
- Wood fibre: composition, I:140A;
 production methods, I:140B;
 relation to food supply, I:141D;
 uses, I:138-43
- Wood hydrolysis, V:300A-301A;
 Finnish method, V:303D-4
- Woodlands, *see* Forests
- Wood molasses, V:321C;
 for livestock feed, I:142D;
 production from wood wastes, V:300C,
 310B
- Wood preservation, V:268-321;
 bearing on forest conservation, V:
 271B;
 Canada, V:284-86;
 development in U.S.A., V:288-89;
 economics of, V:271-78;
 France, V:283-84;
 historical development in India, V:
 277C;
 India, V:271-78;
 processes, V:272D-274A, 277B;
 relation to consumer use, V:276-78;
 Swedish experiments with salts, V:
 287;
 treatment with fire retardant chemicals,
 V:275C;
 types of treatment, V:269C-270;
 UK, V:269-70
- Wood preservatives: essential qualities,
 V:276B;
 oils, V:271D-272B;
 toxic chemicals, V:272C;
 types, V:271D-272B, 285A;
 water soluble substances, V:272B
- Wood pulp, V:290A;
 by-products, V:289-91;
 logging and transportation, V:237C;
 239A;
 production, Latin America, V:320C;
 production processes, V:289B-290B,
 320D, 294A;
 source of textile fibres, V:290C;
 utilization of waste liquors, V:290D-
 291B, 294C-295C
- Wood pulp products, I:141A;
 consumption, I:139A (*tabs.*);
 imported by Chile, I:237A;
 relation to industrialization, I:139B
- Wood residues: chemical processing
 methods, V:298D;
 processing methods, V:297A;
 U.S.A., V:296-302;
 utilization, V:231C, 292C, 296-302,
 311-12, 320D;
 utilization as fuel, V:303B;
see also Sawmill refuse
- Woods Hole (Massachusetts, U.S.A.),
 Marine Biological Laboratory, VII:
 162D
- Wood sugar, I:132C, 133A, 142A, 414D;
 for human consumption, I:143A;
- Wood sugar (*cont.*):
 production, I:143B;
 production from wood residues, V:
 300B, 303D, 309D;
 Scholler process, I:142D
- Woodworking: employment of refugees
 for, I:330A
- Wood yeast: for human consumption,
 I:143A;
 for livestock feed, I:142D;
 production from sawmill refuse, V:
 310A
- Woody plants, noxious: elimination
 methods, VI:546B-547D
- Wool: Navajo sheep, VI:426C;
 production, Argentina, VI:404A;
 production, Egypt, I:245B;
 storage, VI:346A
- Worcester County, Massachusetts
 (U.S.A.): farm plan, VI:98A
- Workers, *see* Labour
- Workers' Educational Association (New
 Zealand), I:286B
- Work output: relation to food intake,
 I:341D
- World Bank: loan to India, I:312C
- World Food Fund, projected, I:33C
- World Forestry Congress, Third (Helsinki,
 Finland), V:32B
- World Health Organization, I:331B,
 334D;
 cooperation with FAO, I:337B, 343A;
 cooperation with ILO, I:337B;
 interest in nutrition problems, I:338B
- World War, First: effect on population,
 I:16C
- World War, Second: Casualties, I:22A;
 coke shortages, III:164C;
 costs, I:143D;
 effect on British agriculture, I:68B;
 effect on food production, I:32B;
 effect on Philippines, I:242D;
 effect on population, I:16D;
 effect on UK oil refining industry,
 III:77A
 market expansion as a cause, I:206B;
 procurement of skilled labour for, I:
 330B
- Wyoming, U.S.A.: coal mining, III:124C;
 increase in numbers of moose, VII:
 255D;
 phosphate deposits, II:271C
- X-rays: use in inducing mutations, VI:
 533A
- Yakima Irrigation Project, Washington
 (U.S.A.): Tieton Division, VI:603C
- Yams: Jamaica, I:294D
- Yangambi, Belgian Congo: INEAC
 Research Centre, VI:153D, 154B
- Yangtze River delta, Kiangsu and
 Chekiang, China, VII:131A;
 water utilization, I:226D
- Yangtze River, China: fish, VII:133C;
 Flood Plain, I:227D;
 navigation, IV:339A
- Yaws: Haiti, I:361C, 364B
- Yeast: fats from, I:144-48;
 from *Rh. gracilis*, I:145C;

Yeast (*cont.*):

micro-biological production, I:131D;
production from sulphite waste liquor,
I:142B;
production from wood residues, V:
291B, 294D, 301A;
rate of growth of cells, I:149(*tab.*);
see also Wood yeast

Yeast, food, I:132B, 137C, 342C, 343D,
417D;
commercial production, I:154D;
consumption, I:214C;
energy yield, I:145D;
in animal nutrition, I:154A;
manufacture, I:149A;
nutritive value, I:153A-154C;
use in British Empire, I:149-56;
vitamin content, I:148C

Yellow fever: campaigns by Pasteur
Institutes, I:344C;
relation to building Panama Canal,
I:335B

Yellow River, China, I:227C; basic data,
IV:311(*tab.*);
silting, IV:309A, 322D, 323C;
watershed, I:228B

Yellow River Consulting Board, IV:312A

Yellowstone Park, U.S.A.: temperature,
VII:196C

York Corporation, York, Pennsylvania,
III:214C

Yorkshire, England: iron beds, II:45D

Young Farmers' Clubs: New Zealand,
I:286C;

Nigeria, I:303D; *see also* 4-H clubs

Youth training programme, I:349C

Yttrium: Cuba, II:80B

Yucca, VI:547B

Yugoslavia: bauxite, I:120B;
consumption of nitrogenous fertilizers,
I:61C;

Yugoslavia (*cont.*):

Five-Year Plan, IV:395D-398D;
forest protection, V:66-70;
forests, V:147-48;
land reclamation, IV:395-98;
magnesite, II:257B;
mineral exploration, II:95-96, 101C;
mineral resources, II:95-96;
use of agricultural equipment, I:61C;
water control, IV:260B-263C

— Geological Department, II:95D
— Ministry of Agriculture, V:67A
— Ministry of Forestry, V:67A

Yukon, Canada: gold rush (1898), II:
13C

Yuma Project, Arizona (U.S.A.): Valley
Division, VI:603C

Yungting Ho (river), China: basic data,
IV:311(*tab.*);
silt content, IV:309D

Yunnan, China: lead and zinc deposits,
I:120B

Zanesville, Ohio, *see* Northwest Appa-
lachian Conservation Experiment
Station

Zebu cattle, VI:435A:
breeding, French West Africa, VI:407;
disease resistance, VI:498C;
fat deposits, VI:418A

Zebulun Valley, Israel: fish culture,
VII:148B

Zellidja, Morocco: lead deposits, II:209B

Zenta Mountains, Argentina, VI:402A

Zinc: annual requirements, I:39n;
as alloying element, II:232C;
as cathodic coating, II:224B, 230A;
as metal-coating material, II:223D;
base materials, II:31(*tab.*);

Burma, I:114C;

depletion, I:13D, 407A;

Zinc (*cont.*):

diminishing reserves, I:113B;
estimated world reserves, II:3A;
France, II:116B, 118B;
from lead slags, II:150B;
fundamental to civilization, I:38C;
India, I:114C, 117A; II:68B;
Peru, I:124A;
plant nutrient, I:85D;
production increase, I:13C;
production since 1900, I:39D;
prospective world demand, I:40C;
recovery by Waelz process, II:145B;
relative scarcity, I:39B;
reserves in U.S.A., I:59n;
Sardinia, II:70-75, 100B;
scrap used in, I:41D;
UK, II:47A;
utilization of low-grade ores, II:147C;
ways to conserve, II:202A

Zinc, scrap, *see* Scrap zinc

Zinc deposits, I:120B

Zinc Corporation, Ltd. (Australia), II:
52B, 53D

Zinc-in-use: U.S.A., II:35(*tab.*)

Zinc-smelting industry: Belgium, I:103A

Zirconium: India, I:117C

Zoning, I:81B

Zulia, Venezuela: oil fields, III:14D,
15C-16A

Zuider Zee, IV:399D;

after enclosure, IV:400A(*map*);
drainage, IV:129A;

effect on fisheries of enclosing, IV:
408-12;

enclosing of, IV:408-12;
fisheries, IV:409D;

possibility of stocking with young
flounder, VII:24D;

reclamation project, I:396D; VI:611B,
622B