## Contents

Preface	vii	
Section 1. Science in the Modern World		
Topical Problems of Our Time and the Integration of Knowledge.  Academician P. N. Fedoseyev  Methodological Problems of Global Development Modelling.	3	
J. M. Gvishiani, Corresponding Member, USSR Academy of Sciences Science and Social Control for Development Purposes.	21	
V. G. Afanasyev, Corresponding Member, USSR Academy of Sciences Scientific and Technological Progress, Economics and Social Development.	37 51	
Academician N. P. Fedorenko Regional Economics—a New Branch of Economics.		
Academician N. N. Nekrasov  From the Revolution in the Natural Sciences to the Scientific and Technological Revolution.	63	
S. R. Mikulinsky, Corresponding Member, USSR Academy of Sciences The Future of High-energy Physics.	73	
Academician M. A. Markov  Modern Science and Humanism.	83	
I. T. Frolov, Corresponding Member, USSR Academy of Sciences Scientist and Epoch.	109	
Academician N. A. Dollezhal	125	
Section 2. Natural and Technical Sciences and Mankind's Future Energy and Physics.		
Academician P. L. Kapitza  The Energy Situation in the World (Problems and Prospects).	131	
Academician M. A. Styrikovich The Present and the Future of Chemical Kinetics.	141	
Academician N. N. Semenov  High-temperature Superconductivity.	155	
Academician V. L. Ginzburg  Solid-state Physics and Its Role in Science and Practice.	167	
Academician A. M. Prokhorov  Mechanics and Scientific and Technical Progress.	181	
Academician M. A. Lavrentiev  Engineering Cybernetics and Scientific and Technological Progress.	187	
Academician B. N. Petrov	201	

vi Contents

Space Exploration for the Benefit of Man.	
Academician M. V. Keldysh and M. Ya. Marov, Dr. of Science, Physics and Mathematics	217
The Ocean—a Challenge to Man and Science.	
Academician L. M. Brekhovskikh	249
Geology in the Year 2000.	
Academician A. V. Sidorenko	255
The Progress of Chemistry, Chemical Technology and Industry in the USSR.	
Academician N. M. Zhavoronkov	265
Formation and Development of the Soviet Metallurgical Machine-building	
Industry.	207
Academician A. I. Tselikov	305
The Prospects of Chemical Technology.	221
V. V. Kafarov, Corresponding Member, USSR Academy of Sciences	321
Towards New Frontiers of Research on Basic Phenomena of Life.	225
Academician W. A. Engelhardt  Towards an Understanding of the Secrets of Life.	335
Academician Yu. A. Ovchinnikov	349
Photosynthesis and the "Sum of Life" on Earth.	349
A. A. Nichiporovich, Corresponding Member, USSR Academy of Sciences	357
Automation and Man.	331
A. N. Leontyev, Member, USSR Academy of Pedagogical Sciences	367
The Problems of Medicine in the Industrial Age.	307
Z. I. Janushkevichius, Member, USSR Academy of Medical Science	373
Section 3. Science and the Solution of Ecological Problems	
-	
Monitoring, the Comprehensive Analysis and Control of the Natural	
Environment Quality.	
Yu. A. Izrael, Corresponding Member, USSR Academy of Sciences	385
Biosphere, Soil Cover and Their Changes.	
V. A. Kovda, Corresponding Member, USSR Academy of Sciences	397
City Hygiene.	
V. D. Solovyev, Member, USSR Academy of Medical Science and A. P. Schitskova,	411
Corresponding Member, USSR Academy of Medical Science Scientific and Technical Progress. The Environment and Man.	411
F. G. Krotkov, Member, USSR Academy of Medical Science	422
Social Progress and Resolving of Ecological Problems.	423
Academician E. K. Fyedorov	431
Added at Proof Stage (Section 2)	
Chemical and Biological Kinetics.	
Academician N. M. Emanuel	447
Index	471
	1/1