

CONTENTS

	Page
LETTER OF TRANSMITTAL.....	iii
THE DIRECTOR'S STATEMENT.....	ix
PROGRAM ACTIVITIES OF THE NATIONAL SCIENCE FOUNDATION.....	1
SUPPORT OF SCIENTIFIC RESEARCH.....	3
Basic Research Projects.....	3
Current Research in the Mathematical, Physical, and Engineering Sciences.....	3
Astronomy.....	4
Atmospheric Sciences.....	5
Chemistry.....	7
Earth Sciences.....	8
Engineering.....	10
Mathematical Sciences.....	11
Physics.....	12
Current Research in the Biological and Medical Sciences.....	14
Molecular Biology.....	15
Genetic Biology.....	16
Metabolic Biology.....	18
Developmental Biology.....	19
Regulatory Biology.....	20
Psychobiology.....	22
Environmental Biology.....	23
Systematic Biology.....	24
Current Research in the Social Sciences.....	26
Anthropological Sciences.....	27
Economic Sciences.....	28
Sociological Sciences.....	30
History and Philosophy of Science.....	33
Significant Research Developments.....	34
National Research Programs.....	39
U.S. Antarctic Research Program.....	40
International Antarctic Activities.....	40
Scientific Programs.....	41
International Indian Ocean Expedition.....	48
History and Organization of the U.S. Program.....	49
Scientific Programs.....	50
Project Mohole.....	50
Weather Modification.....	52
National Research Centers.....	53
Kitt Peak National Observatory.....	53
National Radio Astronomy Observatory.....	55
National Center for Atmospheric Research.....	56
Facilities.....	58
Graduate-Level Research Facilities.....	58
Specialized Biological and Medical Sciences Research Facilities.....	59
University Computing Facilities.....	60

SUPPORT OF SCIENTIFIC RESEARCH—Continued

	Page
Facilities—Continued	
University Nuclear Research Facilities.....	61
Oceanographic Research Vessels and Facilities.....	61
Fiscal Analysis of Research Programs.....	62
INSTITUTIONAL GRANTS.....	64
A PHOTOGRAPHIC SAMPLING OF FOUNDATION-SUPPORTED ACTIVITIES.....	65
EDUCATION IN THE SCIENCES.....	75
Special Projects in Science Education.....	76
Undergraduate Science Education Programs.....	76
Special Report on the Undergraduate Instructional Scientific Equipment Program.....	78
Research Participation and Scientific Activities for Teachers.....	80
Specialized Advanced Science Education Projects.....	82
Programs for Secondary School Students.....	84
Course Content Improvement Programs.....	87
Course Content Improvement Studies in Mathematics, Science, and Engineering.....	88
Supplementary Teaching Aids.....	91
Special Report on Studies in Physics.....	92
Institute Programs.....	96
Characteristics of Institute Applicant Population.....	98
Summer Institutes.....	99
Academic Year Institutes.....	102
In-Service Institutes.....	102
Fellowship Programs.....	104
Graduate Fellowships.....	105
Cooperative Graduate Fellowships.....	105
Summer Fellowships for Graduate Teaching Assistants....	105
Postdoctoral Fellowships.....	106
Senior Postdoctoral Fellowships.....	106
Science Faculty Fellowships.....	106
Summer Fellowships for Secondary School Teachers of Science and Mathematics.....	107
North Atlantic Treaty Organization (NATO) Postdoctoral Fellowships in Science.....	107
Surveys of Manpower Resources for Science and Technology..	107
National Register of Scientific and Technical Personnel....	107
Scientific Manpower Studies.....	111
DISSEMINATION OF SCIENTIFIC INFORMATION.....	115
Highlights.....	115
Grants as "Means" and "Ends".....	115
A Federal Scientific Information Program.....	117
Mechanical Translation (MT) and Coordination.....	119
Documentation Research.....	120
Communication Problems and Information Needs of Scientists.....	120
Information Organization and Searching.....	120
Mechanical Translation (MT).....	121
Evaluation of Information Systems and Procedures.....	121
Surveys and Reports.....	122
Support of Scientific Publications.....	122
Support of Primary Publications.....	123
Studies and Experiments in Scientific Communication....	123
Support of Secondary Services.....	124

DISSEMINATION OF SCIENTIFIC INFORMATION—Continued	Page
Foreign Science Information.....	125
Translations.....	125
Studies and Reference Aids.....	126
International Activities.....	126
Resources and Exchanges of Information.....	127
Research Data and Information Services.....	127
The Federal Scientific Information System.....	127
Data and Information Centers.....	128
Education and Training.....	129
SCIENCE RESOURCES PLANNING.....	131
ASSESSING THE NATIONAL RESEARCH AND DEVELOPMENT EFFORT....	134
Trend in R&D Funds, 1953-54—1960-61.....	134
R&D Funds by Character of Work.....	138
Scientists and Engineers in Research and Development.....	139
Research and Development and the Gross National Product...	140
R&D Data on Foreign Countries.....	140
Special Economic Studies.....	140
THE DEVELOPING ROLE OF THE NATIONAL SCIENCE FOUNDATION IN INTERNATIONAL SCIENCE.....	145
The International Geophysical Year.....	146
United States Antarctic Research Program (USARP).....	147
The International Indian Ocean Expedition.....	148
The International Year of the Quiet Sun.....	149
United States-Japan Committee on Scientific Cooperation.....	151
The Foundation's In-house Support of International Scientific Activities.....	152
APPENDICES.....	155
A. National Science Board, Staff, Committees, and Advisory Panels.....	157
B. Financial Report for Fiscal Year 1962.....	173
C. Grants for Basic Research.....	176
D. Other Basic Research Grants.....	231
E. Fellowship Awards Offered.....	299
F. Patents Resulting from Activities Supported by the National Science Foundation.....	359
G. National Science Foundation-Sponsored Scientific Con- ferences, Symposia, and Advanced Science Seminars Held During Fiscal Year 1962.....	360
H. Publications of the National Science Foundation.....	367