

THIS FILE IS MADE AVAILABLE THROUGH THE DECLASSIFICATION EFFORTS AND RESEARCH OF:

THE BLACK VAULT

THE BLACK VAULT IS THE LARGEST ONLINE FREEDOM OF INFORMATION ACT / GOVERNMENT RECORD CLEARING HOUSE IN THE WORLD. THE RESEARCH EFFORTS HERE ARE RESPONSIBLE FOR THE DECLASSIFICATION OF THOUSANDS OF DOCUMENTS THROUGHOUT THE U.S. GOVERNMENT, AND ALL CAN BE DOWNLOADED BY VISITING:

[HTTP://WWW.BLACKVAULT.COM](http://www.blackvault.com)

YOU ARE ENCOURAGED TO FORWARD THIS DOCUMENT TO YOUR FRIENDS, BUT PLEASE KEEP THIS IDENTIFYING IMAGE AT THE TOP OF THE .PDF SO OTHERS CAN DOWNLOAD MORE!



DEPARTMENT OF THE AIR FORCE
WASHINGTON, DC

29 September 2009

HAF/IMIO (FOIA)
1000 Air Force Pentagon
Washington DC 20330-1000

John Greenewald
[REDACTED]

Dear Mr. Greenewald

This is in response your 17 August 2009, Freedom of Information Act request for copy of DTIC Document AD443677.

The Air Force Acquisition office reviewed the attached document provided by DTIC and is being released in its entirety.

Please direct your questions to Naida I. Rhoades (703) 692-9960 and refer to Case #2009-03936. There are no assessable fees for processing your FOIA request in this instance.

Sincerely

A handwritten signature in black ink, appearing to read "John M. Espinal", is written over the printed name.

JOHN M. ESPINAL
Freedom of Information Act Manager

Attachment:
Responsive document

STATUS OF AID PROJECT AS OF 30 JUNE 1964

OFFICE OF AEROSPACE RESEARCH ARLINGTON VA

30 JUN 1964

Distribution authorized to U.S. Gov't. agencies and their
contractors; Specific authority; 19 Mar 2001. Other requests
shall be referred to Hq. Office of Aerospace Research,
Arlington, VA.

2009-03936-F

Redistribution Of DTIC-Supplied Information Notice

All information received from DTIC, not clearly marked "for public release" may be used only to bid on or to perform work under a U.S. Government contract or grant for purposes specifically authorized by the U.S. Government agency that is sponsoring access OR by U.S. Government employees in the performance of their duties.

Information not clearly marked "for public release" may not be distributed on the public/open Internet in any form, published for profit or offered for sale in any manner.

Non-compliance could result in termination of access.

Reproduction Quality Notice

DTIC's Technical Reports collection spans documents from 1900 to the present. We employ 100 percent quality control at each stage of the scanning and reproduction process to ensure that our document reproduction is as true to the original as current scanning and reproduction technology allows. However, occasionally the original quality does not allow a better copy.

If you are dissatisfied with the reproduction quality of any document that we provide, please free to contact our Directorate of User Services at (703) 767-9066/9068 or DSN 427-9066/9068 for refund or replacement.

Do Not Return This Document To DTIC

UNCLASSIFIED

AD **4 4 3 6 7 7**

DEFENSE DOCUMENTATION CENTER

FOR

SCIENTIFIC AND TECHNICAL INFORMATION

CAMERON STATION ALEXANDRIA, VIRGINIA



UNCLASSIFIED

UNCLASSIFIED
770344
AD

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

UNCLASSIFIED

COMPLEXES

LIFE SCIENCES

MATERIALS RESEARCH

AEROMECHANICS

PHYSICAL SCIENCES

INFORMATION

AEROSPACE ENVIRONMENT

ENERGETICS

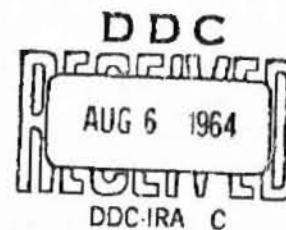
NUCLEAR WEAPONS EFFECTS

status of AID project

as of 30 June 1964

4 4 3 6 7 7

Hq OFFICE of AEROSPACE RESEARCH
United States Air Force



FOREWORD

The objective of the AID Project at the Aerospace Information Division (AID), Library of Congress, is to exploit Sino-Soviet-Bloc open-source literature in support of OAR research. The purpose of this exploitation is to fill existing gaps in U. S. scientific and technical information, to contribute data useful in OAR research efforts, and to lend support to the Air Force effort to prevent technological surprise.

OAR scientists initiate requests through the Office of Scientific and Technical Information (OSTI), HQ OAR, for literature surveys, bibliographies (annotated or unannotated), abstracts/extracts, short translations, comprehensive reports and/or review articles. However, requests originating in the AF Cambridge Research Laboratories are initiated through their project monitor in the Foreign Science Branch (CRTEF), and those from the Aerospace Research Laboratories through their project monitor in the Plans and Analysis Office (ARB).

After approval by the Foreign Technology Division, AFSC (AID monitor), the AID scientific-literature specialists make an exhaustive search of Sino-Soviet-Bloc open-source literature, screening periodicals, newspapers and monographs, and going as far back in time as the OAR scientist-advisers think necessary. They work only with original, foreign-language materials, maintaining a close and direct mutual working relationship with the OAR scientists in order to assure that completed reports will be specifically tailored to the OAR scientists' needs.

AID reports may be obtained by other government agencies and contractors from the Defense Documentation Center for Scientific and Technical Information, Cameron Station, Alexandria, Virginia, 22314. Further inquiries concerning the AID Project should be directed to: OAR (RRYC), Tempo D, 4th and Independence Ave., S. W., Washington, D. C., 20333.

STATUS OF AID PROJECT

Hq Office of Aerospace Research

as of 30 June 1964

TABLE OF CONTENTS

PART I:	Current Tasks	PAGE 1
	AID No. 01 ENERGY (PROPULSION)	1
	AID No. 02 AEROSPACE ENVIRONMENT (GEOPHYSICS)	3
	AID No. 03 INFORMATION COMPLEXES (ELECTRONICS - RESEARCH IN INFORMATION THEORY)	14
	AID No. 04 INFORMATION COMPLEXES (ELECTRONICS - RESEARCH ON ELECTRONIC INFORMATION)	14
	AID No. 05 LIFE SCIENCES (BIOLOGICAL SCIENCES)	15
	AID No. 06 LIFE SCIENCES (BEHAVIORAL SCIENCES)	15
	AID No. 07 MATERIALS RESEARCH (HIGH-TEMPERATURE MATERIALS)	15
	AID No. 08 MATERIALS RESEARCH (SOLID-STATE PHYSICS)	15
	AID No. 09 AEROMECHANICS	19
	AID No. 10 PHYSICAL SCIENCES	19
	AID No. 11 NUCLEAR-WEAPONS EFFECTS	23
PART II:	Task requirements awaiting approval and implementation	24
PART III:	Reports completed since last status report of 31 March 1964	25
PART IV:	Reports completed since 1 July 1962	27

STATUS OF AID PROJECT

Hq Office of Aerospace Research

PART I. The following is a listing with title, description and status of all current tasks.

<u>AID NUMBER</u>	<u>TITLE AND DESCRIPTION</u>	<u>STATUS</u>
AID No. 34	<u>ENERGETICS (PROPULSION)</u>	
34-Task 2	PLASMA DEVICES Literature survey of Soviet-Bloc research in the area of plasma devices. Particular interest in ascertaining extent of basic-research efforts which could be directed toward ultimate fabrication of plasma microwave devices. General area of concern deals with plasma devices which could be incorporated into a hypothetical plasma radar system. This includes such topics as plasma or gaseous discharges employed in the following contexts: amplifiers; antennas; attenuators; detectors; microwave components; oscillators; phase shifters; power dividers; radar; switches; thermocouples; thermoelectric and thermalelectric; thermopile; and wave guide. To aid in defining the scope of this survey, there is <u>no interest</u> in the following areas: Plasma or ion rocket propulsion; plasma or thermonuclear fusion; plasma oscillations; theoretical work in subjects as Maxwellian distribution; Boltzmann or other transport studies; and shock-tube or other shock phenomena. Sheldon B. Herskovitz, Plasma Electromagnetics Br (CRDM), Microwave Physics Lab, AFCRL AID SGT Section, Physics Unit - S. Kassel, Supervisor	(In support of Project 4642) Draft being written
34-Task 3	MAGNETIC FIELD PRODUCTION USING AIR COILS Literature survey and reports of current Soviet-Bloc research and magnetic field production using air core coils. Interest includes areas of force-free field, pulse coils for superintense fields and cryogenic magnets. Morton A. Levine, Chief, Plasma Astrophysics Br (CRFA), Space Physics Lab, AFCRL AID SGT Section, Physics Unit - S. Kassel, Supervisor	(In support of Project 8600) In editing

34-Task 4	EXPLODING WIRES, FILMS, AND RIBBONS	(In support of Project 8608)	Continuing Task Irregular Reports
	Literature survey and reports on Soviet-Bloc research in the field of exploding wires, films, and ribbons. Information to cover all phases of electrically exploded materials, with principal emphasis in the mechanism of explosion, but also to include significant information on the uses and methods of study.		
	William G. Chace, Plasma Astrophysics Br (CRFA), Space Physics Lab, AFCRL		
	AID S&T Section, Physics Unit - S. Kassel, Supervisor		
34-Task 5	ANALYSIS OF GASES IN VACUUM SYSTEMS	(In support of Project 5621)	Continuing Task Irregular Reports
	Literature survey with abstracts of Soviet-Bloc research on:		
	a. Residual gases in vacuum systems or in tubes.		
	b. Purification of gases.		
	Jerome H. Bloom, Chief, Device Physics Sec (CRWPD), Solid State Sciences Lab, AFCRL		
	AID S&T Section, Physics Unit - S. Kassel, Supervisor		
34-Task 6	HIGH AND LOW DENSITY PLASMAS OF NANOSECOND DURATION	(In support of Project 5634)	Preliminary stage
	Literature survey with abstracts of Soviet-Bloc research on the following:		
	a. High-density plasma shorter than 10^{-6} second duration. Its spectrum, formation, energy distribution, time function, i.e., rise or decay (fluid instabilities-pinch-magnetic fields), excited process, distribution, etc. Also, any type of pumping effect as produced in a high-density plasma.		
	b. Low-density plasma shorter than 10^{-6} second duration. Report on the same topics as under "a" above.		
	c. Laser, limited to: (1) laser sources; (2) laser applications (omit general literature on lasers); and (3) report immediately any laser breakthrough on wave lengths shorter than 5000 angstrom units. Report only on real working models.		
	Dr. Heinz Fischer, Senior Scientist, Optical Physics Lab (CRO), AFCRL		
	AID S&T Section, Physics Unit - S. Kassel, Supervisor		
34-Task 7	LANGMUIR PROBE THEORY AND MEASUREMENT TECHNIQUES	(In support of Project 7073)	Preliminary stage
	Survey of Soviet-Bloc research in the area of plasma diagnostics by means of probe		

techniques. Interest is in extension of original theory of Langmuir-Tonks to include applications at higher pressures, in magnetic fields, and in the presence of oscillations and/or fluctuations; also on the experimental circuits, modifications and use of resonance or VSWR probes.

Dr. Alan Garscadden, Plasma Physics Research Lab (ARH), ARI.

AID SGT Section, Physics Unit - S. Kassel, Supervisor

34-Task B

STRIATIONS IN LOW-PRESSURE GLOW DISCHARGES

(In support of Project 7073)

Preliminary
stage

Literature survey of Soviet-Bloc research on the theory and experimental measurements on standing and moving striations in low-pressure discharges. The initiation, dependence on discharge parameters and on the plasma medium are of interest. To aid in the definition of the scope of the survey, there is no interest in high-energy devices, plasma or thermonuclear fusion.

Dr. Alan Garscadden, Plasma Physics Research Lab (ARH), ARL

AID SGT Section, Physics Unit - S. Kassel, Supervisor

AID No. 35 AEROSPACE ENVIRONMENT (GEOPHYSICS)

35-Task 1

AGE DATING AND HEAT FLOW

(Not in support of specific Project)

In editing

State-of-the-art studies on the subject:

- a. Bibliography of Soviet literature including the English translation of the abstracts;
- b. Biographic sketches of the principal scientists doing the research;
- c. List of research organizations and institutions;
- d. Summary of present state-of-the-art;
- e. Geology maps of areas investigated;
- f. A map showing contours of exposed and/or buried basin rocks, etc.;
- g. The correlation of other geophysical data (seismic, magnetic, gravity, etc.);
- h. Complete translations of about ten of the best scientific papers published in each area.

Lt Col William J. Best, Geophysics Div (SRPG), Directorate of Physical Sciences, AFOSR

AID SGT Section, Geophysics Unit - (Miss) E. Rowell, Supervisor

35-Task 2	TERRESTRIAL UTILIZATION	(In support of Project 7628)	In editing
	Literature survey of works on properties of the terrestrial environment pertaining to the engineering properties of natural and improved soils, especially melioration of the ground for improvement of aircraft trafficability by using grass mixtures and other methods.		
	Captain Donald Klick, Chief, Geotechnics Br (CRJT), Terrestrial Sciences Lab, AFCRL		
	AID SGT Section, Geophysics Unit - (Miss) E. Rowell, Supervisor		
35-Task 4a	SKY ILLUMINATION PHENOMENA	(In support of Project 7661)	Continuing Task Irregular Reports
	Annotated survey and review of Soviet-Bloc research in (1) airglow; (2) zodiacal light; (3) gegenschein; (4) twilight scattering; (5) noctilucent clouds; and (6) aurorae (spectroscopy, mechanism).		
	Dr. Sam Silverman, Chief, Aurora & Airglow Br (CRUA), Upper Atmosphere Physics Lab, AFCRL		
	AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor		
35-Task 6a	METEOR TRAIL OBSERVATIONS	(In support of Project 8628)	Continuing Task Irregular Reports
	Literature survey of Soviet-Bloc research on radio and radar meteor-trail observations of winds and densities in the upper atmosphere. (No visual observations; no forward-scatter communications.) Period and nature of survey adequate to meet task requirements. This task was generated by the fulfillment of AID No. 35, Task 6.		
	Dr. Arnold A. Barnes, Jr., Upper Atmosphere Br (CRHU), Meteorology Lab, AFCRL		
	AID SGT Section, Electrical Engineering Unit - R. Zavistovich, Supervisor		
35-Task 7a	HIGH-ALTITUDE BALLOONS	(In support of Project 6665)	Continuing Task Irregular Reports (Rpt #2 in editing)
	Literature survey of Soviet-Bloc research on nonextensible plastic and static balloons.		
	Robert M. Slavin, Chief, Aerospace Instrumentation Lab (CRE), AFCRL		
	AID SGT Section, Geophysics Unit - (Miss) E. Rowell, Supervisor		

35-Task 8	<p>RESEARCH ON SOLAR FLARES</p> <p>(In support of Project 7649)</p> <p>Literature survey and reports on Soviet-Bloc research on solar flares.</p> <p>Dr. John W. Evans, Director, Sacramento Peak Observatory (CRFS), AFCRL</p> <p>AID S&T Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor</p>	Task cancelled by sponsor
35-Task 9	<p>METEOROLOGY AND CLIMATOLOGY: DISTRIBUTION OF VARIOUS PARAMETERS</p> <p>(In support of Projects 8624/8628)</p> <p>State-of-the-art studies on the following subjects:</p> <ul style="list-style-type: none"> a. Climatology of high levels; b. General circulation of the atmosphere; c. Weather forecasting; d. Regional studies and local phenomena; e. Vertical and timewise wind distribution; f. Frequency and distribution of clouds by types; g. Ice accretion, glaze; h. Vertical distribution of moisture, air density and temperature; i. Extreme values of meteorological elements; j. Upper-air wind-shear anomalies. <p>Irving Gringorten, Design Climatology Br (CREW), Aerospace Instrumentation Lab, AFCRL</p> <p>AID S&T Section, Geophysics Unit - (Miss) E. Howell, Supervisor</p>	Continuing Task Irregular Reports (Rpt #2 In typing Rpt #3 In editing)
35-Task 9a	<p>GLAZE AND THE ICING OF OVERHEAD WIRES IN THE USSR</p> <p>(In support of Project 8624)</p> <p>Translation of the following monograph: Rudneva A. V., "Gololed i obledeneniye provodov na territorii SSSR," Leningrad, Gidrometeoizdat, 1961, 175 pp.</p> <p>Irving Gringorten, Design Climatology Br (CREW), Aerospace Instrumentation Lab, AFCRL</p> <p>AID Special Activities Section - J. Vulfson, Supervisor</p>	Being published
35-Task 9b	<p>300-METER METEOROLOGICAL TOWER</p> <p>(In support of Project 4336)</p> <p>Translation of the following paper: Klinov, F. Ya., "Stationary Meteorological Measurements in the Lower 300-Meter</p>	Draft sent to sponsor

Layer of the Atmosphere." IN: Akademiya nauk SSSR. Institut prikladnoy geofiziki. Moskva, 1963. pp. 3-40.

Dr. Milton Kerker, Weather Radar Br (CRHA), Meteorology Lab, AFCRL

35-Task 9c DETERMINATION OF DROP SPECTRA BY THE SMALL-ANGLES METHOD (In support of Project 8620)

Translation of the following paper:

Shifrin, K.S., and V. I. Golikov. "Opredeleniye spektra kapel' metodom malykh uglov." IN: Akademiya nauk SSSR. Institut prikladnoy geofiziki Moskva 1961, pp. 266-277.

Dr. Milton Kerker, Weather Radar Br (CRHA), Meteorology Lab, AFCRL

Translated by Joint
Publications Research
Service

35-Task 10 SKY ILLUMINATION DURING ECLIPSE (In support of Project 7661)

Literature survey and review of Soviet-Bloc research on sky illumination during solar eclipse with reference to sky brightness, light polarization, and photometry of the corona.

Dr. Sam Silverman, Chief, Aurora & Airglow Br (CRUA), Upper Atmosphere Physics Lab, AFCHL

AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor

Continuing Task
Irregular Reports
(Draft of Rpt #1
submitted to
sponsor)

35-Task 13 SURFACE CHARACTERISTICS OF MARS, VENUS AND THE MOON (In support of Project 7698)

Semiannual annotated bibliography and review of Soviet-Bloc research on the surface characteristics of Mars, Venus and the Moon with reference to light polarization and albedo measurement techniques including information on water sources and exploitation.

Dr. John W. Salisbury, Chief, Lunar-Planetary Research Br (CRFL), Space Physics Lab, AFCRL

AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor

Continuing Task
Irregular Reports

35-Task 15 GEODESY, CARTOGRAPHY AND INSTRUMENTATION (In support of Project 7600)

State-of-the-art studies on the following subjects:

- a. Leveling and tachymetric techniques.
- b. New geodetic instruments.

Continuing Task
Irregular Reports

c. Use of Gause-Küger method.

Theodore E. Wirtanon, Geodesy & Gravity Br (CRJG), Terrestrial Sciences Lab, AFCRL

AID SGT Section, Geophysics Unit - (Miss) E. Rowell, Supervisor

35-Task 17

SEISMOLOGY: SEISMIC MODELING, ELASTIC PROPERTIES OF ROCKS AND RELATED PROBLEMS
(In support of Project 7639)

Continuing Task
Irregular Reports

State-of-the-art studies on the following subjects:

- a. Distinction between seismic waves generated by earthquakes and waves produced by artificial explosions.
- b. Model seismology.
- c. Microseisms and noise signals.
- d. Yield stress and plastic flow properties of rocks under high pressures and temperatures.
- e. Decoupling phenomena.
- f. "Mohole"-type operations.
- g. Rock deformation apparatus.
- h. Elastic properties of rocks.
- i. Abyssal drilling.
- j. Crustal deformation.

Henry A. Ossing and Ker C. Thomson, Wave Propagation Br (CRJW), Terrestrial Sciences Lab, AFCHL

AID SGT Section, Geophysics Unit - (Miss) E. Rowell, Supervisor

35-Task 17b

ON THE THEORY OF OPTIMUM RECEPTION OF SEISMIC SIGNALS (In support of Project 7639)

Draft submitted
to sponsor

Detailed abstracts are to be prepared on the following:

Gol'tsman, F. M. "K teorii optimal'nogo priyema seysmicheskikh signalov." Chast' I (pp. 121-132) Chast' II (pp. 133-142). Voprosy dinamicheskoy teorii rasprostraneniya seysmicheskikh voln, no. 4, 1962.

Henry A. Ossing, Wave Propagation Br (CRJW), Terrestrial Sciences Lab, AFCRL

AID SGT Section, Geophysics Unit - (Miss) E. Rowell, Supervisor

35-Task 17c

USSR SEISMIC STATIONS: APPARATUS AND OBSERVATION METHODS (In support of Projects 7639/0652)

Translation avail-
able through
Office of Technical
Services, Dept of
Commerce

Detailed abstract-extract of the following:

Arkhangel'skiy, V. T., D. P. Kirnos, A. G. Moskvina, V. N. Solov'yev, N. Ye. Fedoseyenko, V. M. Fremd, and N. V. Shebalin. "Apparatus and Observation

Methods Used at the Seismic Stations of the USSR." IN: Akademiya nauk SSSR. Section III. 1962. pp. 88-164.

Henry A. Ossing, Wave Propagation Br (CRJW), Terrestrial Sciences Lab, AFCRL

35-Task 17d

AN IMPROVED VERSION OF THE UNIVERSAL FILTER AND ITS USE IN THE FREQUENCY ANALYSIS OF NONSTATIONARY SIGNALS (In support of Project 7639)

Draft sent to sponsor for review

Translation of the following paper:

Birman, A. Ye., and Yu. G. Kval'vasser, "An Improved Version of the Universal Filter and its Use in the Frequency Analysis of Nonstationary Signals." IN: Voprosy dinamicheskoy teorii rasprostraneniya seysmicheskikh voln. no. 6, pp. 212-220.

Frank A. Crowley, Wave Propagation Br (CRJW), Terrestrial Sciences Lab, AFCRL

AID SGT Section, Geophysics Unit - (Miss) E. Rowell, Supervisor

35-Task 18

GEOMAGNETISM, MAGNETIC VARIATIONS AND SPECTRUM ANALYSIS (In support of Project 8601)

Continuing Task
Irregular Reports

State-of-the-art studies on the following subjects:

- a. Space magnetic measurements from rockets and satellites.
- b. Long- and short-period geomagnetic variations.
- c. Van Allen radiation belts.
- d. Spectrum analysis and magnetic frequencies.
- e. Plasma in space.
- f. Auroral particles.

Bertram Shuman and Edwin J. Chernosky, Geomagnetism Br (CRFG), Space Physics Lab, AFCRL

AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor
Geophysics Unit - (Miss) E. Rowell, Supervisor

35-Task 19

LUNAR DIMENSIONS (In support of Project 8654)

Continuing Task
Irregular Reports

Literature survey with brief annotations of Soviet-Bloc research on lunar dimensions and distance from the earth with reference to lunar revolution and rotation, libration, and mapping techniques; lunar geodesy.

Mahlon S. Hunt, Geodesy & Gravity Br (CRJG), Terrestrial Sciences Lab, AFCRL

AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor

35-Task 20	GASEOUS NEBULAE	(In support of Project 8635)	In editing
	Literature survey with annotated bibliography of Soviet-Bloc research on the physical processes of gaseous nebulae, dust clouds and grains, hot stars and young stars, and the interrelations among all these objects. Also, the structure, kinetics, and dynamics of the galaxy and other galaxies. Period to be covered: 1958 to present.		
	Dr. Gordon W. Wares, Chief, Experimental Astronomy Br (CRFP), Space Physics Lab, AFCRL		
	AID S&T Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor		
35-Task 21	RESEARCH ON F-VALUES	(In support of Project 8635)	Draft sent to sponsor for review
	Literature survey with annotated bibliography of Soviet-Bloc research on F-values Period to be covered: 1958 to present.		
	Dr. Gordon W. Wares, Chief, Experimental Astronomy Br (CRFP), Space Physics Lab, AFCRL		
	AID S&T Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor		
35-Task 22	ELECTRODYNAMICS OF THE CORONA	(In support of Project 8635)	Continuing Task Irregular Reports (Draft submitted for sponsor's review)
	Literature survey with annotated bibliography of Soviet-Bloc research on electrodynamics of the corona (Period: 1955 to present); and the general magnetic field of the sun (Period: 1960 to present).		
	Dr. Marvin L. White, Experimental Astronomy Br (CRFP), Space Physics Lab, AFCRL		
	AID S&T Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor		
35-Task 23	HIGH-PRESSURE NONMETALLIC SUBSTANCES	(In support of Project 7639)	Continuing Task Irregular Reports (Rpts #1 and 2 in editing, Rpt #3 sent to sponsor for evaluation)
	Literature survey and report on Soviet-Bloc research in high-pressure properties of natural rock-forming materials (rocks and minerals), especially nonelastic constants at high pressures, and nonelastic properties of rocks; also rock-deformation apparatus for pressures above 10 kilobars.		
	1st Lt Karl E. Seifert, Wave Propagation Br (CRJW), Terrestrial Sciences Lab, AFCRL		
	AID S&T Section, Geophysics Unit - (Miss) E. Rowell, Supervisor		

35-Task 24	<p>METEOR PHYSICS AND EXTRATERRESTRIAL MATERIAL (In support of Project 7667)</p> <p>Literature survey with annotated bibliography of Soviet-Bloc research on meteor physics and extraterrestrial material. Period: 1957 to present.</p> <p>Dr. Robert K. Soberman, Chief, Meteor Physics Br (CRFD), Space Physics Lab, AFCRL</p> <p>AID SET Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor</p>	<p>Continuing Task Irregular Reports (Rpt sent to sponsor for evaluation)</p>
35-Task 26	<p>MAGNETIC ASTROPHYSICS, COSMOGONY, AND STELLAR FORMATIONS (In support of Project 8635)</p> <p>Literature survey and abstracts of Soviet-Bloc research on the following:</p> <ul style="list-style-type: none"> a. Solar Corona: coronal density, temperature, composition, ionization, electrical and thermal currents, conductivity, magnetic and electrical field. b. Magnetic Astrophysics: galactic and interstellar magnetic field, data, theory of formation, configuration and evolution. c. Cosmogony: theory of stellar formation, condensation, planetary evolution, magnetic, nonmagnetic. <p>Noel Stone, Aurora & Airglow Br (CRUA), Upper Atmosphere Physics Lab, AFCRL.</p> <p>AID SET Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor</p>	<p>Rpt on part "a" in editing. Parts "b" and "c" can- celled at request of sponsor</p>
35-Task 29	<p>OPTICAL DETECTION (In support of Project 7621)</p> <p>Literature survey with abstracts of Soviet-Bloc research on:</p> <ul style="list-style-type: none"> a. Object detection and recognition by the human eye, by optical, electrooptical or photographic means; b. Indexing of visual target characteristics; c. Image restoration techniques. <p>Robert B. Toolin, Atmospheric Optics Br (CROA), Optical Physics Lab, AFCRL</p> <p>AID SET Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor</p>	<p>In editing</p>
35-Task 30	<p>DISTRIBUTION AND INTENSITY OF SKY AND EARTH RADIATION IN THE 2000-9000 Å Region (In support of Project 7621)</p> <p>Literature survey with abstracts of Soviet-Bloc research on distribution and intensity of sky and earth radiation in the 2000-9000 Å region:</p> <ul style="list-style-type: none"> a. High-altitude balloon sky-brightness measurements; b. High-altitude rocket sky-brightness measurements; 	<p>In preparation</p>

- c. Near-sun and near-moon radiance measurements;
- d. Spectral distribution of upwelling and downwelling optical radiational intensities between 2000 and 9000 Å;
- e. Automatic sky-scanning mechanisms and techniques.

Robert B. Toolin, Atmospheric Optics Br (CROA), Optical Physics Lab, AFCRL

AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor

35-Task 31

EFFECTS OF SOLAR ANGLE, ATMOSPHERIC TURBULENCE, TERRAIN AND OTHER GEOPHYSICAL PARAMETERS ON RADIANCE MEASUREMENTS
(In support of Project 7621)

In preparation

Literature survey with abstracts of Soviet-Bloc research on the effects of solar angle, atmospheric turbulence, terrain and other geophysical parameters on the distribution and intensity of sky and earth radiation in the 2000-9000 Å region:

- a. Skylight intensity and polarization above a cloud deck;
- b. Spectral reflection of various terrains;
- c. Diurnal and annual variations of spectral intensity of ultraviolet sky and global radiation.

Robert B. Toolin, Atmospheric Optics Br (CROA), Optical Physics Lab, AFCRL

AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor

35-Task 32

OPTICAL PROPERTIES OF THE ATMOSPHERE
(In support of Project 7621)

In preparation

Literature survey with abstracts of Soviet-Bloc research on optical properties of the atmosphere:

- a. Spectral polarization qualities of the atmosphere;
- b. Polarimeters, optical;
- c. Volume-Scattering-Function meters;
- d. Concentration of particular matter, i.e., aerosol size distribution in the atmosphere;
- e. Composition of aerosols;
- f. Scattering of optical radiation by fogs and hazes.

Captain Thomas F. Conley, III, Atmospheric Optics Br (CROA), Optical Physics Lab, AFCRL

AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor

35-Task 33	OPTICAL RADIATION TRANSFER MODELS	(In support of Project 7621)	In preparation
	<p>Literature survey with abstracts of Soviet-Bloc research on optical radiation transfer models.</p> <ul style="list-style-type: none"> a. Effect of multiple scattering on optical transfer in the atmosphere; b. Scattering of diffuse light by spherical particles in concentrated suspension; c. Scattering in presence of turbidity and in presence of absorption. <p>Captain Thomas F. Conley, III, Atmospheric Optics Br (CRDA), Optical Physics Lab, AFCRL</p> <p>AID S&T Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor</p>		
35-Task 35	GEOMAGNETIC RESEARCH BY THE SOVIET SHIP "MIKHAIL LOMONOSOV"	(In support of Project 7601)	In editing
	<p>Brief review article and literature survey with abstracts of papers on the geomagnetic equipment and measurements being conducted by the Soviet ship, "Mikhail Lomonosov." Specifically, what instruments are being used, what kind of measurements are made, where and how is the data to be reported, who are the scientists involved?</p> <p>Robert O. Hutchinson, Geomagnetism Br (CRFG), Space Physics Lab, AFCRL</p> <p>AID S&T Section, Geophysics Unit - (Miss) E. Rowell, Supervisor</p>		
35-Task 36a	THEORETICAL PLASMA PHYSICS AND DYNAMICS	(In support of Project 8647)	In editing
	<p>Literature search with abstracts of Soviet and Soviet-Bloc research on wave propagation in plasmas, shock waves and the kinetic theory of plasmas.</p> <p>Dr. Hari K. Sen, Senior Scientist, Space Physics Lab (CRF), AFCRL</p> <p>AID S&T Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor</p>		
35-Task 38	ABSTRACTS OF SOVIET JOURNAL "METEORITIKA"	(In support of Project 8602)	Continuing Task Irregular Reports
	<p>Material on each issue is to be provided separately, commencing with the most recent issues and working back. Full information will be provided on the availability of translations of individual articles in cases where these are known to have been done.</p> <p>1st Lt Robert T. Dodd, Lunar-Planetary Rsch Br (CRFL), Space Physics Lab, AFCRL</p> <p>AID S&T Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor</p>		

35-Task 38b

COMPOSITION AND STRUCTURE OF CHONDRITES AND METEORITES

(In support of Project 8602)

Draft sent to sponsor

Translations of the following:

- a. D'yakonova M. I., and V. Ya. Kharitonova. "Chemical Composition of the Chondrites of the Nikol'skoye and Saratov Meteorites." IN: Meteoritika, no. 22, 1962, pp. 71-73.
- b. Kadushin, A. A. and G. G. Vorob'yev. "Method of Investigating Meteorites and Tektites by Means of Infrared Spectrometry." IN: Meteoritika, no. 22, 1962, pp. 104-109.
- c. Yavnel', A. A. "Composition, Structure and Conditions of Iron Meteorite Crystallization." IN: Meteoritika, no. 22, 1962, pp. 83-93.
- d. Yavnel', A. A. "Ratio of Different Forms of Iron in Chondrites." IN: Meteoritika, no. 22, 1962, pp. 74-82.
- e. Baranov, V. I., and K. G. Knorre. "Age and Evolution of Meteoritic and Terrestrial Matter in the Light of Recent Investigations." IN: Meteoritika, no. 21, 1961, pp. 15-61.
- f. D'yakonova, M. I., and V. Ya. Kharitonova. "Chemical Composition of 18 Stony Meteorites from the Collection of the USSR Academy of Sciences." IN: Meteoritika, no. 21, 1961, pp. 52-59.
- g. Grigor'yev, D. P., V. D. Kolomenskiy, and V. G. Kuznetsova. "On the Development of a Mineralogy of Meteorites." IN: Meteoritika, no. 20, 1961, pp. 172-177.

1st Lt Robert T. Dodd, Lunar-Planetary Research Br (CRFL), Space Physics Lab, AFRL

AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor

35-Task 39

GEOMAGNETIC INVESTIGATIONS BY SOVIET RESEARCH SHIPS

(In support of Project 7601)

Continuing Task
Irregular Reports
(Draft sent to sponsor for review)

Brief review article and literature survey with abstracts of geomagnetic investigations (equipment and research data) being conducted by Soviet and Soviet-Bloc research ships. Report significant geomagnetic measurement data for the last 10 years; report research-ship voyages for last three years. Specifically, provide information on what instruments are being used what kind of measurements are made, where and how the data is reported, and who are the scientists involved. In particular, include data on measurements of total magnetic intensity taken at sea within approximately 1,000 miles of Capetown, South Africa.

Robert O. Hutchinson, Geomagnetism Br (CRFG), Space Physics Lab, AFRL

AID SGT Section, Geophysics Unit - (Miss) E. Rowell, Supervisor

35-Task 40

RADIOMETRY AND PHOTOMETRY OF THE TERRESTRIAL PLANETS

(In support of Project 7628)

Preliminary stage

Literature survey with abstracts of Sino-Soviet-Bloc research on radiometry and photometry of the terrestrial planets.

John F. Cronin, Geotechnics Br (CRJT), Terrestrial Sciences Lab, AFCRL

AID SGT Section, Aerospace Sciences and Support Unit - Dr. I. Soukhanov, Supervisor

35-Task 41 SOLAR CORONAL EVAPORATION AND DISSIPATION (In support of Project 8647)

Available from Office
of Technical Services,
Dept. of Commerce

Translation of the following paper:

Pikel'ner, S. B. "Solar Coronal Evaporation and Dissipation." IN: Izvestiya,
Krymskaya astrofizicheskaya observatoriya. AN SSSR, v. 5, 1950, pp. 34-50.

Dr. Hari K. Sen, Senior Scientist, Space Physics Lab (CRF), AFCRL

AID No. 36 INFORMATION COMPLEXES (ELECTRONICS - RESEARCH IN INFORMATION THEORY)

No current tasks.

AID No. 37 INFORMATION COMPLEXES (ELECTRONICS - RESEARCH ON ELECTRONIC INFORMATION)

37-Task 2a TRANSMITTING SATELLITE PROPAGATION STUDIES (In support of Project 5629)

Continuing Task
Irregular Reports

Continuing literature survey of Soviet-Bloc sources for significant data on propagation studies using transmitting satellites; based on Soviet Cosmos series.

John P. Mullen, Radio Astronomy Br (CRFR), Space Physics Lab, AFCRL

AID SGT Section, Electrical Engineering Unit - R. Zavistovich, Supervisor

37-Task 4 UNDERGROUND COMMUNICATIONS (In support of Project 1600)

Continuing Task
Irregular Reports

Literature survey with annotated bibliography of Soviet-Bloc research on radio propagation within the earth's crust (with emphasis on communication applications); also on communications using artificial telluric currents (conduction field communications). Period: 1960 to present and continuing; with subsequent retrospective coverage if interesting material is indicated.

Arnold Orange, Transmission Br (CRDT), Microwave Physics Lab, AFCRL

AID SGT Section, Electrical Engineering Unit - R. Zavistovich, Supervisor

AID No. 38 LIFE SCIENCES (BIOLOGICAL SCIENCES)

- 38-Task 1a BRAIN MODELLING (In support of Project 4645) In preparation
- Literature survey and review article on Soviet-Bloc personalities, institutes, and the general organizational structure involved in biocybernetics research. This task was generated by the fulfillment of AID No. 38, Task 1.
- Harry Blum, Data Sciences Lab (CRH), AFCRL
- AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor
- 38-Task 1b ELECTROPHYSIOLOGY OF THE CENTRAL NERVOUS SYSTEM (In support of Project 4645) In editing
- Extended or detailed abstracts of the following monograph:
Makarchenko, A. F. (ed). "Basic Problems in the Electrophysiology of the Central Nervous System." Kiyev, Izd-vo AN UkrSSR, 1962, 231 pp.
- Harry Blum, Data Sciences Lab (CRB), AFCRL
- AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor
- 38-Task 3 TELEPATHIC PHENOMENA (Not in support of specific project) In editing
- Literature search with abstracts and annotated bibliography of Soviet and Soviet-Bloc research in the study of telepathic phenomena.
- Dr. Harold Wooster, Director, Directorate of Information Sciences (SRI), AFOSR
- AID SGT Section, Aerospace Sciences and Support Unit - Dr. I. Soukhanov, Supervisor

AID No. 39 LIFE SCIENCES (BEHAVIORAL SCIENCES)

No current tasks.

AID No. 40 MATERIALS RESEARCH (HIGH-TEMPERATURE MATERIALS)

No current tasks.

AID No. 41 MATERIALS RESEARCH (SOLID STATE PHYSICS)

- 41-Task 1 NONMETALLIC MATERIALS (Not in support of specific project) Rpt. #2-draft sent to sponsor

- Part I: Prepare a list of literature, including key words and author's name of all papers published in Soviet and satellite literature, from 1958 to present on the following: organosodium, -potassium, -magnesium, and -lithium chemistry, excluding those dealing with industrial production of polymerization catalysts.
- Part II: Same as above on: organosilicon and organogermanium chemistry, excluding those dealing with silicones and related compounds and/or germanium in polymer molecules.

Rpt # 3-draft sent to sponsor

Dr. Leonard Spialter, Chemistry Research Br (ARC), ARL

AID SGT Section, Nonmetallic Materials Unit - B. Nartsissov, Supervisor

41-Task 2a

SILICON CARBIDE

(In support of Project 5621)

Continuing Task
Irregular Reports

Literature survey with abstracts of Soviet-Bloc research on silicon carbide. This task was generated by the fulfillment of AID No. 41, Task 2.

Dr. Juris Smiltens, Crystal Growth Sec (CRNPC), Solid State Sciences Lab, AFRL

AID SGT Section, Nonmetallic Materials Unit - B. Nartsissov, Supervisor

41-Task 4

LUMINESCENCE OF COMPLEX MOLECULES

(In support of Project 7013)

Continuing Task
Irregular Reports

Literature survey and report of Soviet-Bloc research in the area of luminescence of complex molecules. This includes such topics as: (a) gaseous, liquid and solid states of matter; (b) lifetime of excited states; (c) quantum yield of fluorescence and phosphorescence; (d) internal conversion processes; and (e) intra- and intermolecular energy transfer. No interest is indicated in crystalline solids.

Dr. Jean Dubois, Chemistry Research Br (ARC), ARL

(Dr. Gene Futrell will be adviser for this task during Dr. Dubois' leave of absence)

AID SGT Section, Nonmetallic Materials Unit - B. Nartsissov, Supervisor

41-Task 5

ULTRA-HIGH PRESSURE STUDIES AND CRYSTAL-GROWTH TECHNIQUES

(In support of Project 5621)

Continuing Task
Irregular Reports
(Rpt #1-draft submitted to sponsor.
Rpt #2-preliminary stage, 50% completed.)

Literature survey with annotated bibliography and review article for the period 1955 to present on the following subject:

- Ultra-high pressure studies - formation of various (nonmetallic) crystals by high pressure.
- Crystal growth by all techniques, e.g., Czochralski, Verneuil, from the melt, from solution, from the vapor phases, etc.

Charles S. Sahagian, Crystal Growth Sec (CRWPC), Solid State Sciences Lab, AFCL.

AID SGT Section, Nonmetallic Materials Unit - B. Nartsissov, Supervisor

41-Task 7

PURIFICATION OF BORON

(In support of Project 5620)

Continuing Task
Irregular Reports

Literature survey with abstracts of Soviet-Bloc research on the purification of boron and the evaluation of the electrical properties of boron.

Dr. Alton F. Armington, Purification & Properties Sec (CRWCP), Solid State Sciences Lab, AFCL

AID SGT Section, Nonmetallic Materials Unit - B. Nartsissov, Supervisor

41-Task 7a

CONFERENCE ON BORON, ITS COMPOUNDS, AND ITS ALLOYS

(In support of Project 5620)

Rpt #1-draft sent
to sponsor
Rpt #2-in editing

Abstracts of the papers presented at a conference on boron and its compounds and alloys, sponsored by the Division of Metallurgy and Special Alloys, Ukrainian Academy of Sciences, held in Kiev, 11-14 December 1962.

Dr. Alton F. Armington, Purification & Properties Sec (CRWCP), Solid State Sciences Lab, AFCL.

AID SGT Section Metallic Materials Unit - D. Vvedensky, Supervisor

41-Task 8

CHEMISTRY OF RARE EARTHS AND ACTINIDE DERIVATIVES

(In support of Projects 6694/8659)

In editing

Literature survey with abstracts of Soviet-Bloc research on the chemistry of rare earths and actinide derivatives of phthalocyanines, porphyrines, chlorophyll and some chelates (to be specified by the scientist). The luminescent, electric and catalytic properties of the compounds are to be noted. Of special interest are the chelates derived from Tb, Gd, Eu, Sc, and U.

Dr. Sup Chatterjee, Energetics Br (CRFE), Space Physics Lab, AFCL

AID SGT Section, Nonmetallic Materials Unit - B. Nartsissov, Supervisor

41-Task 9

ORGANIC SEMICONDUCTORS

(In support of Project 6694/8659)

In editing

Literature survey with abstracts of Soviet-Bloc research on electric properties of organic

semiconductors and photoconductors. Attention is to be given to all classes of organic semiconductors, e.g., polymers with conjugated bond system, metal chelates, cene structures, pyropolymers, and phototropic agents. Abstracts of Soviet reviews on the subject are also desired (1950-1960).

Dr. Sup Chatterjee, Dr. Nicholas F. Yannoni, Energetics Br (CRFE), Space Physics Lab, AFCRL

AID SGT Section, Nonmetallic Materials Unit - B. Nartsissov, Supervisor

41-Task 10

STRUCTURE OF ORGANIC CRYSTALS

(In support of Project 6694)

In editing

Literature survey with abstracts of Soviet-Bloc research on the structure of organic crystals by means of X-ray, electron and neutron diffraction. Abstracts of reviews on the subject are desired (1950-1960).

Dr. Nicholas F. Yannoni, Energetics Br (CRFE), Space Physics Lab, AFCRL

AID SGT Section, Nonmetallic Materials Unit - B. Nartsissov, Supervisor

41-Task 11

ENERGY-TRANSFER PROCESSES IN PHOTOBIOLOGY AND PHOTOCHEMISTRY

(In support of Project 6694)

Draft submitted
to sponsor for
review

Literature survey with abstracts of Soviet-Bloc research on photobiology and photochemistry, in particular on the energy-transfer processes, such as (a) photosynthesis, (b) vision, and (c) biological macromolecule (protein, enzyme and nucleic acid). The redox and catalytic reaction with participation of porphyrins, their derivatives and analogs are of interest. Attention is to be given to the works of Soviet scientists A. A. Krasnovskiy and A. N. Terenin.

Dr. Eiji Fujimori, Energetics Br (CRFE), Space Physics Lab, AFCRL

AID SGT Section, Nonmetallic Materials Unit - B. Nartsissov, Supervisor

41-Task 12

COMPOUND SEMICONDUCTORS

(In support of Project 5621)

Draft sent to
sponsor for
review

Literature survey with abstracts of Soviet-Bloc research on:
a. The formation, obtaining and chemical properties of $Al^{III}B^V$, $Al^{III}B^VI$, and $Al^{VI}B^{IV}$ compounds
b. Phase diagrams of these compounds in crystalline and glassy state.
c. Their electric properties and prospective use as semiconductors in laser techniques.
d. Special attention is given to: (1) GaAs and (2) thin-film deposits of the above materials.

Richard F. Cornelissen, Device Physics Sec (CRWPD), Solid State Sciences Lab, AFCRL

AID SGT Section, Nonmetallic Materials Unit - B. Nartsissov, Supervisor

AID No. 42 AEROMECHANICS

No current tasks.

AID No. 43 PHYSICAL SCIENCES

43-Task 4a	SEMICONDUCTING DIAMONDS	(In support of Project 5621)	Continuing Task Irregular Reports
	Literature survey with abstracts of Soviet and Soviet-Bloc research on semiconducting diamonds, including work on measurements, measurement methods, and the methods for growing synthetic diamonds. This task is a continuation of AID No. 43, Task 4.		
	Dr. Ernst R. Czerlinsky, Crystal Properties Sec (CRWPQ), Solid State Sciences Lab, AFCRI.		
	AID SGT Section, Physics Unit - S. Kassel, Supervisor		
43-Task 8b	PROCEEDINGS OF THE 11TH CONFERENCE ON LUMINESCENCE	(In support of Projects 6694/8604)	Translation avail- able at Joint Publications Rsch Service
	Translation of the following: Proceedings of the 11th Conference on Luminescence, held at Minsk, 10-15 September 1962. IN: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 27, nos. 4, 5 and 6, 1963, pp. 455-841.		
	Dr. Norman Rosenberg, Chief, Energetics Br (CRFE), Space Physics Lab, AFCRI.		
43-Task 9	DETECTION OF TRIPLET STATE BY EPR	(In support of Project 6694)	Cancelled. Sponsor transferred.
	Literature survey and report on Soviet-Bloc research on detection of the triplet state by EPR methods and photolysis. Report should include detailed data from the following articles listed in AID Report 62-19, 5 Jan 1962, "Personalities and Organizations Active in Soviet Maser and Laser Research," Items 143, 144, 145, 149 and 150.		
	Frederick Lowenstein, Energetics Br (CRFE), Space Physics Lab, AFCRI.		
	AID SGT Section, Physics Unit - S. Kassel, Supervisor		
43-Task 10	NONMAGNETIC MASS SPECTROMETERS AND MASS SPECTROMETRY	(In support of Project 8605)	Continuing Task Irregular Reports
	Literature survey with detailed annotated bibliography of Soviet-Bloc research on nonmagnetic mass spectrometers and mass spectrometry. Specifically to cover time-		

AID SGT Section, Physics Unit - S. Kassel, Supervisor

Continuing Task
Irregular Reports

AID S&T Section, Physics Unit - S. Kassel, Supervisor

Continuing Task Irregular Reports

ALU SGT Section, Physics Unit - S. Kassel, Supervisor

Continuing Task
Irregular Reports
(Draft submitted
to sponsor for
review)

AID S&T Section, Physics Unit - S. Kassel, Supervisor

Continuing Task
Irregular Reports

Literature survey and annotated bibliography of Soviet-Bloc research on radio-astronomy

antennas, and on the processing of radio-astronomy data. Period: Sufficient to cover significant data.

Dr. Alan C. Schell, Radiation & Reflection Br (CRDG), Microwave Physics Lab, AFCRL

AID SGT Section, Electrical Engineering Unit - R. Zavistovich, Supervisor

43-Task 17

COSMIC-NOISE ABSORPTION

(In support of Project 5631)

In editing

Literature survey with annotated bibliography of Soviet-Bloc research on cosmic-noise absorption (riometers), with emphasis on instrumentation, data obtained, and personalities involved. Period: 1958 to present.

Samuel Horowitz, Ionospheric Properties Br (CRUP), Upper Atmospheric Physics Lab, AFCRL

AID SGT Section, Aerospace Sciences & Support Unit - Dr. I. Soukhanov, Supervisor
Electrical Engineering Unit - R. Zavistovich, Supervisor

43-Task 18a

NONUNIFORM TRANSMISSION LINES

(In support of Project 5635)

Continuing Task
Irregular Reports

Literature survey and abstracts of Soviet-Bloc research on nonuniform transmission lines, in particular the work of A. L. Fel'dstein. This task was generated as a result of AID No. 43, Task 18.

Dr. E. Folke Holinder, Waves & Circuits Br (CRDW), Microwave Physics Lab, AFCRL

AID SGT Section, Electrical Engineering Unit - R. Zavistovich, Supervisor

43-Task 19

ELECTROSTATIC PHOTOGRAPHY

(In support of Project 5621)

Draft submitted
to sponsor

Literature survey with abstracts of Soviet-Bloc research on: (a) Electrostatic photography; (b) Solid-state photography; and (c) dry photographic processes. Analogous to American processes like xerography, thermoplastic recording, etc., in which semiconductor films (selenium, zinc oxide, etc.) are charged electrostatically and then exposed to light to form a charge image which is then converted into a visible image by use of a toner (xerography) or heat (thermoplastic recording).

Charles E. Ryan, Chief, Solid State Physics Br (CRWP), Solid State Sciences Lab, AFCRL

AID SGT Section, Physics Unit - S. Kassel, Supervisor

43-Task 22
Task 23
Task 24

RADIATION DAMAGE IN SOLIDS

(In support of Projects 5620/5621/4608)

Draft submitted
to sponsor for
review

Literature survey with compilation of abstracts of Soviet and Soviet-Bloc research on:
Irradiation of Materials

- a. Radiation agents; all, primarily electrons and neutrons.
- b. Irradiated targets; all, primarily metals, semiconductors, and high-purity crystals.
- c. Basic measurement parameters or data to be determined: Hall effect, conductivity, atomic displacement threshold energy, annealing behavior.
- d. Determination of radiation damage.

Lattice Dynamics of Irradiated Materials

- a. Creation of complex defects resulting from interaction of radiation defects with structural and chemical imperfections.
- b. Methods of predicting changes in properties of irradiated materials.

Spectroscopic Studies of Irradiated Materials

- a. Electron-spin resonance in irradiated silicon.
- b. Optical-range absorptions and emission in para- and ferromagnetics.
- c. High-energy pumping of laser crystals.

Edward A. Burke, Chief, Radiation Effects Sec (CRWCR), Solid State Sciences Lab, AFCRL

AID SGT Section, Physics Unit - S. Kassel, Supervisor

43-Task 25

RADIATION DAMAGE IN SOLIDS

(In support of Projects 5620/5621/4608)

Draft sent to
sponsor for
review

Literature survey with compilation of abstracts of Soviet and Soviet-Bloc research on
Ultrasonic Attenuation Studies of Irradiated Materials

Include all agents (gamma, neutron, proton, etc.) and all materials.

Edward A. Burke, Chief, Radiation Effects Sec (CRWCR), Solid State Sciences Lab, AFCRL

AID SGT Section, Metallic Materials Unit - D. Vvedensky, Supervisor

43-Task 26

MATHEMATICS OF ANTENNAS: ANTENNA THEORY

(In support of Project 4600)

Preliminary
stage

Literature survey with abstracts of Soviet-Bloc research on space frequency analysis, antenna transfer functions, applications of communications and information theory to antennas, Fourier transforms, convolution equations, and object frequency spectra.
Period to be covered: 1960 to present.

John P. McIlvenna, Microwave Interactions & Analysis Br (CRDA), Microwave Physics Lab, AFCRL

AID SGT Section, Electrical Engineering Unit - R. Zavistovich, Supervisor

43-Task 27

VLF COMMUNICATIONS

(In support of Project 4603)

Preliminary
stage

Literature survey with abstracts and data on Soviet-Bloc research in very low-frequency communications. Emphasize experimental and applied work. Cover transarctic communications, VLF stations, frequencies, etc.

Captain Leo J. Sheehan, Electromagnetic Environment Br (CRUE), Upper Atmosphere Physics Lab, AFCRL

AID SGT Section, Electrical Engineering Unit - R. Zavistovich, Supervisor

43-Task 28

EQUATIONS FOR COHERENT SCATTERING OF RADAR WAVES FROM CLOUDS AND RAINDROPS

(In support of Project 6672)

Published in
English in
SCIENTIA SINICA,
v. 12, no. 5,
May 1963. Avail-
able at Library
of Congress and
other major
libraries

Translation of the following:

Li, Ch'i-ch'en. "Equations for Coherent Scattering of Radar Waves from Clouds and Raindrops." IN: Chung Kuo K'o Hsueh, v. 12, no. 5, May 1963, pp. 695-708.

Dr. David Atlas, Chief, Weather Radar Br (CRHA), Meteorology Lab, AFCRL

AID No. 44 NUCLEAR-WEAPONS EFFECTS

No current tasks.

PART II: The following task requirement has been submitted for approval and implementation.

QUENCHING AND SENSITIZING OF LUMINESCENCE; INTRAMOLECULAR AND INTERMOLECULAR ENERGY TRANSFER
(In support of Project 8604)

Translations of the following:

- a. Bibliography on the various reports presented at the Eleventh Conference on Luminescence. IN: Akademiya nauk SSSR. Izvestiya seriya fizicheskaya, v. 27, no. 6, pp. 803-804, no. 4 and 5, 1963.
- b. Items to be selected by the scientist from the above bibliography on the subjects of quenching and sensitizing of luminescence; intramolecular and intermolecular energy transfer; and related aspects of these topics (ozone, rhodamine B, luminol, analytical techniques).
- c. Reports on the emissions of luminescence, when published.

Robert F. Myers, Senior Scientist, Meteorology Lab (CRH), AFCRL

PART III: The following is a listing, with number, title and description, of all reports completed since the last status report, dated 31 March 1964. Reports are listed according to the AID Work Assignment Numbers.

AID No. 35 SKY ILLUMINATION PHENOMENA

Task 4a

Annotated bibliography, covering the period 1957 to June 1963, on combined auroral and airglow reviews, airglow (day, night, twilight), auroras (spectra and excitation mechanisms), noctilucent clouds, zodiacal light, gegenschein, twilight, and instrumentation. There are 301 entries with an author index. The report consists of 201 pages, and is one of a continuing task.

AID Report B-64-42

24 June 1964

AID No. 35 TWO CONTRIBUTIONS OF O.B. FIRSOV TO ATOMIC SPECTROSCOPY

Task 4b

Translations: Firsov, O. B. IN: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 21, no. 5, 1951, 627-633; and IN: Akademiya nauk SSSR, Doklady, v. 69, no. 3, 1949, 357-359.

AID Report T-64-18

8 April 1964

AID No. 35 SOVIET METEOROLOGY AND CLIMATOLOGY

Task 9

Compilation of abstracts and annotated bibliography, covering the period 1960-1962 and part of 1963. Part I is a compilation of abstracts on weather forecasting. Parts II and III are annotated bibliographies on cloud-cover frequency and distribution, and ice accretion and glaze. There are 173 entries with an author index included. The report consists of 100 pages, and is one of a continuing task.

AID Report P-64-37

2 June 1964

AID No. 35 SKY ILLUMINATION DURING ECLIPSE

Task 10

Annotated bibliography, describing photometric investigations of the eclipses of 19 June 1936, 21 September 1941, 9 July 1945, 25 February 1952, 30 June 1952, 2 December 1956, 19 April 1958, 2 October 1959 and 15 February 1961. The availability of translations up to June 1963 are indicated after each item. There are 110 entries of published material since 1940, and an author index is included. The report consists of 68 pages, and is one of a continuing task.

AID Report B-64-20

17 April 1964

AD 439 226

AID No. 35 MAGNETIC OBSERVATIONS OF THE EARTH'S CRUST

Task 16

Review article, dealing with ten papers written by Stasis Blinstrubas on various aspects of the problem of the magnetometric determination of geological structures within the earth's crust. The report includes an introduction, evaluation of proposed methods, eight abstracted papers, and two translations. It consists of 36 pages and completes the task.

AID Report P-64-38

3 June 1964

AID No. 43 DETECTION OF THE TRIPLET STATE BY EPR AND OTHER METHODS
Task 9

AID Report P-64-17
31 March 1964

Compilation of 90 abstracts from seven Soviet periodicals, published mostly between 1960 and 1962. The report is divided into seven parts representing distinct Soviet research groups. It consists of 40 pages, and completes this task.

AID No. 43 RADIO-FREQUENCY MASS SPECTROMETRY
Task 10

AID Report P-64-39
11 June 1964

Comprehensive report, divided into two parts: Instruments; and Studies of the composition of the atmosphere. The report includes 15 drawings and photos, and appendix and 30 references. It consists of 40 pages, and is one of a continuing task.

PART IV: The following is a listing of all reports completed for the AID Project since 1 July 1962, excluding those listed in PART III. They are listed numerically under the AID Work Assignment Numbers.

<u>AID REPORT NUMBER</u>	<u>TITLE</u>	<u>DDC NUMBER (If known)</u>
<u>AID No. 34</u>		
Unnumbered	DIRECT CONVERSION OF ENERGY (Translation: Report of USSR Conference)	
AID Report B-63-78 3 June 1963	EXPLODING WIRES, FILMS AND RIBBONS (Annotated bibliography)	AD 406 244
AID Report T-63-86 19 June 1963	FILM THICKNESS CONTROL BY MEANS OF A CRYSTAL RESONATOR (Translation: Akiskin, A. I., and V. S. Zazulin)	AD 403 614
<u>AID No. 35</u>		
AID Report 62-126 28 August 1962	SEARCHLIGHT BEAM IN THE ATMOSPHERE (Partial translation of book)	
AID Report 62-151 1 October 1962	METEOR TRAIL OBSERVATIONS (Annotated bibliography)	AD 285 335
AID Report 62-153 28 September 1962	SOVIET INFRARED STELLAR SPECTROSCOPY (Annotated bibliography)	AD 205 336
AID Report 62-162 22 October 1962	AIRGLOW, GEGENSCHIN, ZODIACAL LIGHT (Annotated bibliography)	AD 287 263
AID Report 62-190 26 November 1962	HIGH-ALTITUDE BALLOONS (Annotated bibliography)	AD 290 810
AID Report 62-207 21 December 1962	INVESTIGATION OF THE LOWER IONOSPHERE BY MEANS OF LONG RADIO WAVES AND LOW-FREQUENCY PROBES INSTALLED IN A ROCKET (Translation: Krasnushkin, P. Ye., and N. L. Kolesnikov)	AD 292 959
AID Report T-63-7 13 January 1963	NACREOUS CLOUDS (Translation: Khrgian, A. Kh.)	AD 294 134
AID Report S-63-17 23 January 1963	RADAR METHODS OF METEOR OBSERVATION (Book review)	AD 294 996

AID Report T-63-25 21 February 1963	ON PHOTOELECTRIC MEASUREMENTS OF THE NIGHTGLOW OF THE SKY (Translation: Bolyunova, A.D., and V. M. Morozov)	AD 298 590
AID Report T-63-29 25 February 1963	METEORIC MATTER AND SOME GEOPHYSICAL PROBLEMS OF THE HIGH-ATMOSPHERE LAYERS (Translation: Mirtov, B. A.)	AD 299 091
AID Report T-63-37 19 March 1963	THE PROBLEM OF AN EFFICIENT DISTRIBUTION OF GLAZE FRAMES IN THE USSR (Translation: Rudneva, A. V.)	AD 401 318
AID Report P-63-40 25 March 1963	METEOR TRAIL OBSERVATIONS (Comprehensive report)	AD 401 317
AID Report P-63-43 28 March 1963	FORECASTING SOLAR FLARES: A REVIEW OF THE WORK OF B. SEVERNYI IN THE PERIOD 1960-1962 (Selected abstracts)	AD 401 780
AID Report T-63-49 7 April 1963	PHOTOMETRY OF SOLAR FLARES (Translation: Karimov, M. G., A. S. Zubitov, M. I. Antushevich, and S. K. Dosyboyev)	AD 403 860
AID Report T-63-51 25 April 1963	CATALOG OF PHOTOGRAPHIC, PHOTOVISUAL, AND PHOTORED MAGNITUDES OF 22,000 STARS (Translation: Introductory material only; Voroshilov, V. I., Sh. G. Gordeladze, L. N. Klenik, F. I. Lukatskaya, G. L. Fedorschenko, and E. S. Kheylo)	AD 403 862
AID Report T-63-75 20 May 1963	ON THE ATTENUATION OF SOLAR RADIATION IN THE UPPER LAYERS OF THE TROPOSPHERE (Translation: Rabinovich, Yu. I.)	AD 415 823
AID Report P-63-76 22 May 1963	SOVIET-BLOC PARTICIPATION IN THE IQSY (Review article)	AD 408 527
AID Report T-63-81 6 June 1963	THREE-STAGE PHOTOELECTRIC TRANSISTORIZED SERVOSYSTEM (Translation: Badinov, I. Ya.)	AD 415 824
AID Report T-63-82 11 June 1963	ON THE POSITIVE CHARGE OF THE SUN (Translation: Krat, V.)	AD 408 477
AID Report P-63-92 3 July 1963	INSTRUMENTATION USED IN SEARCHLIGHT TECHNIQUES (Compilation of abstracts)	AD 411 349
AID Report B-63-100 30 July 1963	LUNAR DIMENSIONS (Annotated bibliography)	AD 412 932

AID Report T-63-102 2 August 1963	ON MEASURING THE POLARIZATION OF LIGHT IN FOG (Translation: Toropova, T. P.)	AD 412 673
AID Report T-63-104 5 August 1963	PHOTOELECTRIC SELF-RECORDING DAY-SKY PHOTOMETER AND INDICATRIX OF THE SCATTERING OF LIGHT IN THE EARTH'S ATMOSPHERE, INCLUDING SMALL ANGLES OF SCATTERING (Translation: Pavlov, V. Ye.)	AD 417 323
AID Report P-63-107 22 August 1963	SOVIET GEODESY, CARTOGRAPHY AND INSTRUMENTATION: NEW GEODETIC INSTRUMENTS (Compilation of abstracts, summaries and extracts)	AD 419 238
AID Report T-63-122 12 December 1963	SOME NEW DATA ON THE STRUCTURE OF CHONDRITES (Translation: Kvasha, L. G.)	
AID Report T-64-2 16 January 1964	GEOPHYSICAL PROSPECTING AND EXPLORATION METHODS ON THE USE OF PERFORATED MATERIALS IN THE TWO-DIMENSIONAL SEISMIC MODELLING (Translation: Gil'bershteyn, P. G., and I. I. Gurvich)	AD 428 326
AID Report T-64-7 28 January 1964	PROBLEMS AND METHODS OF THE ABSOLUTE PHOTOMETRY OF NOCTILUCENT CLOUDS (Translation: Sharonov, V. V.)	AD 430 526
AID Report T-64-8 3 February 1964	IGY PAPERS ON TECTONICS, SEISMOLOGY AND GRAVITY (Translations of nine papers)	AD 430 046
<u>AID No. 37</u>		
Unnumbered	NONLINEAR OSCILLATIONS (Translation: Kobsarev, J. B.)	
AID Report 62-171, 18 October 1962	RADIO GUIDANCE (Annotated bibliography)	AD 287 217
AID Report S-63-30 6 March 1963	YURIY BORISOVICH KOBZAREV AND HIS WORK (Biography and annotated bibliography)	AD 299 091
AID Report B-63-99 26 July 1963	UNDERGROUND COMMUNICATIONS (Annotated bibliography)	AD 412 427
AID Report P-64-5 23 January 1964	TRANSMITTING SATELLITE PROPAGATION STUDIES (Compilation of abstracts)	AD 430 473

AID Report P-64-9 5 February 1964	TRANSMITTING SATELLITE PROPAGATION STUDIES (Compilation of abstracts)	AD 429 775
<u>AID No. 38</u>		
AID Report 62-174 22 October 1962	CENTRAL NERVOUS SYSTEM MECHANISMS AND MODELS (Annotated bibliography)	AD 287 270
<u>AID No. 41</u>		
AID Report 62-170 24 October 1962	SILICON CARBIDE (Annotated bibliography)	AD 287 218
AID Report 62-196 31 December 1962	ORGANOSILICON AND ORGANOMETALLIC COMPOUNDS (Annotated bibliography)	AD 293 466
AID Report T-63-47 4 April 1963	THE CORE-MANTLE DISCONTINUITY (Translation: Stishov, S. M.)	AD 402 264
AID Report B-63-101 2 August 1963	LATTICE DYNAMICS (Annotated bibliography)	AD 412 953
AID Report B-63-114 13 September 1963	PURIFICATION OF BORON (Annotated bibliography)	
AID Report T-63-119 13 November 1963	PRELIMINARY VARIANT OF THE PHASE DIAGRAM OF THE BORON-SILICON SYSTEM (Translation: Samsonov, G. V. and V. M. Sleptsov)	
AID Report B-63-125 30 December 1963	LUMINESCENCE OF COMPLEX MOLECULES (Annotated bibliography)	AD 427 157
<u>AID No. 42</u>		
AID Report T-63-1 2 January 1963	ON AN UNSYMMETRIC HYPERSONIC FLOW ABOUT A CIRCULAR CONE (Translation: Bulakh, B.M.)	AD 292 958
AID Report T-63-22 1 March 1963	HEAT TRANSFER IN THE REGION OF THERMAL STABILIZATION FOR LIQUID METALS FLOWING TURBULENTLY IN A TUBE (Translation: Subbotin, V.I., M. Kh. Ibragimov, and Ye. V. Nomofilov)	AD 298 589

AID Report T-63-63 through
AID Report T-63-74
Translations of papers presented at Conference on Heat and Mass Exchange, Minsk, USSR, June 1961. AD Nos: 404154, 404728, 404729, 404772, 404773, 404836, 404909, 404910, 405032, 405033, 405034, 405035.

AID Report T-64-21 through
AID Report T-64-29
Translations of papers presented at Conference on Heat and Mass Exchange, Minsk, USSR, June 1961. AD Nos: 439507, 439229.

AID No. 43

Unnumbered	CRYSTAL IMPERFECTIONS (Translation: Datsenko, L. I., and Kardonskiy, V. M.)	
AID Report 62-120 22 August 1962	CRYSTAL IMPERFECTIONS IN SEMICONDUCTORS (Unannotated bibliography)	AD 284 028
AID Report 62-180 2 November 1962	SEMICONDUCTING DIAMONDS (Annotated bibliography)	AD 208 038
AID Report 62-186 13 November 1963	MAGNETOCRYSTALLINE ANISOTROPY OF GARNETS AND ORTHOFERRITES (Annotated bibliography)	AD 290 814
AID Report B-62-10 11 January 1963	X-RAY AND OPTICAL SPECTRA (Annotated bibliography)	AD 295 868
AID Report T-63-56 2 May 1963	EVALUATION OF ULTRAHIGH VACUUM WITH FIELD-EMISSION MICROSCOPE (POLAND) (Translation: Ienkow, Wojciech, and Czeslaw Workowski)	AD 403 865
AID Report T-63-57 6 May 1963	INTRAMOLECULAR ENERGY TRANSFER AND LASERS (Translation: Bykov, V. P.)	AD 403 863
AID Report P-63-77 24 May 1963	DETECTION AND GENERATION OF GRAVITATIONAL WAVES (Comprehensive report)	AD 411 270
AID Report T-63-83 14 June 1963	SOME OPERATING CONDITIONS OF A SINGLE-STAGE SELF-OSCILLATOR WITH DELAY (Translation: Perepelyatnik, P. A.)	AD 412 995
AID Report B-63-84 14 June 1963	ASYNCHRONOUS ACTIONS (Annotated bibliography)	

AID Report P-63-85 17 June 1963	STIMULATED EMISSION FROM ORGANIC MOLECULES WITH POSSIBLE LASER APPLICATIONS (Review article)	AD 407 046
AID Report T-63-90 3 July 1963	LONG LINES WITH PARAMETERS VARYING ALONG THEIR LENGTH (Translation: Il'in, V. A.)	AD 411 201
AID Report B-63-93 8 July 1963	PLASMA SPECTROSCOPY (Annotated bibliography)	AD 414 327
AID Report T-63-96 10 July 1963	NONUNIFORM TRANSMISSION LINES (Translations: Fel'dshteyn, A. L.)	AD 413 741
AID Report T-63-105 9 August 1963	APPLICATION OF CHEBYSHEV POLYNOMIALS IN THE CALCULATION OF STEP TRANSITIONS (Translation: Turover, Ya. M., and N. I. Strutinskiy)	
AID Report T-63-112 29 August 1963	INVESTIGATION OF THE TIME RESOLUTION CHARACTERISTICS OF A PHOTOMULTIPLIER (Translation: Wang, Shao-min)	
AID Report B-63-115 21 October 1963	NONLINEAR FIELD THEORIES (Annotated bibliography)	AD 422 890
AID Report B-64-11 4 March 1963	RADIO-ASTRONOMY ANTENNAS AND PROCESSING OF RADIO-ASTRONOMY DATA (Annotated bibliography)	
AID Report P-64-12 6 March 1964	PHOTOIONIZATION IN GASES (Comprehensive report)	AD 434 295
AID Report T-64-14 23 March 1964	THE SPACE-FREQUENCY SPECTRUM OF HIGH-RESOLUTION RADIO INTERFEROMETERS (Translation: Balklav, A.)	AD 433 609
<u>AID No. 44</u>		
AID Report 62-155 1 October 1962	NUCLEAR EFFECTS ON THE PROPAGATION OF ELECTROMAGNETIC WAVES (Annotated bibliography)	AD 285 328

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED / LIMITED

[This page is intentionally left blank.]

UNCLASSIFIED / LIMITED

UNCLASSIFIED / LIMITED

Distributed By ***DTIC***
Information For The Defense Community

UNCLASSIFIED / LIMITED

20010316005