

U. S. Government

RESEARCH REPORTS

July 13, 1956

Vol. 26, No. 1

A monthly listing of
Government research reports

available to industry
ILLINOIS INSTITUTE OF TECHNOLOGY

MAR 22 2006

GOVERNMENT DOCUMENTS
DEPOSITORY #0146-A

In this issue:



Joining of Molybdenum

Container Size and Pallet Pattern Selection

Methods of Producing Single Crystals of
Non-Metallic Ferromagnetic Substances

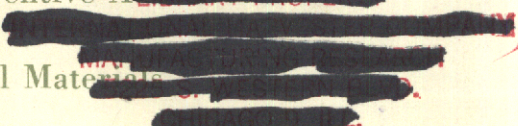
Theory of Plastic Plates

Powder Fabrication of Aluminum Alloys

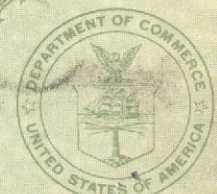
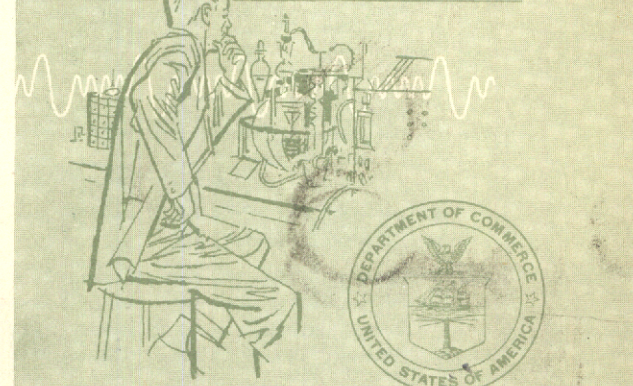
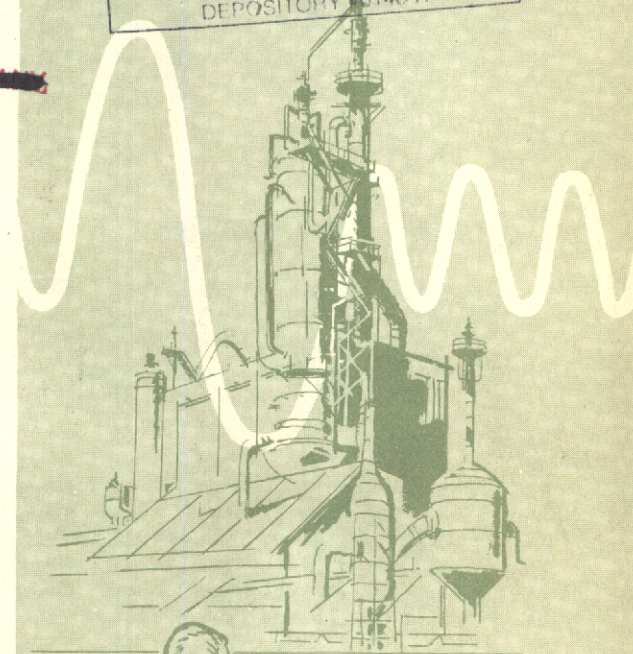
Reinforcement of Silicone Rubber With
Carbon Black

Air Conditioning Load Requirement for
Aircraft Compartments

Corrosion Preventive A



Borides as Tool Materials



U. S. DEPARTMENT OF COMMERCE

Office of Technical Services

Complete list of printed reports
begins on page 1

The PB Reports . . .

announced in this publication have just been released, usually by agencies of the U. S. Government, for dissemination to the public. In most instances they result from Government or Government-sponsored research.

The Office of Technical Services is responsible, under Public Law 776, 81st Congress, for the collection and distribution of these technical reports in the interest of American science and industry.

The more important reports are reprinted for sale to the public by OTS. Many of the reports are so specialized that the demand for them does not warrant reproduction of printed copies; originals of these documents are deposited at the Library of Congress. There they may be inspected in the Annex Reading Room, or copies may be ordered from the Library in either photocopy or microfilm.

PB reports of special interest to smaller businesses are abstracted in OTS's monthly *Technical Reports Newsletter*, available from the Superintendent of Documents,

Washington 25, D. C., at \$1 a year domestic, \$1.50 foreign.

Since 1945 thousands of business firms have used PB reports in their research programs. These reports now constitute one of the world's largest collections of non-confidential technical information, numbering over 250,000 items. OTS has published catalogs of related reports in more than 300 areas of industrial interest. For further information relative to any of its activities, you are invited to write OTS, U. S. Department of Commerce, Washington 25, D. C.

Except to the extent indicated by acknowledgment of authorship, OTS does not edit PB reports, nor does it accept responsibility for the information and conclusions contained in them. If copyrighted material appears, permission for its use should be requested from the copyright owners. Any national security restrictions that may have applied to these reports have been removed. Patents may cover the subject matter of any report, and the reader is advised to make patent searches before developing applications based on the reports.

How To Order

ALWAYS USE COMPLETE TITLE AND PB NUMBER of each report ordered. The letter "s" accompanying some PB numbers means "supplement," "t" means "translation," and "r" means a partial or complete revision. These letters should be included as part of the PB number. Prepayment is required.

TO ORDER FROM LC • Address your order to Library of Congress, Photoduplication Service, Publications Board Project, Washington 25, D. C. Make check or money order payable to Chief, Photoduplication Service, Library of Congress. State whether report is desired in microfilm or photocopy. Microfilm copies are in 35 millimeter film and require special reading equipment; if you do not have

such a machine you may be able to use one at a library in your area.

TO ORDER FROM OTS • Address your order to Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. Make check or money order payable to OTS, Department of Commerce. Reports available from OTS may also be ordered through Department of Commerce field offices.

TO ORDER FROM OTHER SOURCES • When an agency other than OTS or LC is the source, use the full address included in the abstract of the report. Make check or money order payable to that agency.

U. S. GOVERNMENT RESEARCH REPORTS

OFFICE OF TECHNICAL SERVICES
John C. Green, *Director*

U. S. DEPARTMENT OF COMMERCE
Sinclair Weeks, *Secretary*

Issued monthly. Annual subscription \$6 (\$3 additional for foreign mailing). Single copy 60 cents. Make remittance payable to Superintendent of Documents and mail either to your nearest Department of Commerce field office or to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Address changes should be sent direct to the Superintendent of Documents.

Contents are not copyrighted and may be reprinted freely. Mention of source will be appreciated.

The printing of this publication has been approved by the Director of the Bureau of the Budget, August 22, 1955.



Contents

	Page		Page
Chemicals and Allied Products.....	4	Ordnance and Accessories.....	22
Electrical Machinery.....	7	Personnel Aptitude Testing.....	22
Food and Kindred Products.....	10	Photographic and Optical Goods.....	23
Fuels and Lubricants.....	11	Physics.....	24
Instruments.....	11	Physiology.....	29
Lumber and Wood Products.....	15	Psychology.....	30
Medical Research and Practice.....	15	Rubber and Rubber Products.....	30
Metals and Metal Products.....	16	Structural Engineering.....	31
Meteorology and Climatolgy.....	20	Textiles and Textile Products.....	31
Minerals and Mineral Products.....	21	Transportation Equipment.....	32
		Miscellaneous.....	36
		Atomic Energy Reports of Interest to Industry.....	37

Printed Reports Available from OTS Announced in This Issue

	Page
Aerodynamic heating and heat transfer for airfoils at Mach numbers of 2,74 through 5,7. (PB 121045) \$4.....	33
Aerodynamic heating of parachute ribbons. (PB 121150) \$1.50.....	31
Borides as tool materials. (PB 111749) \$2,25.....	16
Container size and pallet pattern selection criteria for use on 40 x 48 "pallets." (PB 111845) \$3.....	15
Corrosion preventive additives. (PB 121072) 75 cents.....	11
Design properties of high-strength steels in the presence of stress-concentrations. (PB 121155) \$3,25.....	16
Determining the effect of pressure, humidity, temperature, fuel/air ratio on the explosiveness of the atmosphere. (PB 121134) \$1.....	11
Development of a protective coating resistant to nitric acid and hydrocarbons. (PB 121217) \$2,75.....	5
Development of alarm, carbon monoxide, automatic, E23 (u). (PB 111846) \$1.....	12
Development of wool-synthetic blended fabrics for summer flight garments. (PB 121153) \$2.....	31
Dimensioning of risers for nodular iron castings. (PB 121091) 75 cents.....	16-17

	Page
Dynamic response in three dimensions of linear elastic structures to independent motions of multiple supports. (PB 121094) 75 cents.....	24
Effect of fabric structure on the frictional fusion of parachute materials. (PB 121142) 50 cents.....	31
Effects of gamma radiation on textile materials. (PB 121206) \$1.....	32
Effect of prior creep on the mechanical properties of Alclad 2024-T3 aluminum alloy sheet. (PB 121250) \$1.....	17
Effect of surface finishes on friction and fusion of parachute cloth and line. Part I. (PB 121186) \$3.75.....	32
Effect of surface finishes on friction and fusion of parachute cloth and line. Part II. (PB 121254) \$1.50.....	32
Engineering study of air conditioning load requirements for aircraft compartments. (PB 121139) \$4.50.....	32
Evaluation of high strength weldable titanium-base alloys. (PB 121069) \$1.75.....	17
Evaluation of surface treatment for low-alloy steels. Part I. (PB 121087) 75 cents.....	5
Evaluation of surface treatment for low alloy steels. Part II. (PB 121088) 75 cents.....	5
Evaluation of the TACAN system. (PB 121229) \$1.25.....	33
Experimental measurement of thermal conductivities, specific heats, and densities of metallic, transparent and protective materials. Part I. (PB 121289) \$3.50.....	24
Experimental measurement of thermal conductivities, specific heats, and densities of metallic, transparent and protective materials. Part II. (PB 121285) \$1.....	24
Experimental measurement of thermal conductivities, specific heats, and densities of metallic, transparent and protective materials. Part III. (PB 121290) \$2.....	25
Fundamental studies of the adhesion of ice to solids. (PB 121047) \$4.75.....	25
High temperature project. (PB 121024) \$1.75.....	11
Human pilot. (PB 121073) \$4.25.....	23
Inadequacy of visual search in avoiding mid-air collisions. (PB 121130) 50 cents.....	15
Investigation of a multiple-source schlieren system for application to a perforated wall wind tunnel. (PB 111910) 75 cents.....	34
Investigation of metallurgical and mechanical effects in the development of hot tearing. (PB 121049) 75 cents.....	18
Investigation of methods of producing single crystals of non-metallic ferromagnetic substances. (PB 111934) \$1.75.....	5
Investigation of modified 12% chromium steels for intermediate temperature applications. (PB 121226) 75 cents.....	18
Investigation of nickel base precipitation hardening alloys. (PB 111791) \$1.25.....	18
Joining of molybdenum. (PB 111833) \$3.25.....	18
Method of wavelength measurement for the centimeter and millimeter wave regions. (PB 111909) 50 cents.....	8
Notch ductility of malleable irons. (PB 121033) 75 cents.....	18-19

	Page
On-line automatic data reduction tunnel E-1 gas dynamic facility. (PB 111810) 75 cents.....	14
Powder fabrication of aluminum alloys. (PB 121138) 75 cents	19
Power atomizer. (PB 121083) 50 cents.....	14
Prediction of future position of a target track on four types of displays. (PB 111808) 50 cents.....	8
Properties of desoxycholic acid at the air/water interface. (PB 121062) 75 cents.....	4
Rate measurement of marine chronometers, gimbal-mounted chronometer watches, and non-gimbal navigating watches under controlled climatic conditions. Part IV. (PB 121008) \$1.....	14
Refractory materials for use in high temperature areas of aircraft. (PB 121046) \$2.50.....	21
Reinforcement of silicone rubber with carbon black. (PB 121231) \$1.....	31
Report of NRL progress, June 1956. (PB 121280) \$1.25.....	36
Scaling of titanium and titanium alloys. (PB 121219) \$2.75.....	19
Shift and shape of spectral lines. (PB 121241) \$7.....	26
Some recent developments of self-recording gages for measuring the intensity of mechanical shock. (PB 121043) 50 cents.....	15
Space requirements of the seated operator. (PB 121053) \$3.50	29-30
Strain energy release rates for fractures caused by wedge action. (PB 111975) 50 cents.....	19
Tables of cumulative binomial probabilities. (PB 111389s) \$1.50	27
Theoretical investigation of the mechanism of transfer of materials through polyethylene. (PB 121194) \$2.50.....	4
Theory of plastic plates. (PB 111943) 75 cents.....	27
Vernier timer. (PB 121099) 50 cents	15

NOTICE TO SUBSCRIBERS

This issue contains the index to Volume 25. A similar index is published twice a year. Beginning with this issue, the semi-annual index is inserted in the center spread of the publication, rather than at the back, to facilitate removal for binding.

CHEMICALS AND ALLIED PRODUCTS

Organic Chemicals

Adsorbiruemost na silikagele individooalneekh organicheskikh sernisteeekh soedineniy (Adsorbability of individual organic sulfur compounds on silica gel), by A. T. Sviatoshenko and A. S. Nekrasov. Translated by Lloyd G. Robbins and edited by F. A. Raven. Jan 1956. 10p graph, tables. Order from LC. Mi \$1.80, ph \$1.80. PB 120327

Translated from Doklady Akademii Nauk SSSR, vol. XCVII, no. 1, 1954, pp. 95-98.

1. Sulfur compounds - Organic - Absorption - Russia 2. Silica gels - Adsorption - Russia 3. Chromatographic analysis - Russia 4. NAVSHIPS T 594 5. STS 222.

Properties of desoxycholic acid at the air/water interface, by E. F. Hare and W. A. Zisman. U. S. Naval Research Laboratory. Apr 1956. 22p photos, diagrs, graphs. Order from OTS. 75 cents. PB 121062

The surface chemical properties of desoxycholic acid at the air/water interface have been investigated by means of the Langmuir-Adam hydrophil balance. The effect of varying the pH and the metallic ion content of the substrate on the force-area isotherm was also determined. The implications of this study in the intestinal absorption of fatty acids are discussed. NRL R 4734.

Plastics and Plasticizers

Development of a practical laboratory procedure to be used in evaluating the forming qualities of plastic sheet materials, by Paul H. Kaar. Armour Research Foundation, Chicago, Ill. Sep 1953. 74f photos, drawing, graphs, tables. Order from LC. Mi \$4.50, enl pr \$13.80. PB 120801

The purpose of this project was (1) to study the various factors which are of importance in the fabrication of flat plastic sheet material into useful shapes for a transparent aircraft enclosure, and (2) to develop a practical laboratory procedure for evaluating the forming qualities of these plastic materials. Covers period of work from Jan 1952 to Jan 1953. Includes data and comments taken from a summary report written by Dr. S. J. Fraenkel, Sep 30, 1952. Appendix A. Curve for bend forming tests. Appendix B. Drawings of test apparatus for thermosetting and thermoplastic materials. AF WADC TR 53-19. Contract AF 33(038)-27648.

Plasticized modifications of dipropylene glycol-castor oil-m-tolylene diisocyanate polyurethane as potting resins, by R. E. Christensen and D. S. Trifan. Princeton University. Plastics Laboratory. Nov 1953. 38p graphs, tables. Order from LC. Mi \$3, ph \$6.30. PB 122144

Plasticizers have been investigated for admixture to the 16.7% dipropylene glycol-modified castor oil-m-tolylene diisocyanate polyurethane resin to achieve a lowered viscosity while improving the mechanical properties and maintaining the electrical and heat resistance properties of the unmodified resin. A resin containing 10% by weight of dioctyl sebacate has been chosen as the best modification of this type, and extensive study of its heat resistance, rate of viscosity increase during potting, curing schedules, and other properties has shown the definite advantages of its use. Transformers potted with this material have successfully passed the salt water immersion test after 1000 hours at 125°C. Dept. of the Army project 3-00-15-022. Signal Corps project 32-152B. PU PL TR 31A. Contract DA-36-039-sc-133.

Theoretical investigation of the mechanism of transfer of materials through polyethylene, by Henry A. Bent and Jules Pinsky. Plax Corporation, West Hartford, Conn. Aug 1955. 93p graphs (2 fold), tables. Order from OTS. \$2.50. PB 121194

Equations for permeability are established. Master plots for interpolating homologous materials and extrapolating for temperature changes are included. Selected bibliography on permeability, solubility, and diffusion in polymer systems. Project no. 7312, Task no. 73127. Covers work conducted from Apr 1952 to Jun 1954. For Part 1 see PB 111546. AF WADC TR 53-133, Part 2. Contract AF-33-(616)-112.

Thermal stability of polyester-styrene resin systems, by R. S. Holdsworth, H. W. Robinson, E. S. Ebers, W. F. Brucksch, Jr., and P. M. Elliott. United States Rubber Co. Naugatuck Chemical Division, Naugatuck, Conn. May 1949. 23f graphs, tables. Order from LC. Mi \$2.70, enl pr \$6.30. PB 122093

The heat aging resistance of the polyester-styrene resin laminates under non-oxidative conditions was found to be excellent, whereas under oxidative conditions it is only fair and relatively independent of chemical and physical structural changes, although chlorine and long chain alkyl substituents cause significant decreases. Absolute flexural strength of polyester resin laminates, however, is greatly influenced by chemical structure. Increased polarity produces improved flexural strength. Contract N8 onr-504, T. O. I, NR 033-248.

Paints, Varnishes and Lacquers

Development of a protective coating resistant to nitric acid and hydrocarbons, by D. F. Siddall, H. L. Cahn, E. Hillier and M. Gunther. United States Stoneware Co., Akron, Ohio. Feb 1956. 103p photos, tables. Order from OTS. \$2.75. PB 121217

Numerous film-forming raw materials from solvent systems and nonvolatile filleting compounds have been screened for their resistance to white fuming nitric acid. Results show Fluorocarbon Resin X-200 from M. W. Kellogg Company is the only available resin meeting this contract requirement for coating and filleting compounds. Air dry, force dry or low temperature bake coatings have been tentatively formulated to provide the required protection. Studies of physical and chemical properties in conjunction with the compounding of this resin indicate the need for additional work to provide a more practical drying cycle and work is being continued concerning this phase. Project no. 7312, Task no. 73121. Covers the period from May 15, 1952 to May 15, 1954. AF WADC TR 54-527. Contract AF 33(616)-150.

Evaluation of surface treatment of low-alloy steels, by Sam Tour. Sam Tour & Co., Inc., New York, N. Y. Contract AF 33(616)-406. Project no. 7351. Order separate parts described below from OTS, giving PB number of each part ordered.

Part 1: Test method for heat-resistant corrosion protective coatings on steel. Nov 1954. 29p photos, tables. 75 cents. PB 121087

Test methods have been developed to compare the resistance to the exhaust products of kerosene combustion at 600-1000°F. The coatings tested included electroless and electroplated nickel, sicon paint, silicone aluminum paint, sprayed and hot-dipped aluminum, chromizing, chromizing, siliconizing, epoxy paint, and cadmium electroplate. Covers work done from May 1953 to June 1954. AF WADC TR 54-451, Part 1.

Part 2: Paint chromizing, paint siliconizing and coating of titanium-boron low alloy steel. Nov 1954. 21p photos, tables. 75 cents. PB 121088

Diffusion coatings produced by chromizing or siliconizing offer considerable promise as heat resistant corrosion protective coatings for use on low to medium carbon, plain carbon or low alloy steels for service at temperatures up to 1200 F. Either of these types of coatings can be applied by the paint process. AF WADC TR 54-451, Part 2.

Optics of paints: Emissivity at 700°F. of Sherwin-Williams, McCloskey and Dupont heat resisting

aluminum paints, by J. A. Sanderson. U. S. Naval Research Laboratory. Jul 1943. 13p photos, diags, table. Order from LC. Mi \$2.40, ph \$3.30. PB 120529

Report describes measurements which have been made of the heat emissivity of certain commercial aluminum paints designed for Naval use on hot surfaces at temperatures up to 850°F for the purpose of reducing the radiation of heat by those surfaces. Photos will not reproduce well. NRL H 2122.

Inorganic Chemicals

Apparatus for the disposal of fluorine on a laboratory scale, by G. Long. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Oct 1955. 6p diags. Order from British Information Services, 30 Rockefeller Plaza, New York, 20, N. Y. 18 cents. PB 119984

S. O. code no. 91-3-2-31.
1. Fluorine - Disposal - Gt. Brit. 2. AERE C/M 260.

Investigation of methods of producing single crystals of non-metallic ferromagnetic substances. Final report for the period 1 Jul 1953 to 30 Jun 1955 under Contract AF 19(604)-867, by John Koenig. Brush Laboratories Co., Cleveland, O. Jun 1955. 66p photos, drawings, diagr, graphs. Order from OTS. \$1.75. Also available from LC on microcard. \$2.40. PB 111934

Magnetite was successfully grown on several seeds at a rate of 0.05 mm. per day in steel autoclaves containing ammonium chloride solution. Details are given on this as well as on attempts to grow ferrites other than magnetite. Corrosion of the autoclave was investigated and means for minimizing it. Work continued under Contract AF 19(604)-1419. AF CRC TR-55-167.

Polymeric inorganic and organometallic compounds. Molecular motion in methyl silicones and chlorosilanes at very low temperatures, by Reed F. Riley and Eugene G. Rochow. Harvard University. Dept. of Chemistry. Dec 1954. 28p graphs, tables. Order from LC. Mi \$2.70, ph \$4.80. PB 122088

A brief report on the present status of the investigation of the molecular structure of silicone materials by the method of nuclear magnetic resonance absorption is given. A full report of the work done by Dr. Reed F. Riley on the internal molecular motions of methyl siloxanes and methylchlorosilanes at very low temperatures (down to the temperature of liquid helium, 4°abs.) is given. Contract N5 ori-07661.

Preparation of thorium tetrafluoride by the thermal degradation of the hydrate, by R. W. M. D'eye, G. W. Booth and E. A. Harper. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Sep 1955. 5p. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119318

1. Thorium fluorides - Thermodynamic properties - Gt. Brit. 2. Thorium tetrafluoride - Preparation - Gt. Brit. 3. AERE C/R 1735.

Relations between the particle size and energy content of magnesium oxide, by W. Weissenbach. Translated by F. Hudswell. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. May 1955. 9p graphs, table. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119307

Translated from Radex Rundschau, no. 6, pp. 257-260, 1951. Work presented here was carried out in the Research Laboratory of the Austrian-American Magnesite Co., Radentheil.
1. Crystals, Magnesia - Energy - Germany
2. Magnesia - Grain size - Distribution - Germany
3. AERE Lib/Trans 564.

Researches into the aging of hydrated oxides, by A. Lottermoser and Eckhard Lottermoser. Translated by R. S. Forsyth. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 42p photos, graphs, tables. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119303

Translated from Kolloid-Beihefte, vol. 37, (1933), pp. 2-39.
1. Oxides, Metallic - Aging - Germany 2. AERE Lib/Trans 521.

Ordnance Chemicals

Conductive adhesives for assembly of gimlet fuze primer components, by J. Parker and I. Silver. U. S. Naval Ordnance Laboratory, White Oak, Md. Mar 1955. 14p diags, graphs, tables. Order from LC. Mi \$2.40, ph \$3.30. PB 120873

Conductive adhesives for use in bonding primers and detonators in fuze bodies have been investigated. An adhesive formulation which approaches most closely the requirements of the application consists essentially of Epon VI resin modified with ninety parts of silver flake. Standard metal butt joints bonded with this adhesive showed shear strengths in the order of 6,000 psi and resistances of under one ohm. NAVORD 3878.

Thermal decomposition of nitroguanidine, by Jay L. Block. U. S. Naval Ordnance Laboratory, White Oak, Md. Jan 1953. 43p photos, diags,

graphs, tables. Order from LC. Mi \$3.30, ph \$7.80. PB 120787

The gaseous products of the thermal decomposition of nitroguanidine have been quantitatively analysed. Nitrous oxide, ammonia, water and some carbon dioxide were found. Various properties of the thermal decomposition have been determined, and a mechanism for decomposition proposed. The kinetic rate equation for the thermal decomposition of nitroguanidine has been determined. It appears that the nitroguanidine surface is poisoned by either gaseous or solid decomposition products. NAVORD 2705.

Analytical Chemistry

Determination of uranium by high-precision spectro-photometry, by A. Bacon and G. W. C. Milner. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Jul 1955. 33p graphs, tables. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119328

1. Spectrophotometry, High-precision - Gt. Brit. 2. Uranium - Determination - Gt. Brit. 3. AERE C/R 1637.

Miscellaneous Chemicals

Studies on polydispersity and nucleation. Progress report no. 3 for the period Jun 1-Aug 31, 1950 under Contract no. AF 19(122)-124, by Victor K. La Mer. Columbia University. Central Aerosol Laboratories. Aug 1950. 29p diagr, graphs. Order from LC. Mi \$2.70, ph \$4.80. PB 122097

Contents: A. Abstract: The vapors of sulfuric acid-water mixtures as nucleating sources in aerosol formation, by V. K. La Mer and V. A. Gordieyeff. - B. Sulfuric acid as a nucleating source in aerosol formation, by V. K. La Mer and V. A. Gordieyeff. - C. Final progress report to Aug 31, 1950, by V. A. Gordieyeff. - D. Final progress report of work from May 15 to Aug 15, 1950, by S. S. Naistat (on construction of instruments for measuring particle size). - E. Final progress report to Aug 1, 1950 by Pierre R. Gendron (on improvements on monodisperse generators and some preliminary experiments on theory of formation). - F. Final progress report from Mar 20 to Aug 31, 1950, by Daniel R. Oldfield (on construction, operation and maintenance of three improved La Mer-Sinclair monodisperse generators to be used in differential sedimentation method for analyzing polydisperse mixtures. For 2d, 4th-6th reports see PB 117364, 117366, 116291, 112422.

ELECTRICAL MACHINERY

Communication Equipment

Bell system nationwide operator toll dialing system, by C. K. Chappuis. U. S. Air Force, Air Research and Development Command. Rome Air Development Center. Griffiss Air Force Base, Rome, N. Y. Nov 1955. 22p maps, tables. Order from LC. Mi \$2.70, ph \$4.80. PB 120007

Described in the report are the toll trunking system, toll switching system, and the system numbering plan which enable any operator to dial any telephone in the United States or Canada through automatic facilities. Applicability of this system to air defense requirements is emphasized since the network is so designed that any long distance call is virtually assured immediate completion so far as the toll switching facilities are concerned. AF RADC TN 55-361.

Electronics

Basic data of electrical discharges, by Sanborn C. Brown and W. F. Allis. Massachusetts Institute of Technology. Research Laboratory of Electronics. Jun 1954. 83f graphs, tables. Order from LC. Mi \$4.80, enl pr \$15.30. PB 122094

Discusses potential energies of atoms, collision probabilities, surface phenomena (secondary emission and ion conversions), motions of electrons and ions, production and decay of ionization, breakdown, electron energy loss, and discharge characteristics. Dept. of the Army project 3-99-10-022. Signal Corps project 8-102 B-O. MIT RLE TR 283. Contract DA 36-039-sc-100.

Determination of interference levels, by Ward E. Bower. U. S. Naval Research Laboratory. Jun 1939. 24p diagr, graphs, tables. Order from LC. Mi \$2.70, ph \$4.80. PB 120438

The problem consisted in determining relative levels at which interfering radio-code and radio-phone signals would just preclude 100 per cent intelligibility of the desired phone or code signal. Also it is desirable to determine at what level a code signal may be copied 100 per cent intelligible by free-hand or pencil copy, and to what level the signal must be raised when a standard Navy typewriter is substituted for the "still" or pencil copy. NRL R 1537.

Diffraction by a circular aperture at high frequencies, by Harold Levine. New York University. Institute of Mathematical Sciences. Division of Electromagnetic Research. Sep 1955.

64p diagrs, graph, tables. Order from LC. Mi \$3.90, ph \$10.80. PB 120332

An investigation is made, based on integral equations and variational principles, for the purpose of determining the first correction to the plane wave geometrical transmission cross-section of a circular aperture in an infinite plane screen. The correction is sensitive to the screen boundary condition, and in this paper details are given, for normal incidence only, for the acoustically 'soft' screen, where the wave function vanishes. NYU RR EM-84. AF CRC TN 55-797. Contract AF 19(122)-42.

Diffraction by an infinite grating of arbitrary cylinders, by Samuel N. Karp. New York University. Institute of Mathematical Sciences. Division of Electromagnetic Research. Oct 1955. 29p diagr. Order from LC. Mi \$2.70, ph \$4.80. PB 120331

Diffraction by an infinite grating of congruent arbitrarily shaped conducting cylinders is shown to be related to single scattering by an isolated typical grating element, even when all interactions among elements are taken into account. Fourier amplitudes of the diffracted field are given in terms of differential scattering amplitudes of the single cylinder. The solution is approximate, holding under the assumption of large spacing as compared with both wavelength and cylinder dimensions. NYU RR EM-85. AF CRC TN 55-799. Contract AF 19(122)-42.

Improved design for audio-type exponential attenuators, by Jack Bacon. Ohio State University. Dept. of Electrical Engineering. Antenna Laboratory, Columbus, Ohio. Mar 1955. 16p diagrs, graphs. Order from LC. Mi \$2.40, ph \$3.30. PB 120299

This paper is concerned with minimizing the positional error occurring in exponentially tapered ladder networks as a result of a linear approximation existing between taps. The improvements have particular significance in the design of continuously variable attenuators of the type used, for example, in logarithmic recording servos. Report 486-38. OSURF Proj 486, Report no. 38. Contract 18(600)-85.

Line-of-sight wave propagation in a randomly inhomogeneous medium, by B. M. Fannin. Texas University. Electrical Engineering Research Laboratory. Dec 1955. 29p diagrs, graphs. Order from LC. Mi \$2.70, ph \$4.80. PB 120279

Theoretical calculations have been made, using the single-scattering approximation, for propagation in a randomly inhomogeneous medium in which the deviations of refractive index from the mean is small. The statistical quantities considered were the variance, correlation function, and power spectrum for the phase and relative amplitude of the field at a point and their difference at two points. Report no. 6-13. AF CRC TN 55-969. Contract AF 19(604)-494.

Method of wavelength measurement for the centimeter and millimeter wave regions, by M. B. Rapport, E. W. Ward and W. W. Balwanz. U. S. Naval Research Laboratory. Apr 1956. 16p photo, diags, graphs, table. Order from OTS. 50 cents. PB 111909

The method utilizes an intermediate medium interposed between a source and a receptor antenna to create an interference phenomenon which provides a measure of the free-space (air) wavelength. The results are independent of the antenna patterns and Fresnel zone effects and are not appreciably affected by the orientation or position of the interposed medium. Results accurate to approximately one percent were readily attained, and greater accuracy is possible with refinements of instrumentation. NRL R 4492.

On the errors in linear interpolation in R and Θ coordinates, by Roy C. Spencer. U. S. Air Force. Air Research and Development Command, Cambridge Research Center. Antenna Laboratory, Cambridge, Mass. Aug 1953. 18f diags, graph. Order from LC. Mi \$2.40, enl pr \$4.80. PB 120790

1. Prediction - Theory
2. Equations, Linear
3. Linear systems - Computing methods.

On the exchange interaction of valency and inner electrons in crystals (the s-d exchange model of the transition metals), by S. V. Vonsovskii and E. A. Turov. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment, 1955. 12p. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119308

Translated from Zhurnal Eksperimentalnoi i Teoreticheskoi Fiziki, Vol. 24, no. 4, pp. 419-428, 1953.

1. Electrons - Interactions - Russia
2. AERE Lib/Trans 547.

Optimization of a nonsaturating, single transistor flip-flop, by Richard K. Gerlach and Duane O. Miles. U. S. Aberdeen Proving Ground. Ballistic Research Laboratories, Aberdeen, Md. Nov 1955. 33p diags, graphs, table. Order from LC. Mi \$3, ph \$6.30. PB 120238

This is a static analysis of the operating criteria, and the methods by which these operating criteria can be best met for (1) the broadest range of transistor parameters and (2) a practical variation of circuit component values from the ideal. The mathematical treatment is general, so that the final results can be used for the design of circuits with any reasonable range of transistor parameters and reasonable emitter current swing. The final equations are solved as an example, and a brief discussion is given of the practical aspects

of transforming the solution into a circuit. An appendix is included which treats in greater detail certain aspects of the mathematical development. Dept. of the Army project no. 5B0306002. Ordnance research and development project no. TB3-0007. APG BRL M 945.

Phase difference variations in 9350 megacycle radio signals arriving at spaced antennas (Pikes Peak to Garden of the Gods), by A. P. Deam. Texas University. Electrical Engineering Research Laboratory. Oct 1955. 23p graphs, tables. Order from LC. Mi \$2.70, ph \$4.80. PB 120333

Continuous recordings of relative phase difference occurring between radio signals arriving at spaced antennas have been made. The transmitter was a klystron oscillator emitting continuous waves and located on a line normal to and bisecting the receiving base line. A range of 10 miles was employed with the transmitter elevated approximately 90° above the receivers. Recorded data were reduced and are presented in the form of phase difference spectra, RMS values, and normalized cross correlations with phase difference recordings at another frequency taken simultaneously. Report no. 6-11 under Contract AF 19(604)-494. AF CRC TN 55-771.

Prebreakdown current and noise in insulators, by D. A. Powers and T. Sul a. Massachusetts Institute of Technology. Laboratory for Insulation Research, Cambridge, Mass. Jan 1955. 15p diagr, graphs. Order from LC. Mi \$2.40, ph \$3.30. PB 122143

The authors have investigated the origin of the noise and its frequency spectrum in detail. They find that most of the noise is due to surface discharges and can be eliminated by special types of electrodes and careful experimentation. The remaining noise has a frequency spectrum with the highest amplitudes at very low frequencies. This noise apparently originates from fluctuations in the field emission current. Printed in Journal of Applied Physics, vol. 26, p. 1244, 1955. Reprints available from MIT LIR. MIT LIR TR 91. Contract N5 ori-07801, NR 017-421.

Prediction of future position of a target track on four types of displays, by W. D. Garvey, W. B. Knowles, and E. P. Newlin. U. S. Naval Research Laboratory. Apr 1956. 11p photos, diags, graphs, tables. Order from OTS. 50 cents. PB 111808

The purpose of the present experiment is to measure the accuracy of prediction in terms of deviations in range and bearing between estimated and actual position plots on four different displays: (1) linear PPI, (2) non-linear PPI, (3) linear B-scan, and (4) non-linear B-scan. Thirty-two naval enlisted men, none of whom had any previous experience with radar tracking, received a total of sixty

problems. The results of this experiment differ drastically from a previous study conducted to answer the same practical question. An attempt is made to clarify the source of discrepancies between the two studies. NRL R 4721.

Some considerations of wide aperture localizer antennas, by Chester B. Watts, Jr. U. S. Civil Aeronautics Administration, Technical Development and Education Center, Indianapolis, Ind, Jan 1952. 13p diags, graphs, tables. Order from LC. Mi \$2.40, ph \$3.30. PB 122140

The development of two possible types of wide aperture localizer antennas is outlined, both of which are based on the use of waveguide-fed slot elements. It is concluded that the methods described have promise and should receive experimental investigation. CAA TDR 155.

Technical data for Armed Services preferred list of electron tubes. U. S. Armed Services Electro-Standards Agency, Fort Monmouth, N. J. Mar 1956. 145p drawings, diags, graphs. Order from LC. Mi \$7.20, ph \$22.80. PB 120132

1. Tubes, Electron - Specifications 2. ASEA 52-6.

Test of model (RDH) panoramic search equipment, by R. W. Zeek. U. S. Naval Research Laboratory. Jun 1946. 50p photos, graphs. Order from LC. Mi \$3.30, ph \$7.80. PB 120777

1. RDH (Radar search equipment) 2. Radar, Panoramic - Tests 3. Radar, Search - Tests 4. NRL R 2875.

Test of model TDP-1 Loran transmitting equipment, by Ellsworth R. Rosen. U. S. Naval Research Laboratory. Jun 1946. 76p photos, tables. Order from LC. Mi \$4.50, ph \$12.30. PB 120775

TDP-1 (Loran equipment) 2. Loran - Transmitters - Tests 3. NRL R 2862.

Test of preliminary model TBS testing equipment, by J. M. Coe. U. S. Naval Research Laboratory. Jan 1939. 105p photos, graphs, tables. Order from LC. Mi \$5.70, ph \$16.80. PB 120458

Theory of switching. Bell Laboratories report. Harvard University. Computation Laboratory. Order separate parts described below from LC, giving PB number of each part ordered.

No. 6, covering the period 1 Jan-1 Apr 1954. Apr 1954. 169p diags, tables. Mi \$7.50, ph \$24.30. PB 122115

In this thesis a new mathematical model for the representation of switching networks is

introduced based on the notion that the circuit element between two terminals i and j may be taken as an element a_{ij} of a matrix. The matrices for certain elementary circuits are examined in detail, canonical form matrices are developed and various transformations which leave the outputs of the circuit invariant are described. Finally, a sequence of theorems is presented, leading to a theoretical solution of the problem of designing a network using the minimum number of relay contacts while producing a prescribed output. Contains Bibliography of 47 pages. Bell Laboratories' report no. 6.

No. 8, May 1954. 163p diags, tables. Mi \$7.50, ph \$24.30. PB 122116

This thesis attacks one aspect of this problem of design of sequential circuits through the medium of a detailed study of a certain class of relay circuits operated in a sequential manner; to them is applied the term rattle circuits. The term rattle functions is applied to the switching functions which occur as their outputs. Bell Laboratories' report no. 8.

Theory of the development of the channel in the spark discharge, by S. I. Drabkina. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Translated by J. B. Sykes. 1955. 13p graphs. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119961

Translated from Zhurnal Eksperimentalnoi i Teoreticheskoi Fiziki, Vol. 21, no. 4, pp. 473-483, 1951.

1. Discharges, Electric - Theory - Russia
2. Discharges, Electric - Development - Russia
3. AERE Lib/Trans 621.

Travelling wave systems with different particle and wave velocities, by L. B. Mullett. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Sep 1955. 11p diags, graph. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119311

1. Waves, Traveling - Acceleration - Gt. Brit.
2. AERE GP/R 1742.

Type test of TD-4/APS-3 target discriminator, by I. W. Fuller and M. L. Burnett. U. S. Naval Research Laboratory. Jun 1946. 11p photo, graphs. Order from LC. Mi \$2.40, ph \$3.30. PB 120776

1. TD-4/APS-3 (Target detector) 2. Targets - Detection equipment 3. Antennas, Radar - Mounts 4. NRL R 2867.

Volscan, air traffic control central, AN/GSN-3, the solution to the air traffic control phase of return-to-base, by Ben F. Greene, Phyllis M. Barnes

and James H. Mollenauer, U. S. Air Force, Air Research and Development Command, Cambridge Research Center, Electronics Research Directorate, RF Components Laboratory, Cambridge, Mass, Nov 1953, 25f photos, diags, Order from LC, Mi \$2.70, enl pr \$6.30.

PB 120788

1, AN/GSN-3 (Air traffic control central) 2, Airports-Air traffic control 3, Airports - Control towers - Transmitters.

Wide-band directivity of receiving arrays, by

James J. Faran and Robert Hills, Jr. Harvard University, Acoustics Research Laboratory, May 1953, 29f diags, table, Order from LC, Mi \$2.70, enl pr \$6.30, PB 120800

Method of maximizing the directional gain of a receiving array (heretofore useful only at a single frequency) is extended to the case of operation at a finite bandwidth. It is shown how to design for maximum effective gain in the presence of noise which might arise within the individual transducers or their preamplifiers. Some necessary noise-field correlations are computed, and numerical examples are included to show the effects of bandwidth and self-noise on the over-all gain for reception which can be achieved. Appendix: Computation of background noise cross-correlations in an isotropic noise field. HU ARL TM 31, Contract N5 ori-76, T. O. X, NR 384-903.

Generators, Motors, Transmission

Study of voltage-regulating systems for aircraft alternating-current generators, Part I:

Analogue-computer study and specifications, by Henry C. Bourne, Jr. and David C. White, Massachusetts Institute of Technology, Servomechanisms Laboratory, Aug 1954, 119p diags (1 fold), graphs, table, Order from LC, Mi \$6, ph \$18.30, PB 120268

Dynamic representations of the components of aircraft a-c generator-regulator systems are derived. These components include the a-c generator, d-c exciter, and magnetic amplifier regulator. An integrated system composed of these components is studied both analytically and on an analog computer. New methods are developed in Part II to cope analytically with the basic nonlinearities of the aircraft generator-regulator system. Appropriate parts of this detailed mathematical quasi-linearization technique are included in Part I when they are directly applicable to the particular system under study. As a result of this analytical and computer study, specifications are written for the components of the system. For the purpose of these specifications the system is divided into two groups, (1) the exciter-alternator and (2) the regulator. Performance specifications are written using frequency-response transfer functions. Steady-state and power specifications

are defined and quantitative values are tentatively suggested. AF WADC TR 54-298, Part 1, Contract AF 33(616)-2190.

FOOD AND KINDRED PRODUCTS

Dry whole milk, Symposium sponsored by the Quartermaster Food and Container Institute for the Armed Forces, Quartermaster Research and Development Command, U. S. Army Quartermaster Corps, at the Oriental Institute, University of Chicago, Sep 22, 23, 1954. Edited by J. M. McIntire, W. K. Stone, and Martin S. Peterson, National Research Council, Advisory Board on Quartermaster Research and Development, Committee on Foods, Jul 1955, 198p photos, drawing, graphs, tables, Order from the Quartermaster Food and Container Institute for the Armed Forces, 1819 W. Pershing Road, Chicago 9, Ill, PB 120355

Cover-title: Dry milk products. Contents: I. Introduction--the problem in review, Importance of dry milk products to the Armed Forces, by John D. Peterman. - Purpose and scope of the symposium, by Donald K. Tressler. - Review of the quartermaster contract research work on flavor aspects of dry whole milk, by Junius M. McIntire. - II. Chemical aspects. Chemistry of dry milk products during processing and storage, by Robert Jenness and S. T. Coulter. - Chemical changes in fat and lactose of milk products with special reference to flavor, by Stuart Patton, Philip G. Keeney, and Frank E. Potter. - Physical-chemical properties of the proteins in skimmilk powder, by K. K. Fox, Q. Van Winkle, I. A. Gould, and W. I. Slatter. - III. Manufacturing and processing. Development and manufacture of dry cream products, by O. F. Garrett. - Fundamentals of spray drying, by W. R. Marshall, Jr. - IV. Dispersibility. Review of research on the dispersibility of dry whole milk at the Quartermaster Food and Container Institute, by W. K. Stone. - Influence of processing procedures on the dispersing properties of dry milks, by U. S. Ashworth. - Methods for improving the dispersibility of dry whole milk, by H. A. Hollender. - Effect of processing on particle size of dry milk and relationship to dispersibility, by A. M. Swanson. - V. Final considerations, Production of powdered milk products and the inspection service, by M. C. Lockwood. - Current status of nonfat dry milk solids, by R. J. Remaley. - Summary of discussions, by S. T. Coulter.

Safety of artificial sweeteners for use in foods, report by the Food Protection Committee of the Food and Nutrition Board, National Research Council, Division of Biology and Agriculture, Food and Nutrition Board, Aug 1955, 13p, Order from NAS-NRC Publications Office, 2101 Constitution Ave., N. W., Washington 25, D. C. Free, PB 120303

Use potentials, toxicology, evaluation and conclusions are given. Bibliography attached. NRC 386.

FUELS AND LUBRICANTS

Corrosion preventive additives, by M. Feinleib and H. T. Francis. Armour Research Foundation, Chicago, Ill. Jul 1952. 22p diags, graphs, tables. Order from OTS. 75 cents. PB 121072

A reproducible test for ball bearing corrosion in instrument oils has been developed. Test conditions, including brass-to-52100 steel coupling, simulate field conditions, and correlation with service performance has been good. AF TR 6591. Contract AF 33(038)-9202.

Determining the effect of pressure, humidity, temperature, fuel/air ratio on the explosiveness of the atmosphere, by Donald J. Babicz. Cook Electric Co. Inland Testing Laboratories, Chicago, Ill. Dec 1955. 37p photos, graphs, table. Order from OTS. \$1. PB 121134

The effects of varying fuel to air ratio, humidity, air velocity, pressure, and ambient temperature on the explosiveness of the atmosphere are presented in this report. The fuels selected for study were aviation gasoline 100/130, commercial butane, and commercial propane. Using the ignition temperature of a mixture as a criterion, the optimum explosive atmosphere for each of the three fuels was determined. Ignition temperatures were recorded by means of a chormel-alumel thermocouple that was heli-arc welded to the sheath of a cartridge heater used as a source of ignition. Project 1111, Task 11117. Work performed between Oct 1954 and Nov 1955. AF WADC TR 56-5. Contract AF 33(616)-2691

High temperature project. Final report, by Joseph B. Conway and Aristid V. Grosse. Temple University. Research Institute, Philadelphia, Pa. Jul 1954. 65p photos, drawings, diagr, graphs, tables. Order from OTS. \$1.75. PB 121024

Although it is not possible to predict with any accuracy which metal will produce the highest temperature during combustion, it would seem that this distinction belongs to either lanthanum, zirconium or thorium. Of these zirconium is most readily available and because of its extreme reactivity with oxygen, tests were made to burn this metal and thus produce one of the highest temperatures obtainable at atmospheric pressure by a metal combustion. Final report under Contract no. N9 onr-87301. Includes Oxy-zirconium torch and flame, by W. L. Doyle.

O trenil honosho smazanneekh tvrdeekh tel i o glavneekh rezooltatakh opeetov nad vnootrennim i vneshnim treniem nekotoreekh smazeevauschikh zhidkostey (Concerning the friction of solid bodies and principal results of experiments relative to the internal and external friction of lubricants), by N. Petrov. Translated by Josef Rysan and edited by F. A. Raven. Jan 1956. 9p. Order from LC. Mi \$1.80, ph \$1.80. PB 120326

Translated from Zhurnal Russkoe Fiziko-Khimicheskoe Obshchestvo, vol. 16, 1884, pp. 14-20.
1. Lubricants - Friction - Theory - Russia
2. NAVSHIPS T 600 3, STS 229.

Storage stability of gasoline, 1937-1938, by Dan Fore, Jr. U. S. Naval Research Laboratory. Oct 1938. 18p diagr, tables. Order from LC. Mi \$2.40, ph \$3.30. PB 120380

A study of the storage stability of several high test aviation gasolines in current or prospective use by the Navy has been made. Under conditions approximating, though probably more severe than, the storage practices aboard ship, the gasolines examined have been found perfectly stable for a period of six months. NRL Problem no. P-47. NRL P-1481.

Vapor-phase oxidation and spontaneous ignition: Correlation and effect of variables, by Donald E. Swarts and Milton Orchin. U. S. National Advisory Committee for Aeronautics. Apr 1956. 32p photos, drawing, diags, graphs, tables. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120410

The spontaneous ignition temperatures of eight structurally different hydrocarbons were determined and correlated with the behavior of the same hydrocarbons toward vapor-phase oxidation. Since good correlation of the two phenomena was obtained, it is likely that similar oxidative mechanisms are operative in both. NACA TN 3579.

INSTRUMENTS

Adiabatic compressor built by Autoclave Engineers, Inc., by J. M. Wack and Donna Price. U. S. Naval Ordnance Laboratory, White Oak, Md. Oct 1951. 33p photos, drawings, diagr, graph. Order from LC. Mi \$3, ph \$6.30. PB 120868

It was found that the compressor, as supplied, was too poorly machined to be put into operation. The necessary modifications are explained and these are now underway. All available information on materials, manufacture, and predicted behavior of

the compressor has been collected in this report. It is intended to serve as a guide in testing the apparatus and in making subsequent modifications. NAVORD 2219.

Application of the steel plate dent test to the quality control of the Mark 63 detonator, by W. M. Slie and R. H. Stresau. U. S. Naval Ordnance Laboratory, White Oak, Md. Dec 1954. 19p graphs, tables. Order from LC. Mi \$2.40, ph \$3.30. PB 120872

The output of a number of different production samples of the Mark 63 detonator was measured in a dent test under several conditions of external confinement. The results indicated that the small scale plate dent test can be used as a measure of output quality control for the Mark 63 detonator. NAVORD 3879.

Cable-type rocket launcher, by C. L. Pettengill. U. S. Naval Ordnance Laboratory, White Oak, Md. Nov 1952. 44p photos, drawings, diags, graph, tables. Order from LC. Mi \$3.30, ph \$7.80. PB 120805

A cable-type rocket launcher for tests requiring great accuracy at target impact has been built at the Naval Ordnance Laboratory Experimental Facility, Hiwassee Dam, North Carolina. The present launcher uses a 1285-foot length of high strength, 1 3/8-inch diameter "locked coil" aerial tramway cable secured to anchors of reinforced concrete. A tension of 150,000 pounds is applied by hydraulic cylinders. The starting end is higher than the release end in order to provide horizontal flight at the release point. The rocket is suspended from the cable by two pairs of shoes. Each pair is held together by explosive bolt. The rocket may be released at any preselected point along the cable by electrically initiating the explosive bolts to throw off the shoes. Fin stabilized rockets up to the 5.0-inch HVAR have been successfully fired and released at velocities up to about 1100 feet per second. NAVORD 2690.

Computer components fellowship no. 347. Quarterly report no. 8, Jul 11, 1952 to Oct 10, 1952 under Contract no. CLN AF 19/122/-376, by J. R. Bowman, F. A. Schwertz, A. Milch, B. Moffat, R. T. Steinback, Leo W. Nickel and B. O. Marshall, Jr. Mellon Institute of Industrial Research, Pittsburgh, Pa. Nov 1952. 114f photos, diags, graphs. Order from LC. Mi \$6, enl pr \$19.80. PB 120804

Report is in 7 sections: I. Nonlinear resistors in logical switching circuits. II. Components, inertia, and information. III. Analogue calculator for trinomial roots. IV. Bistable optical elements. V. Saturable reactors as gates. VI. Nonlinear semiconductor resistors. VII. Morphology of electronic circuits. For 1st-7th, 9th-12th and final reports under this Contract see

PB 109935-109936, 108646, 109937-109940, 119729, 110761, 110930, 112801, 113794.

Development of alarm, carbon monoxide, automatic, E23 (u), by H. E. Moore and R. G. Schwartz. U. S. Chemical Corps. Chemical and Radiological Laboratories, Army Chemical Center, Md. Aug 1955. 34p photos, drawing, diagr, graph. Order from OTS. \$1. PB 111846

The alarm is required by the Army Field Forces for use by small units in the Arctic, where danger from carbon monoxide arises from the use of heaters in poorly ventilated structures. Project 4-08-06-014. CC CRL R 228.

Electromagnetic pumps and flowmeters, by M. Greenhill. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment, 1955. 5p. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119971

1. Pumps, Electromagnetic - Bibliography - Gt. Brit. 2. Meters, Flow - Bibliography - Gt. Brit. 3. AERE Inf/Bib. 93 (3rd edition).

Ferroelectric applications to digital computers, by Ramon Alonso and Thomas Conley. U. S. Aberdeen Proving Ground. Ballistics Research Laboratories, Aberdeen, Md. Dec 1955. 36p diags, graphs. Order from LC. Mi \$3, ph \$6.30. PB 120239

This report is a survey of ferroelectric applications to digital computers. It discusses both the storage and switching properties of ferroelectric materials. Storage of information utilizing the principle of a coincident voltage matrix is explained, and methods of preparing such a matrix with ferroelectrics is described. Finally, the utilization of ferroelectric material for multi-position switching is presented. Dept. of the Army project no. 5B0306002. Ordnance Research and Development project no. TB3-0007. APG BRL M 902.

Fire control research. Princeton University, Princeton, N. J. NDRC Div 7. Order separate parts described below from LC, giving PB number of each part ordered.

Report no. 10: Mikhalyi comparative test. Revised. Jul 1942. 33p diags, graphs, tables. Mi \$3, ph \$7.80. PB 120795

A series of performance tests were conducted to compare the accuracy of the M1 stereoscopic height finder with that of an experimental ortho-pseudo (Mihalyi) height finder in ranging on fixed ground targets and moving aerial targets. OSRD 9352.

Report no. 12: Comparative test of coincidence and stereoscopic heightfinders, by Merrill M.

Flood. Revised. Aug 1942. 21f diagsr, graphs, tables. Mi \$2.70, enl pr \$6.30. PB 120792

Performance tests were conducted to obtain a comparison of the accuracy of the American stereoscopic height finder M1 with that of the British coincidence-type height finders FQ25 and UB7, in ranging on fixed ground targets, moving naval targets and moving aerial targets. OSRD 9265.

Report no. 12: Comparison of instrument types, subject 1: Coincidence vs. stereo height-finders. Feb 1942. 14f graphs, tables. Mi \$2.40, enl pr \$4.80. PB 120791

This investigation was conducted in order to determine the advantages and disadvantages of coincidence type heightfinders as compared with stereo. On the basis of the tests here analyzed, the two types of instruments are comparable in their results as far as overall performance is concerned. Neither type can be rated ahead of the other, although particular phases of performance show some differences. OSRD 9262.

Report no. 12: Comparison of instrument types, subject 2: Mihalyi vs. stereo height-finders. n.d. 41f graphs, tables. Mi \$3.30, enl pr \$9.30. PB 120796

1. Fire control equipment - Tests 2. Range-finders, Stereoscopic - Tests 3. M1-187 (Rangefinder) 4. M1-172 (Rangefinder) 5. OSRD 9353.

Report no. 13: Description of instruments for use in the selection of stereoscopic range finder operators, by Henry A. Imus. May 1942. 5f. Mi \$1.80, enl pr \$3.30. PB 120793

1. Rangefinder operators - Testing equipment 2. Rangefinder operators - Selection and training 3. OSRD 9290.

Guide to instrumentation literature, by W. G. Brombacher, Julian F. Smith and Lyman M. Van der Pyl. U. S. National Bureau of Standards. Dec 1955. 160p. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C. \$1. PB 122145

Revision of "Instrumentation literature and its uses", by Julian F. Smith of the Library of Congress (PB 108952) and Sources of information on instruments", issued by the American Society of Mechanical Engineers in 1945. Contains over 1200 references, including abstract journals, bibliographies, 660 books on technology, directories of manufacturers, guides to and indexes of technical literature, dissertations, patents and specifications. Revision of PB 108952 and "Sources of information on instruments", by American Society of Mechanical Engineers. NBS C 567.

High-threshold scintillation detector of neutrons, by P. S. Baranov and V. I. Gol'danski. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 5p diagr, graphs. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119963

Translated from Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki, Vol. 28, no. 5, pp. 621-623, 1955.

1. Detectors, Scintillation - Russia 2. Radiation counters - Russia 3. AERE Lib/Trans 587.

Investigation of a simple autocorrelator, by J. L. Jones and C. E. Kelly. U. S. Naval Ordnance Laboratory, White Oak, Md. Mar 1952. 18p photos, diagsr, graph. Order from LC. Mi \$2.40, ph \$3.30. PB 120810

A simple autocorrelator for detecting sinusoids in noise has been constructed and studied. It does not appear that this type of correlator offers significant advantages over conventional filtering techniques for such applications. NAVORD 2279.

Investigation of tape materials for use in the MK 11 (Aiken) calculator, by I. Silver. U. S. Naval Ordnance Laboratory, White Oak, Md. Jan 1952. 16p tables. Order from LC. Mi \$2.40, ph \$3.30. PB 120809

Plastic, paper and aluminum foil materials were investigated for use in the Mk 11 (Aiken) calculator. The present paper tape designated as Armité is unsatisfactory due to poor dimensional stability. No satisfactory material was found which would meet all the requirements set forth by the Naval Proving Ground. Recommendation was made for the support of a program in industry for the development of a vinyl or aluminum foil tape. NAVORD 2284.

Investigations on an evaporative condenser, parts 1 and 2, by R. Coers. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 22p diagr, graphs. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119988

Translated from Kaltetechnik, vol. 7, no. 2, pp. 34-38, and vol. 7, no. 3, pp. 71-74, 1955.

1. Condensers, Evaporative - Germany 2. AERE Lib/Trans 592.

Method for the measurement of the flow of air by means of series of electric sparks, by H. J. Bomelburg. Maryland. University. Institute for Fluid Dynamics and Applied Mathematics. Feb 1955. 43p photos, diagsr. Order from LC. Mi \$3.30, ph \$7.80. PB 120300

A technique has been developed in which series of electric sparks of low current are used to render

visible the flow of air. Sparks traversing the air at very high frequency render visible successive displacement profiles; their photographic records furnish a large amount of detailed information. The method is applicable to both subsonic and supersonic flow. The technique has been investigated in detail. Its merits and limitations are appraised as compared with other methods. Technical note BN-68. AF OSR TN 56-38. Contract AF 18(600)-893.

Monthly progress report, by Herman H. Goldstine. Princeton University. Institute for Advanced Study. Electronic Computer Project, Princeton, N. J. Project no. TB3-9538. Contract DA-36-034-ORD-1646. Order separate parts described below from LC, giving PB number of each part ordered.

Nov 1955. 15p diags, table. Mi \$2.40, ph \$3.30. PB 120321

For other reports on this contract see PB 118659-118660, 119072, 120319.
1. Computers, Electronic - Coding 2. Computers, Electronic - Components.

Jan 1956. 5p table. Mi \$1.80, ph \$1.80. PB 120319

MPR 1-56.
1. Computers, Electronic 2. Algorithms.

NCL narrow-band multichannel analyzer (XL-3B), by C. E. Kelly and A. Z. Robinson. U. S. Naval Ordnance Laboratory, White Oak, Md. Mar 1953. 18p photo, diags. Order from LC. Mi \$2.40, ph \$3.30. PB 120784

An instrument has been developed for making a narrow-band analysis of complex signals over the frequency range between 1 cps and 200 cps. This instrument is of the heterodyne type and is capable of simultaneously analyzing six separate frequency bands each having an effective band-width of about 3 cps. This report describes the analyzer and includes instructions for its operation. NAVORD 2804.

On-line automatic data reduction tunnel E-1 gas dynamics facility, by C. L. Hall and R. E. Klautsch. U. S. Air Force. Air Research and Development Command. Arnold Engineering Development Center, Tullahoma, Tenn. Apr 1956. 27p photos, drawing, diags, graphs, table. Order from OTS. 75 cents. PB 111810

This report describes an automatic data reduction system which is capable of measuring, scanning, computing, and presenting the results of a wind tunnel test in one continuous operation. Operating modes of the components of the system are described as they apply to an actual test in Tunnel E-1 of the Gas Dynamics Facility. The versatility,

reliability, and efficiency of the system and its components, which are commercially available equipment, are discussed. Possible refinements in the system are pointed out. Contract AF 40-(600)-620. AF AEDC TN-56-4.

Power atomizer, by William J. McNeil. U. S. Air Force. Air Research and Development Center. Wright Air Development Center. Aero Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Nov 1953. 11p photos. Order from OTS. 50 cents. PB 121083

Development of an insecticide spray machine commonly known as the power atomizer is described. It is expected that this equipment will greatly facilitate the control of insecticides at ground installations. AF WADC TR 53-448.

Pulse tube for acoustic measurements, by W. S. Cramer and K. S. Bonwit. U. S. Naval Ordnance Laboratory, White Oak, Md. Apr 1952. 33p photos, drawings, diags, graphs. Order from LC. Mi \$3, ph \$6.30. PB 120811

An apparatus was constructed with which the acoustic impedance and other acoustic properties of a sample in water can be measured at normal incidence. The specific acoustic impedance of the surface is calculated from the reduction in amplitude and change in phase experienced by the sound wave on reflection. These measurements are made electronically by a null method by comparing the properties of the unknown sample with a control sample which is an essentially perfect reflector. NAVORD 2257.

Rate measurement of marine chronometers, gimbal-mounted chronometer watches, and non-gimbal navigating watches under controlled climatic conditions. Part IV: Rate-pressure and rate-temperature trends, by H. M. Suski. U. S. Naval Research Laboratory. Apr 1956. 33p graphs, tables. Order from OTS. \$1. PB 121008

The method of selecting the data and factors relating to their presentation are discussed. Since the data contain appreciable measuring errors, only the trend of the characteristics is considered significant and the results are presented graphically as unconnected plotted points. A general conclusion concerning the variation of rate with pressure has been reached for five timepieces. While no general rate-temperature trend was found (this is attributed to temperature compensation of the balance system) the following results were obtained: (1) For the three marine chronometers, the rate decreases as temperature increases; (2) for one gimbal-mounted chronometer watch and for one non-gimbal navigating watch, the rate increases as the temperature increases. Use is made of data obtained by following the elaborate rating procedure developed by the observatory at Neuchatel to indicate that both of the rate-temperature trends ob-

tained experimentally can be expected in practice. For Parts 1-3 see PB 118513-118514, 111774. NRL R 4716.

Some recent developments of self-recording gages for measuring the intensity of mechanical shock, by Irwin Vigness. U. S. Naval Research Laboratory. May 1956. 20p photos, diagrs, graphs. Order from OTS. 50 cents. PB 121043

Several self-recording mechanical gages, useful for specific types of measurements of shock intensity, have been recently developed. These include impulsive-velocity gages which indicate the magnitude of a velocity change, various types of gages that indicate only if a certain magnitude of velocity change has been exceeded, and a modified version of the reed gage. The performances of the gages, when subjected to a step-velocity change, are given. NRL R 4724.

Use of an inhomogeneous magnetic field to increase the resolution of the mass-spectrometer, by N. E. Alekseevski, G. P. Prudkovskii, G. I. Kosourov and S. I. Filimonov. Translated by V. Beak. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 6p diagrs, graphs. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119962

Translated from Doklady Akademii Nauk S.S.S.R., Vol. 100, no. 2, pp. 229-232, 1955. 1. Mass spectrometers - Uses - Russia 2. AERE Lib/Trans 629.

Vernier timer, by John P. O'Connor. U. S. Naval Research Laboratory. Apr 1956. 16p photos, diagrs (1 fold), graph, table. Order from OTS. 50 cents. PB 121099

This timer uses magnetic disc recording and is capable of measuring in true time the position of a shaft when its position is proportional to time. A prototype of the timer, using two magnetic discs was built. This timer measured time intervals from 10 milliseconds to 20,000 milliseconds with an accuracy largely dependent on the constancy of the frequency supply to the disc drive motor. Data presented indicate that the timer, when used with a constant frequency supply, is accurate to within ± 1 millisecond. NRL R 4741.

LUMBER AND WOOD PRODUCTS

Container size and pallet pattern selection criteria for use on 40" X 48" pallets, by J. P. Akrep and S. Stambler. U. S. Naval Supply Research and Development Facility, Bayonne, N. J. Dec 1955. 140p drawings, tables. Order from OTS. \$3. PB 111845

A method of container size and pallet pattern selection is developed for the 40" x 48" pallet through graphical construction of a selection chart system. This constitutes a new and simplified method of presentation of the large amount of data involved in comparative areas, dimensions and efficiencies to permit improved area and cube utilization on the 40" x 48" pallet. In accordance with good materials handling practice, overhang is permitted to a maximum of 43" x 52". Six master selection charts are presented covering 108 patterns in 20,000 sizes with area efficiencies greater than 80%. These will permit the selection of the most efficient pattern for any given container size, and will also allow selection of the most efficient container size when alternates are permissible. Project NT 003-016(r), sub-project SE 54-97, Selectivity of container sizes, Engineering report no. 2,5001 (Report no. 2). See also PB 111998.

MEDICAL RESEARCH AND PRACTICE

Inadequacy of visual search in avoiding mid-air collisions, by George O. Emerson, Robert D. Metcalf and Harold C. Glover. U. S. Air Force. Air Research and Development Command, Wright Air Development Center, Aero Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Mar 1956. 11p diagrs, graphs. Order from OTS. 50 cents. PB 121130

Visual search is inadequate for the certain detection of other aircraft in sufficient time to avoid collision. Monocular and binocular blind areas as produced by aircraft structural members are described and illustrated. Graphs are presented which illustrate comparative danger from various azimuthal positions expressed as a function of time to collision. Suggestions on improving and augmenting visual search are included. Project no. 7157. AF WADC TN 56-145.

Relationship of methionine to brain metabolism, by Jay S. Roth. Hahnemann Medical College. Division of Biological Chemistry, Philadelphia, Pa. n.d. 3p. Order from LC. MI \$1.80, ph \$1.80. PB 119919

Final report. Date is 1954 or later.
1. Medical research 2. Brain - Metabolism
3. Methionine - Physiological effects 4. Contract Nonr-211(00), Final report.

Response of the human skull to mechanical vibrations, by Ernst K. Franke. U. S. Air Force. Air Research and Development Command, Wright Air Development Center, Aeronautical Research Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Nov 1954. 23p diagrs, graphs. Order from LC. MI \$2.70, ph \$4.80. PB 120271

This report describes measurements of the mechanical impedance and of the resonance frequencies of the human skull. The measurements were made in the frequency range from 200 to 1,600 cps, the skull being excited to vibration by means of an electro-dynamically driven piston with a small contact area. Data were obtained from living subjects, a dry skull preparation and a human cadaver. The modulus of elasticity of skull bone, calculated from the resonance frequency of the skull, is consistent with the value obtained by static measuring methods. The propagation velocity of bending waves in the skull bones, also calculated from the resonance frequency, agrees satisfactorily with the experimental determined propagation velocity. It is shown, finally, that a vibrating spherical shell is a suitable model for the skull and describes its vibration patterns with good approximation. Project no. 7210, Task no. 71704. AF WADC TR 54-24.

METALS AND METAL PRODUCTS

Borides as tool materials. Final report, Apr 1, 1951 to Dec 31, 1953, under Contract Nonr-295-(02), by Ira Binder and Robert Steinitz. American Electro Metal Corporation, Yonkers, N. Y. Oct 1954. 89p photos, drawing, diagrs, graphs, tables. Order from OTS. \$2.25. PB 111749

Boride base materials were developed suitable for manufacture of cutting tool tips. Principal work has been based on 90% Mo₂B plus 10% Ni. Additional work is still necessary to develop any of the borides for making commercially usable cutting tools. Section XII, Reprints of publications, not included. For reports under previous Contract see PB 117522 and PB 118675.

Chemistry of ruthenium, by J. M. Fletcher and F. S. Martin. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Aug 1955. 7p table. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119322

Paper P/437 presented at Geneva Conference with minor modifications.
1. Ruthenium - Chemical properties - Gt. Brit.
2. AERE C/M 256.

Corrosion studies in high-temperature water by a hydrogen effusion method, by M. C. Bloom, M. Kruffeld, W. A. Fraser and P. N. Vlannes. U. S. Naval Research Laboratory. Mar 1956. 12p photos, diagr, graphs, tables. Order from LC. Mi \$2.40, ph \$3.30. PB 119527

Data obtained by application of the method to ferrous systems include the corrosion rate of low-carbon steel in distilled water at 600°F, the effect of raising the pH in such systems, the effect of

thermal shock and of temperature rise on the corrosion rate, and the effect of heat treatment of the metal on the corrosion rate. Comparison is made between the corrosion rates of low-carbon steel and stainless steel and some data are included on the effect of the wall thickness of low-carbon steel specimens on the rate of hydrogen effusion resulting from corrosion at 600°F. NRL R 4711.

Creep behavior of magnesium and magnesium alloy single crystals at room and elevated temperatures. Quarterly progress report no. 3 for the period 1 Jan-31 Mar 1955 under Contract no. DA-30-115-ORD-549, by W. F. Sheely and R. R. Nash. Rensselaer Polytechnic Institute, Dept. of Metallurgical Engineering, Troy, N. Y. Mar 1955. 8p. Order from LC. Mi \$1.80, ph \$1.80. PB 120323

Equipment for the shaping and stressing of spherical crystals to shapes suitable for testing in shear was designed and constructed. Preliminary experience with the acid machining apparatus indicated suitable operation in the preparation of a cylindrical shear-type specimen from a spherical single crystal.

Design properties of high-strength steels in the presence of stress-concentrations. Effects of a number of variables on the mechanical properties of aircraft high-strength steels, by G. Sachs, B. B. Muvdi, and E. P. Klier. Syracuse University, Syracuse, N. Y. Jan 1956. 130p photos, drawings, diagrs, graphs, tables. Order from OTS. \$3.25. PB 121155

This report presents a large amount of test data on a number of low-alloy steels, heat treated to strength values between 210,000 and 290,000 psi. The tests performed were the following: a) Tension, which yielded information concerning the tensile and yield strengths as well as the ductility (reduction of area and elongation) of the steels studied. b) Notch-tension, from which the notch strength, notch-strength ratio and information on the notch sensitivity of the steels were obtained. c) Impact, which permitted evaluation of impact characteristics of the steels at various test temperatures, as well as some information regarding the transition from impact-ductile to impact-brittle behavior. d) Fatigue and notch-fatigue, from which the endurance limit and the fatigue strength at various numbers of cycles were obtained for both smooth and notched specimens. e) Stress-rupture, which permitted investigating the behavior of high-strength steels under sustained load conditions. In addition, hardness measurements as well as metallographic studies were performed on all steels. Project 7360. Covers work performed between Mar 1954 and Jun 1955. AF WADC TR 55-103. Contract AF 33(616)-2362.

Dimensioning of risers for nodular iron castings, by H. F. Bishop and C. G. Ackerlind. U. S.

Naval Research Laboratory. Apr 1956. 22p
photos, drawings, diags, graphs, tables. Order
from OTS. 75 cents. PB 121091

Riser requirements for hypoeutectic iron castings are a function of the carbon equivalent and of casting geometry. Casting geometry is described by a shape factor expressed in terms of the length, width, and thickness of the casting ($SF = (L+W)/T$); empirical graphs are used to interrelate riser volume, casting volume, shape factor, and carbon equivalent. Procedures are described also for the risering of complex, hypoeutectic iron castings consisting of joined sections of different thicknesses and geometries. Riser requirements for hypereutectic irons are found to be independent of casting configuration and are a function only of casting volume. The relation of the solidification characteristics of the two types of irons to risering requirements is discussed. NRL R 4737.

Effect of holes in a crystal lattice on the electrical resistance of a metal, by B. G. Lazarev and O. N. Ovcharenko. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 6p graphs. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119960

Translated from Doklady Akedemii Nauk S.S.S.R., Vol. 100, no. 5, pp. 875-8, 1955.

1. Crystals - Lattices - Defects - Russia
2. Crystals - Lattices - Theory - Russia
3. Metals - Electrical properties - Russia
3. AERE Lib/Trans 602.

Effect of prior creep on the mechanical properties of Alclad 2024-T3 aluminum alloy sheet, by Clark E. Beck. U. S. Air Force. Air Research and Development Command. Wright Air Development Center. Materials Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Sep 1955. 34p photo, drawings, graphs, tables. Order from OTS. \$1. PB 121250

Tensile tests at room temperature and at 500°F. were conducted on Alclad 2024-T3 (formerly designated as clad 24S-T3) aluminum alloy sheet specimens after they had been subjected to various amounts of creep deformation. There was a notable decrease in ultimate tensile and tensile yield strength values as the amount of prior creep deformation increased. This was particularly true for those specimens in which the prior deformation had been obtained in 90 hours. Project no. 7360, Task no. 73605. AF WADC TN 55-49.

Effect of size and notch sensitivity on fatigue characteristics of two metallic materials, by H. F. Moore. Illinois. University. Talbot Materials Testing Laboratory, Urbana, Ill. Apr 1946. 160p photos, drawings, diags, graphs, tables. Order from LC. Mi \$7.50, ph \$24.30. PB 120371

This document includes two final reports by the University of Illinois on the fatigue characteristics of two metallic materials. Part I deals with data in reversed bending (rotating cantilever beam) and in reversed torsion of a high strength aluminum alloy 75S-T6 (old designation 75S-T) prepared on Contract No. W-33-038-ac-9225(14082). Part II deals with data in reversed bending (rotating cantilever beam) of S.A.E. 4340 alloy steel heat-treated to 160,000 psi, prepared on Contract No. W33-ac-14712(16159). Comparison is also made with data from previous work on S.A.E. 4130 steel heat treated to 147,000 psi. AF TR 5726. AF TSEAM M 5407.

Evaluation of high strength weldable titanium-base alloys, by C. Robert Lillie. Armour Research Foundation, Chicago, Ill. Dec 1955. 62p photos, drawing, diags, graphs, tables. Order from OTS. \$1.75. PB 121069

Six alloy compositions were investigated to determine their suitability as high strength weldable sheet to be used at elevated temperature. These compositions were: Ti-4 Al-2 V, Ti-4 Al-4 V, Ti-6 Al-2 V, Ti-6 Al-4 V, Ti-7 Al-4 V and Ti-6 Al. Tensile tests were performed on these alloys, after suitable heat treatment, both at room temperature and at 700° and 900°F, and in both welded and unwelded conditions. Bend tests were employed as a measure of the formability of the material. All bend tests were carried out at room temperature on heat treated material in both welded and unwelded conditions. Metallographic structure of the alloys after various heat treatments was correlated with the mechanical properties. Project no. 7351, Task no. 73510. Covers work during the period Jan 1954 through Nov 1954, under Contract AF 33(616)-2321. AF WADC TR 54-547.

Interaction of precipitation, solid-solution content, and creep in magnesium-aluminum alloys. Dow Chemical Co., Midland, Mich. Jun 1954. 24p photos, graphs. Order from LC. Mi \$2.70, ph \$4.80. PB 120269

Microstructural studies of a Mg-10.3% Al alloy showed that discontinuous precipitation during aging multiplies the grain boundary area available for easy deformation in elevated temperature creep. An increase of strain rate for a 6.2% Al alloy at 400F, where precipitation and creep are concurrent, caused an increase in the volume percent discontinuously precipitated at the completion of the process. Aluminum in solid solution was found to have little or no strengthening effect when deformation in creep is localized at the grain boundaries. The relatively poor elevated temperature creep resistance of heat-treated alloys of the Mg-Al-Zn type was explained in these structural terms. AF WADC TR 54-295. Contract AF 33-(038)-16655.

Investigation of metallurgical and mechanical effects in the development of hot tearing, by H. F. Bishop, C. G. Ackerlind, and W. S. Pellini. U. S. Naval Research Laboratory, Apr 1956. 21p photos, diagrs, graphs, tables. Order from OTS. 75 cents. Also available from LC on microcard. \$1.80. PB 121049

This paper is aimed at developing further information concerning the role of strain rate, as established by the contracting characteristics of the solidifying metal, on the development of hot cracking in castings. Three types of tests were conducted on a variety of alloys in order to establish a correlation between their observed hot-tearing characteristics and their metallurgical and mechanical characteristics which lead to hot tearing. NRL R 4730.

Investigation of modified 12% chromium steels for intermediate temperature applications, by Paul Shahinian and Joseph R. Lane. U. S. Naval Research Laboratory, Apr 1956. 26p photos, graphs, tables. Order from OTS. 75 cents. Also available from LC on microcard. \$1.80. PB 121226

An investigation was made of the creep-rupture properties of 12% chromium steels modified by additions of molybdenum, vanadium, columbium, titanium, and carbon. Tests were conducted at 1100° and 1200° F for materials in various conditions, including: as cast; cast and homogenized; forged and normalized; and forged, normalized, and tempered. The room-temperature tensile properties of the alloys were also determined. One of the modifications, containing 1.0% molybdenum and 0.7% vanadium, possesses creep-rupture properties which compare favorably with those of the best columbium-free alloys developed thus far. NRL R 4731.

Investigation of nickel base precipitation hardening alloys, by David I. Sinizer. National Research Corp., Cambridge, Mass. Sep 1955. 45p drawing, graphs, tables. Order from OTS. \$1.25. PB 111791

The present investigation had for its purpose an extension of our knowledge of the stress-rupture behavior of vacuum-melted, nickel-base precipitation-hardening alloys of the Waspaloy type. Specifically, it was desired to determine the effect of varying titanium and aluminum content on the forgeability and stress-rupture properties of Waspaloy. Six heats were melted having the same nominal Waspaloy composition with the exception of titanium and aluminum contents. Specimens of all these six heats were forged to bars, machined to stress-rupture specimens, heat treated, and tested to failure in stress-rupture. Project 7351. Covers period of work from 10 Aug 1953 to 1 Feb 1955 under Contract AF 33(616)-2144. AF WADC TR 55-218.

Joining of molybdenum, by W. M. Platte. Westinghouse Research Laboratories, East Pittsburgh, Pa. Nov 1955. 130p photos, drawings, diagrs, graphs, tables. Order from OTS. \$3.25. PB 111833

A study of the factors which influence the physical properties, especially the ductility, of molybdenum welds is discussed in this report. Welds in both arc-cast and vacuum sintered molybdenum made in commercially pure inert atmospheres and in contaminated inert atmospheres are examined. The effects of several deoxidizers on the welding properties of vacuum sintered molybdenum are examined. The specific requirements of deoxidizing agents are established and it is shown that titanium between 0.2 and 0.5% meets these requirements. The effects of interstitial elements, oxygen, nitrogen and carbon, on the weld properties of arc-cast molybdenum have been examined. Project no. 1252, Task no. 73012. Covers work conducted from Sep 1953 to Sep 1954 under Contract AF 18(600)-114. AF WADC TR 54-17, Part 2.

Lightweight steel invasion tubing, 6 5/8-inch flush OD, by L. L. Stark and Ned R. Daniels. U. S. Army. Corps of Engineers, Engineer Research and Development Laboratories, Ft. Belvoir, Va. Jul 1954. 67p photos, drawings, tables. Order from LC. Mi \$3.90, ph \$10.80. PB 120324

This report covers engineering and service tests of 6 5/8-inch flush, outside-diameter, lightweight steel tubing which was developed to provide a greater fuel throughput capacity than that obtainable with the 6-inch outside-diameter, lightweight steel invasion tubing used in the military pipeline systems of World War II. The new design tubing has approximately 25 percent greater capacity with a net increase in weight of only 6 percent and no increase in cubage. Project 8-53-03-001. ERDL R 1363.

Mechanism of plastic flow in titanium at low and high temperatures, by F. D. Rosi, F. C. Perkins, and L. L. Seigle. Sylvania Electric Products, Inc., New Gardens, N. Y. Jun 1954. 38p photos, diagrs, tables. Order from LC. Mi \$3, ph \$6.30. PB 120270

An investigation was made of the mechanism of plastic flow in coarse-grained specimens of both sponge and iodide titanium extended at low (196°C) and high (500° and 800°C) temperatures. The crystallographic habit of the predominant twin type is temperature dependent, and deformation by twinning increases as the temperature of testing is lowered. Kink bands were not observed at 196°C, and rarely at the high temperature. AF WADC TR 54-127. Contract AF 33(616)-422.

Notch ductility of malleable irons, by G. A. Sandoz, N. C. Howells, H. F. Bishop and W. S. Pellini. U. S. Naval Research Laboratory. May 1956.

22p photos, graphs, tables. Order from OTS.
75 cents. PB 121033

The notch ductility of malleable irons was investigated for conditions entailing the presence of sharp notches. The drop-weight test was used to establish nil ductility transition (NDT) temperatures and the explosion crack-starter test was applied to establish the resistance to fracture propagation at temperatures above the NDT temperature. The results obtained from these tests were correlated with Charpy V notch tests. Similar findings have been reported by the authors for the case of nodular irons and for steels. NRL R 4725.

On the kinetics of the isothermal martensite transformation close to absolute zero, by B. Ya.

Lyubov and Yu. A. Osip'yan. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment, Sep 1955. 6p graph. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119301

Translated from Doklady Akademii Nauk S.S.S.R., Vol. 101, no. 5, pp. 853-6, 1955.

1. Steel - Transformation - Russia 2. Martensite - Formation - Theory - Russia 3. AERE Lib/Trans 585.

Powder fabrication of aluminum alloys, by J. B. Hess and R. S. Mateer. Kaiser Aluminum and Chemical Corp. Dept. of Metallurgical Research, Oakland, Calif. Sep 1955. 29p photos, graphs, tables. Order from OTS. 75 cents. Also available from LC on microcard. \$1.80. PB 121138

A fabrication method, combining powder metallurgy techniques and conventional extrusion, was developed for the purpose of alloying aluminum with refractory compounds and other unusual constituents. Additions of B_4C , Al_2O_3 , TiC , SiC , ZrO_2 , WC , $TiAl$, $MnAl_6$, $FeAl_3$, Mo , Cr , Si and Cu were made to a base of commercial atomized aluminum powders, and the resulting alloy properties were determined. Current attempts to improve these tensile properties by utilizing pre-alloyed powders as bases for the refractory additions are still in preliminary stages of study. Project no. 7351, Task no. 73513. Covers work conducted from Dec 1953 to Dec 1954 under Contract AF 33(616)-2296, AF WADC TR 54-590.

Properties of magnesium and magnesium alloy single crystals at room and other temperatures.

Quarterly status report no. 3 for the period I Jan-31 Mar 1955 under Contract no. DA-30-115-ORD-546, by A. E. Bibb, Jr. and R. R. Nash. Rensselaer Polytechnic Institute. Dept. of Metallurgical Engineering, Troy, N. Y. Apr 1955. 7p table. Order from LC. Mi \$1.80, ph \$1.80. PB 120322

The possibility of producing magnesium-thorium alloy single crystals up to at least 4.0% thorium was demonstrated.

Scaling of titanium and titanium alloys, by H. J. Siegel, R. C. Duncan, Jr., and R. E. Swift. Kentucky. University. Dept. of Mining and Metallurgical Engineering. Nov 1955. 110p photos, graphs, tables. Order from OTS. \$2.75. PB 121219

A preliminary study of the scaling characteristics in air of experimentally produced titanium and titanium-base alloys was conducted at temperatures of 1200°, 1400°, 1600°, and 1800°F (650°, 760°, 870°, 980°C) in the time range of approximately four to three hundred hours. A total of thirty-six titanium-base alloys were scaled at each of these temperatures. Scales formed on all of the alloys at 1600°F were studied using x-ray diffraction. Scaling propensity of titanium-base alloys relative to unalloyed titanium were evaluated on the basis of weight gain with time. Isothermal transitions were noted for many of the alloys but were not studied in detail. An investigation of gaseous penetration in the commercial materials RC-70, RC-130A, and RC-130B was made at 1600° and 1800°F. Project 7351, Task no. 73510. Covers period of work from Jan 1, 1954 to Jun 1, 1955 under Contract AF 18(600)-80, AF WADC TR 54-109, Part 2.

Strain energy release rates for fractures caused by wedge action, by A. A. Wells. U. S. Naval Research Laboratory. Mar 1956. 12p diags, graphs. Order from OTS. 50 cents. Also available from LC on microcard. \$1.80. PB 111975

It is shown in this report that, in such a test, the strain energy release rates from the wedge force and static stress may be combined so as to give a minimum when the crack has a given length. The minimum values so obtained for the Standard Oil Development test results correspond reasonably well with minimum surface energy values determined by independent experiment for similar steels and temperatures. In addition, it is shown that the applied tensile stresses to maintain a given strain energy release rate are decreased by decreasing the specimen width and increasing the wedging force by amounts which bear comparison with the S. O. D. test results. Thus the suggestion is made that the Robertson and S. O. D. tests are controlled, at least below the transition temperature, by strain release rates. NRL R 4705.

Über die korrosion unter schutzfilmen. 3. mitteilung über die korrosion schutzfilmbedeckter metalle (On the corrosion under protective films. Third report on the corrosion of metals covered with a protective film), by J. K. Wirth. Translated by F. A. Raven. Nov 1955. 27p photos, graphs, table. Order from LC. Mi \$2.70, ph \$4.80. PB 120328

It was attempted in this study to determine the ohmic resistances of the boundary layers on the one hand, and those of the paint films per se on the other. Translated from Korrosion und metall-

schutz, vol. 16, no. 11, 1940, pp. 331-338. Previous report issued in Korrosion und metallschutz, vol. 16, 1940, pp. 69-76. NAVSHIPS T 596. STS 224.

METEOROLOGY AND CLIMATOLOGY

Application of information theory and discriminant function analysis to weather forecasting and forecast verification, by J. Leith Holloway, Jr. and Max A. Woodbury. Pennsylvania. University. Institute for Cooperative Research, Feb 1955. 90p diags, graphs, tables. Order from LC. Mi \$4.80, ph \$13.80. PB 120150

An index of forecast skill, called the "information ratio", has been derived from information theory. This ratio is zero when the forecasts show no skill and is unity when the forecasts are perfect. The statistical distribution of this ratio is discussed. Technical report no. 1 of the Meteorological Statistics Project, Contract Nonr-551(07), NR 082-113.

Cloud physics research. Technical note no. 1: Measurement systems for atmospheric electricity observations, by Donald R. Fitzgerald. Chicago. University. Dept. of Meteorology. May 1955. 72p photos, diags, tables. Order from LC. Mi \$4.50, ph \$12.30. PB 120148

This report contains a description of the technical characteristics of several types of electrostatic field measuring systems developed by the Cloud Physics Project for use in the study of the relationship between cloud electricity and precipitation development. Systems suitable for ground and in-flight measurements of these relationships are described. Contract AF 33(038)-25913. Contract AF 19(604)-618.

Faraday effect in the earth's ionosphere with special reference to polarization measurements of solar radio emission, by Takeo Hatanaka. Cornell University. School of Electrical Engineering, Ithaca, N. Y. Aug 1955. 20p diags, graphs. Order from LC. Mi \$2.40, ph \$3.30. PB 120281

Scientific report no. 5 under Contract no. AF 19-(604)-73. Cornell University Research report EE 257.
1. Solar radiation - Polarization 2. Radio waves - Propagation - Ionosphere 3. Ionosphere - Electromagnetic effects 4. Contract AF 19(604)-73 5. AF CRC TN 55-886.

Frequency studies of the hourly mean values of the magnitude F of the earth's magnetic field at Agincourt during the period 1946-1951, by B. A. Griffith, J. A. Jacobs and B. Sachs. Toronto.

University. Dept. of Physics. Aug 1955. 48p graphs, tables. Order from LC. Mi \$3.30, ph \$7.80. PB 120330

Hourly mean values of the magnitude F of the earth's magnetic field at Agincourt have been calculated from corresponding mean values of the horizontal and vertical components H and Z. The data used are those for the period 1946 to 1951, inclusive, a period which begins soon after a sun-spot minimum and extends past a sun-spot maximum. Trend lines for the hourly mean values of F have also been plotted and the number of large departures of F from these trend lines are summarized and discussed. Scientific report no. 1 under Contract no. AF 19(604)-761. AF CRC TN 55-868.

Izmerenie gorizontāl'nōi sostavlfalushchei elektricheskogo polia v atmosfere (Measuring the horizontal component of the atmospheric-electric field), by I. M. Imfānitov. Translated by Michael M. Dane and David Kraus. Jun 1955. 25p photo, diags, graphs, tables. Order from LC. Mi \$2.70, ph \$4.80. PB 119623

This article discusses the discovery of a horizontal component of the atmospheric electric field near the ground. A method is given for separating the components of this field. Measurement results are presented that show an unexpectedly high value for the horizontal component of the field, which reaches several volts per centimeter and sometimes exceeds the value of the vertical component. From Izvestiia Akademii Nauk S.S.S.R., Ser. geograf. i geofiz., Vol. 13, no. 4, pp. 320-30, 1949. Contract AF 19(604)-1364.

Premiers résultats obtenus au cours du printemps 1953 (First results obtained during the spring of 1953), by L. Demon and others. Translated by Edith Kulstein. Jun 1955. 6p diagr. Order from LC. Mi \$1.80, ph \$1.80. PB 119622

From Journal des Recherches du C.N.R.S., Vol. 24, pp. 126-127, 1953.

1. Laboratory equipment - Sahara Desert, Algeria
2. Electrometers, Symmetrical field - Design - Algeria
3. Contract AF 19(604)-1364.

Progress report no. 12 for the period 1 Feb-30 Apr 1951 under Contract no. W19-122AC-9. Colorado. University. Dept. of Physics, Upper Air Laboratory, Boulder, Colo. Apr 1951. 38p photos, diagr. Order from LC. Mi \$3, ph \$6.30. PB 119894

The flight of the Uniaxial Pointing Control on Nov. 2, 1950 has been studied and analyzed. Data is meager due to failure of the telemetering commutator. Results indicated that the control worked as designed from start until blowoff. For reports no. 1, 10-11, 13 see PB 115169, 113279-113281.

MINERALS AND MINERAL PRODUCTS

State of the development and application of hydro-cyclones, by F. J. Fontein. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 10p photos, diags, graphs. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119955

Translated from *Chemie-Ingenieur-Technik*, Vol. 27, no. 4 (Supplement), pp. 190-2, Apr 1955. Presented at a meeting of the V.D.I. Committee for dust technology, 23d Apr 1954 in Bad Kissingen. 1. Dust technology - Research - Holland 2. Cyclones, Development - Holland 3. AERE Lib/Trans 617.

"Sviaz' radiatsionnykh i elektricheskikh kharakteristik atmosfery v Tashkente" (Connection between the radiational and electrical characteristics of the atmosphere in Tashkent), by D. I. Kulagin. Translated by Michael M. Dane and David Kraus, Jun 1955. 15p tables. Order from LC. Mi \$2.40, ph \$3.30. PB 119621

From *Izvestia Akademii Nauk S.S.S.R., seriia geofizicheskaya*, Vol. 2, pp. 75-80, 1952. 1. Atmosphere - Electricity - Tashkent, Russia 2. Contract AF 19(604)-1364.

Temperature and humidity test, by J. H. McIvor and N. E. Beach. U. S. Picatinny Arsenal, Dover, N. J. Oct 1955. 12p photos, table. Order from LC. Mi \$2.40, ph \$3.30. PB 120136

Aluminum caps, with various sizes of orifice, were assembled to booster cups. The samples were subjected to three different temperature cycles, varying from +160°F with 95% relative humidity to -65°F. Moisture entering a sample was absorbed by violet paper and measured by the change in weight of the paper. PA TR 1800.

Variation of the 27-day recurrence period for low-latitude aurorae, by A. B. Meinel, B. J. Negaard and J. W. Chamberlain. Chicago. University. Yerkes Observatory, Williams Bay, Wis. Jul 1955. 8p graphs. Order from LC. Mi \$1.80, ph \$1.80. PB 119526

An earlier statistical study of the recurrence periods of low-latitude aurorae has been extended in an attempt to ascertain any variations in the solar-rotation (27-day) recurrence period through the solar cycle. The data are divided according to minimum and maximum years and according to the first and second halves of the solar cycles. Some changes during the cycle are suggested by the data, but an insufficient number of observations are available to make conclusions definite. Contract AF 19(122)-480, Tech. report no. 14.

Luminescence of uranyl glasses and crystals, by A. N. Sevchenko. Translated by V. Beak. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 20p photos, diags, graphs, table. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119986

Translated from *Izvestiya Akad. Nauk, S.S.S.R., ser fiz.*, vol. 13, no. 1, pp. 188-202, 1949. 1. Glass, Uranyl - Photoluminescence - Russia 2. Crystals, Uranyl - Photoluminescence - Russia 3. Uranyl salts - Luminescence - Russia 4. AERE Lib/Trans 549.

On geometrical methods of quantitative mineralogical analysis of rocks, by A. A. Galgolev. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 57p photo, drawings, diags, graphs, tables. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119967

Translated from *Trudy Instituta Prikladnoi Mineralogii*, no. 59, 1933. 1. Atomic power - Research - Russia 2. Rocks - Analysis - Russia 3. AERE Lib/Trans 567.

Refractory materials for use in high temperature areas of aircraft, by Norman R. Thielke. Pennsylvania State University, State College, Pa. Jul 1955. 97p photos, diags, graphs, tables. Order from OTS. \$2.50. PB 121046

The fracture patterns of TiC-cermet stator blades which had been exposed to a simulated service test and the microstructures of these materials were investigated. The oxidation behavior of cermets was studied theoretically and experimentally. The ternary system TiC-TaC-NbC has been investigated, using sintering temperatures up to 2530°C. The sintering and shrinking behavior of oxide mixtures simulating the oxides which are being formed during the oxidation of carbide cermets has been studied in search for compositions which form a dense and adherent oxide film. An analysis of the applicability of thermal shock tests has been made. A static method to measure the two thermal stress resistance factors R and R' is described and measurements on porous and dense titania, steatite, cordierite and β -spodumene bodies are presented. Project no. 7350. Report of work during the period 16 Jun 1952 to 1 Jan 1955 under Contract AF 33-(616)-139. Earlier report issued as WADC TR 53-9, Parts 1-2. AF WADC TR 54-467.

ORDNANCE AND ACCESSORIES

Electron microscope examination of the surfaces of M-8 propellant for bacterial contamination, by Seymour M. Kaye. U. S. Picatinny Arsenal, Samuel Feltman Ammunition Laboratories, Dover, N. J. Sep 1955, 29p photos, table. Order from LC. Mi \$2.70, ph \$4.80. PB 119945

Experimental procedure, discussion, results and historical background are given. Electron micrographs attached. Ordnance project WD OAC 47001420-19-99105. PA TR 2210.

Feasibility of fluorography at 2 MeV for the inspection of melt-loaded ammunition, by D. T. O'Connor, D. Polansky and C. Woltz. U. S. Naval Ordnance Laboratory, White Oak, Md. May 1953. 71p photos, diagr, graphs, tables. Order from LC. Mi \$4.50, ph \$12.30.

PB 120782

Evidence is offered to support the contention that fluorescent screens are capable of a highly discriminating brightness-response at 2 MeV X-ray excitation, even though this energy is far above their peak response energy. The fact that lead filters are highly effective in removing scattered radiation to which such materials are more responsive makes it possible to achieve penetrometer sensitivities of the order of two percent with fluorography at 2 MeV. If this quality level is adequate, fluorography at higher energies combined with rapid automatic processing offers an economical approach to the problem of the inspection of melt-loaded ammunition. NAVORD 2863.

Flight test of the E74 (M116) fire bomb to determine the need for safety clips on arming wires (U), by R. B. Wheeler and D. Schneck. U. S. Chemical Corps, Chemical and Radiological Laboratories, Army Chemical Center, Md. Oct 1955. 14p photos, table. Order from LC. Mi \$2.40, ph \$3.30. PB 120325

This report describes flight tests with an F47, F80 and F86E aircraft to determine the need for the safety clip on the arming wire used with the M173 fuze of the fire bomb. Flights without protective nose and tail bomb fairings showed that only 1-in. maximum retraction of the arming wire from the fuze occurred at the highest test speed of 520 knots (600 m.p.h.), achieved with the F86E aircraft. No arming-wire retraction was noted with the F47 and F80 at speeds up to 500 m.p.h. Project 4-04-16-022-01 (4-04-16-006). CC CRL R 335.

Sampling procedures and tables for inspection by variables. U. S. Bureau of Ordnance. May 1952.

33p graphs, tables. Order from LC. Mi \$3, ph \$6.30. PB 122092

This standard was prepared to meet a growing need for the use of standard sampling plans for inspection by variables in the field of ordnance inspection and evaluation, especially for the acceptance inspection of product procured. NAVORD OS TD 80.

PERSONNEL APTITUDE TESTING

Comparative factor analyses of three radio operator training criteria, by Gabriel Friedman, Walter E. Hempel, Jr. and Howard M. Detter. U. S. Air Force. Air Research and Development Command. Air Force Personnel and Training Research Center. Personnel Research Laboratory, Lackland Air Force Base, San Antonio, Tex. Jan 1955. 30p tables. Order from LC. Mi \$3, ph \$6.30. PB 120306

This study was aimed at analyzing grades in the Radio Operator General Technical School. The findings add to a growing body of information describing a successful radio operator as judged by the school. These results strengthen evidence from previous research that the Airman Classification Battery should be augmented by an additional test which calls upon aural rather than visual abilities. AF PTRC TN 55-2.

Comparison of performance in USAF Officer Candidate School of candidates selected by two screening procedures, by Ernest C. Tupes. U. S. Air Force. Air Research and Development Command. Air Force Personnel and Training Research Center. Personnel Research Laboratory, Lackland Air Force Base, San Antonio, Tex. Jul 1955. 37p graphs, tables. Order from LC. Mi \$3, ph \$6.30. PB 120243

The Officer Candidate School (OCS) selection procedures operative in 1951 left much to be desired from an administrative standpoint. Furthermore, a study conducted by the Human Resources Research Center (since integrated into the Air Force Personnel and Training Research Center) demonstrated that these screening procedures were not improving selection in terms of OCS grades or subsequent on-the-job efficiency ratings. The procedures were changed early in 1952, and this report compares the results of selection by the revised procedures with selection by those previously used. Its purpose is to determine to what extent the average OCS performance of candidates selected under the new procedures exceeded the average performance of candidates selected under the old. AF PTRC TN 55-16.

Fire control research. Princeton University, Princeton, N. J. NDRC Div 7. Order separate

(continued after Index)

I N D E X

U. S. GOVERNMENT RESEARCH REPORTS

Vol. 25

January-June 1956

A	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Ability tests.....	111880	72	Adhesives - Continued			Age - determina-		
	118885	25	plastic - Continued			tion.....	119187	78
	119980	304	to-metal -			Aggregates -		
evaluation.....	118877	25	Continued.....	118942	3	tests.....	119495	156
	119819	220		118943	3	Agtron (Color measuring		
	119820	220		118944	3	equipment...120022		209
	119821	219		118945	3	Ailerons - trailing edges -		
Absorption - measuring			tests.....	119857	202	effect on		
equipment.....	119544	161	thermal	111764	4	drag.....	118893	30
Accelerators, linear -			properties.....	119260	118	Air:		
production.....	111960	161	water resistant.....	119720	201	electrical conduc-		
Accidents, traffic.....	120366	289	Adsorption:			tivity.....	119218	53
Acetonitrile.....	111839	282	Congresses.....	111895	23	purification.....	119778	211
Acoustic(s):			effect of tem-			sampling equipment -		
research.....	118738	19	perature.....	111895	23	design.....	111952	149
	118998	60	research.....	118709	17	flow -		
	119025	120	theory.....	111895	23	measurements..111903		175
	119806	214	Aerobee (Rocket)....	118511	14	119382		126
	120226	291	Aerodynamics:			turbulence - measure-		
theory - Russia.....	119881	299	internal.....	119858	309	ments	119520	300
underwater - theory -			mathematics.....	119123	69	Aircraft:		
Russia.....	119881	299	research.....	120125	310	carriers -		
ADAR (Audible Data			methods.....	119558	176	operations.....	118997	77
Receiver).....	119176	99	theory.....	119860	229	traffic		
Additives -			Aerolasticity -			control.....	118997	77
evaluation.....	119124	55	calculation....	118741	31	materials -		
Adhesives:			Aeronautical:			castings, pre-		
applicators -			equipment -			cision.....	121148	295
design.....	111764	4	deterioration.....	119369	115	steel.....	121148	295
	119260	118		119537	175	recognition.....	119639	176
ceramic to metal....	119050	52	maintenance and			surfaces - decontami-		
	119879	202	repair.....	119369	115	nation.....	119651	307
Germany.....	119725	166	specifications....	119537	175	Airfoil(s):		
high temperature -			storage.....	119369	115	aerodynamics....	119913	309
preparation.....	111768	49	research.....	120133	311	effect of ice.....	119856	228
tests.....	111768	49	Aeronautics:			cascade tests....	118976	30
metal-to-metal.....	111764	4	bibliography.....	119003	34	double-wedge -		
	111768	49	Congresses.....	120133	311	drag coeffi-		
plastic -			Aeroscopes -			cient.....	120109	310
electrical			design.....	119393	107	lift coeffi-		
properties.....	111869	280	Aerosols - diffusion -			cient.....	120109	310
	118939	48	Great			pitching		
evaluation.....	111869	280	Britain.....	119310	115	moment.....	120109	310
	118939	48	Aerothermopressors -			drag -		
	118940	49	design.....	120034	210	tests.....	118971	30
tests.....	119720	201	Afterburning -			theory.....	118971	30
to-metal.....	111869	280	research.....	119685	155	flutter.....	118976	30
	118939	48	Afterglow - measure-			ice formation... 119856		228
	118940	49	ment.....	119110	51	lift coefficient...118974		30
	118941	3				pressure distri-		
						bution.....	118967	30

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Airfoil(s) - Continued			Airplanes - Continued			Altitude, high - physiological		
theory.....	120310	311	take-off.....	119868	309	effects.....	119478	213
	120311	310	technical orders -				119486	159
thickness -			indexes.....	119693	176	Alumina:		
effect on drag.....	119861	309	towing -			activated - adsorp-		
effect on pitching			Germany.....	119401	126	tion.....	119739	204
moment.....	119861	309	transport -			additives -		
trailing-edge -			aerodynamics.....	119586	177	effects.....	121000	165
aerodynamics.....	118971	30	flight tests.....	120111	307	creep.....	121000	165
wind tunnel tests.....	119861	309	landing.....	119884	228	recrystallization..	121000	165
Airlines -			speed.....	119867	227	thermal prop-		
schedules.....	119736	227	use in meteorological			erties.....	121000	165
Airplanes:			research.....	119006	66	Aluminum:		
aerodynamics.....	111991	176	Airports:			alloys -		
controls,			air traffic control..	118850	29	creep tests.....	111896	12
automatic.....	120251	307	pavements -				119388	112
theory.....	119428	125	blast effects.....	119426	176		119841	214
	120104	308	heat effects.....	119426	176		120258	294
drag.....	119854	229	materials.....	119426	176	electropolishing -		
effect of fuselage.....	119877	311	tests.....	120373	288	France.....	118965	12
erection.....	118691	27	AISI 4340 (Steel).....	111899	161	fatigue tests.....	111616	112
escape - procedures..	118874	24	Akermanite - thermal				119871	216
	121105	227	properties.....	118852	15	peening.....	111802	228
fighter - stabilization -			Aldoxime, nickel salicyl -			stresses.....	119387	124
theory.....	120102	307	crystal struc-			tensile prop-		
flight tests -			ture.....	119172	97	erties.....	120258	294
analysis.....	120348	311	Alfven waves.....	119474	152	welds - tests.....	111616	112
icing.....	120348	311		119822	222	atomic stopping		
prevention.....	121135	307	Algorithms.....	118992	50	power - Great		
jet propelled -				119207	100	Britain.....	119320	170
deceleration.....	119128	76		119239	169	corrosion -		
landing impact.....	119862	306	Alkali metal halides -			bibliography.....	111817	160
lubrication			effect of			prevention.....	111877	4
systems.....	118691	27	pressure.....	120671	292		111950	148
maintenance and			Alkaline earth metals -			creep tests.....	119842	214
repair.....	118691	27	electrical prop-			determination.....	111730	113
	119736	227	erties.....	120029	281	electropolishing -		
materials -			Alligator Harbor,			France.....	118965	12
ceramics.....	111944	66	Franklin County,			humidity tests.....	120690	282
magnesium.....	119044	64	Florida.....	119977	313		120691	282
specifications.....	111981	111	Alloys:			lithium - magnesium		
thermal			binary - equilibrium			alloys - equilibrium		
properties.....	111980	114	diagrams.....	121018	295	diagrams.....	111762	62
titanium.....	111980	114	brazing - tests.....	121001	161	magnetic reson-		
	111981	111	high temperature -			ance.....	119463	170
	121005	161	brazing.....	121001	161	molybdenum-titanium		
models - tests.....	120111	307	damping capacity..	111618	110	alloys - weld-		
	120348	311	effect of boron.....	121101	294	ability.....	121006	162
wind tunnel			effect of titanium..	121101	294	nickel alloys -		
tests.....	119588	178	elasticity.....	111618	110	additives.....	121023	294
noise.....	119827	214	fatigue.....	111618	110	impact tests.....	120254	294
operation.....	118690	27	metallurgy.....	121005	161	nitric acid resist-		
protuberances - drag -			preparation.....	121018	295	ance.....	121021	294
theory.....	119886	309	properties.....	121019	295	oxidation		
sideslip - effects.....	119396	177	rupture tests.....	121022	294	resistance.....	121021	294
skin -				121023	294	tests.....	121023	294
friction - measure-			tensile prop-			tensile prop-		
ments.....	119097	76	erties.....	111891	12	erties.....	120254	294
temperature.....	119267	103	tests.....	121018	295	thermal prop-		
speed - measure-				121019	295	erties.....	121021	294
ments.....	118969	27	thermal prop-				121022	294
	119853	228	erties.....	111756	216	zirconium alloys -		
spinning - wind tunnel				111891	12	properties.....	121023	294
tests.....	119097	76		111980	114	oxides - uses.....	111759	108
stability - testing			use in airplanes...	119095	76	plastic - humidity		
methods.....	120111	307				tests.....	120689	282
dynamic - tests.....	119788	227						

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Aluminum - Continued			Analyzers - Continued			Antennas - Continued		
powders - com-			differential -			reflectors -		
bustion.....	118900	12	Australia.....	119812	211	theory.....	118719	6
titanium alloys - equilibrium			electronic.....	118863	7	research -		
diagrams.....	119217	114	design.....	111799	283	Canada.....	119833	207
metallurgy.....	121005	161	noise - design.....	119462	154	shipborne -		
properties.....	121023	294	119535	156	Germany.....	119640	150
thermal prop-			pulse - design.....	118988	71	specifications -		
erties.....	121005	161	performance.....	118988	71	Germany.....	119640	150
.....	121022	294	Great Britain.....	118829	23	supports - articu-		
weldability.....	121006	162	theory.....	118988	71	lation.....	119429	102
Amalgams, nickel -			speech - design.....	119473	158	tests.....	119429	102
distillation.....	119281	112	119577	205	tests.....	118723	6
Amberlite:			theory.....	119473	158	theory.....	118991	50
IR-4B (Trade			video frequency -			Germany.....	119640	150
name).....	119604	214	design.....	111852	212	ultra high frequency -		
IR-100 (Trade			Androsterone, dehydro -			Germany.....	119640	150
name).....	119604	214	synthesis.....	119224	160	vehicular.....	119759	208
IR-45 (Trade			Anemometers:			Antibiotics:		
name).....	119744	167	hot wire -			fungicidal		
Amblyopias, toxic -			design.....	119096	59	properties....	119146	59
research.....	119153	109	uses.....	119096	59	Sweden.....	119565	146
Americium - separation - Great			rotating arm.....	119976	313	research -		
Britain.....	118828	20	Anesthesia - physiological			Sweden.....	119565	146
Amines -			effects.....	119228	159	Antibodies.....	111836	159
reactions.....	118903	2	Angle of attack.....	120348	311	Anticyclones:		
Amino acids - meta-			Animals:			forecasting -		
bolism.....	119244	158	aquatic - physiology -			methods.....	119015	64
Ammeters - tropical			Bermuda.....	119149	172	frequency.....	119439	116
deterioration...111995	11995	129	effects of methanol			Antiferromagnetism -		
Ammonia - re-			poisoning.....	119153	109	theory.....	119465	150
actions.....	119574	204	laboratory -			Antigens and		
Ammonium:			records.....	119141	60	antibodies.....	119178	109
nitrate - handling...119969	119969	231	pathology.....	119152	110	Antimony - neutron		
storage.....	119969	231	physiology.....	119162	110	activity.....	119232	121
transportation.....	119969	231	radiation ex-			Approximate com-		
pentachlorophenoxide, dehydro-			posure.....	119257	116	putations.....	118897	18
abietyl - fungicidal			Antennas:			119077	69
properties...121020	121020	280	aircraft -			119121	68
Amplifiers:			Germany.....	119640	150	Arctic regions:		
bridge - design.....	119519	153	cylindrical - current distri-			history -		
logarithmic.....	119807	206	bution - measuring			Russia.....	119467	232
magnetic -			equipment.....	118719	6	terminology.....	119915	314
circuits.....	111770	100	electromagnetic			Argon:		
design.....	111747	54	field.....	118719	6	adsorption.....	111895	23
gain measure-			mathematical			electrical properties -		
ments.....	119519	153	analysis.....	118719	6	measure-		
mathematical			radiation			ment.....	119591	301
analysis.....	119519	153	patterns.....	118990	53	liquid - heat trans-		
uses.....	111814	207	design.....	119431	102	ference.....	120669	292
radio frequency -			120220	283	120670	292
design.....	111907	151	120221	283	Armor:		
transistor - design.....	119470	152	120222	283	body - fiberglas...111719	49	
wide band -			Germany.....	119640	150	plate - bending		
design.....	111953	205	dipole - radiation patterns -			tests.....	119803	218
.....	119470	152	Russia.....	119433	100	Aromatic compounds,		
AN/FSM-5A (Time			direction-finding -			halogenated - absorption		
Standard).....	118285	58	Germany.....	119640	150	spectra.....	119711	147
Analogs:			directive -			Arsenic - determina-		
electric.....	119587	175	Germany.....	119640	150	tion.....	111870	149
rubber - uses.....	118966	26	multiple feed.....	118991	50	Artillery - components -		
Analyzers:			radiated power.....	118991	50	casting.....	111967	219
atmospheric -			radiation patterns -			Ashes - corrosive effects -		
design.....	121201	314	mathematical			Canada.....	119432	104
battery -			analysis.....	118991	50	Asphalt:		
design.....	111932	156	119431	102	analysis.....	120363	288

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Asphalt - Continued			Atmosphere - Continued			Atomic power - Continued		
oxidation.....	120363	288	upper - Continued			research - Continued		
Atlas weathero-			ozone - measure-			Great Britain -		
meter.....	118794	10	ment.....	118963	13	Continued....	118843	21
Aragonite - equilibrium			research.....	118963	13		118845	24
diagrams.....	120671	292		119145	65		118846	21
Atmosphere:				119800	230		119291	122
absorption.....	111860	64	Canada.....	119833	207		119292	170
angular momentum -			Atomic power:				119295	170
effect of			research.....	111746	49		119296	121
mountains.....	119031	65		111853	122		119297	97
circulation - Northern hemis-				111863	71		119310	115
phere.....	119269	116		118287	24		119313	107
troposphere.....	119269	116		118324	19		119316	149
density - measuring				118692	21		119317	160
equipment.....	119219	59		118693	21		119319	120
electricity.....	121004	163		118694	21		119320	170
measurement.....	118520	15		118695	21		119321	99
	119024	65		118696	22		119325	99
measuring				118697	22		119327	111
equipment.....	119219	59		118699	22		119329	171
flux - measure-				118704	23		119331	113
ment.....	119976	313		118718	20		119333	171
infrared absorp-				118841	20		119334	171
tion.....	119113	65		118856	21	Atoms:		
	121048	217		118988	71	orbits.....	119249	121
moisture content -				118989	57		119250	122
tests.....	111860	64		119019	70	Attenuators, electronic -		
pollution -				119020	70	design.....	119510	100
detection.....	111995	129		119027	70	Auditory:		
potential gradient - measuring				119035	71	research.....	120054	224
equipment.....	119219	59		119084	70	thresholds.....	119485	214
pressure - distribution -				119085	60	Autoclaves:		
mathematical				119109	70	design.....	118868	5
analysis.....	119029	68		119135	63		118872	6
harmonic				119154	146	experiments.....	119479	158
analysis.....	119029	68		119172	97	Automobiles:		
	119798	297		119179	122	accidents - methematical		
measurement.....	119021	65		119232	121	analysis.....	120366	289
tables.....	120261	297		119249	121	parking.....	119904	288
radiation, black body - trans-				119250	122			
mission.....	119108	64		119408	303			
radioactivity.....	121004	163		119438	121			
spectrographic				119450	121			
analysis.....	111860	64		119551	171	B-29 (airplane).....	118914	28
stability - mathematical				119582	170	B-47 (airplane).....	119006	33
analysis.....	119029	68		119616	171	Ball bearings:		
turbulence.....	118818	13		119650	289	corrosion.....	111829	108
measurement.....	119031	65		119754	223	performance.....	111829	108
meteorological				119999	223	Ballistics:		
aspects.....	119024	65		120052	224	projectile.....	119277	126
	119206	164		120053	223	research.....	119091	63
theory -				120255	304	Balloons:		
Australia.....	119811	217		120048	223	meteorological -		
upper.....	111966	162	bibliography.....	120048	223	equipment.....	111779	10
calcium distri-			Great Britain.....	118836	20		119895	297
bution.....	119026	68		118837	21	flight tests.....	119895	297
data collection.....	111779	10	Great Britain.....	118827	24	stratospheric -		
	119031	65		118828	20	equipment.....	119257	116
dew point - measure-				118829	23	tracking.....	119257	116
ment.....	119301	207		118830	24	Barium:		
dynamics -				118831	20	compounds - magnetic		
theory.....	119029	68		118833	24	properties.....	119610	166
ionization.....	118621	13		118834	24	hydrogen phosphates -		
meteorological effects -				118835	20	thermal decomposi-		
Germany.....	119579	165		118838	24	tion.....	120362	280
				118842	19	ions - emission.....	119020	70

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Barium - Continued			Benzenesulfonic acid, 4-amino-o-			Bodies of revolution - Continued		
nitrate - spectrophotometric			phenetidino.....	119787	204	pressure distribu-		
analysis.....	119943	203	Benzidene, 3-3'-			tion.....	120101	311
oxide - thermionic			dimethoxy.....	119787	204	theory.....	119374	177
emission.....	119240	103	Benzoyl peroxide - use as curing			theory.....	119886	309
peroxide -			agent.....	111984	173	velocity - calcula-		
reactions.....	119030	50	Benzyl lithium - prepa-			tions.....	119383	126
thermal prop-			ration.....	111889	56	Body, human:		
erties.....	119030	50	Beryllium oxides - thermal			heat loss.....	119258	109
strontium oxides - lumines-			properties.....	121154	279		119259	109
cence.....	120029	281	Bessel functions.....	119104	69	radioactivity - measurement -		
titanate -				119913	309	Great		
analysis.....	111780	99	Betatrons - theory - Great			Britain.....	119334	171
electromechanical			Britain.....	118843	21	strength - tests.....	111947	171
properties.....	111811	218	Binding agents -			temperature.....	120449	291
preparation.....	111811	218	materials.....	119136	60	Boiling - heat		
spectrographic			Biological research -			transfer.....	119573	222
analysis.....	111780	99	Bermuda.....	119149	172	Bolometers -		
	118878	54	Biology, marine <u>see</u>			design.....	119794	208
Bathothermograph data -			Marine biology			Boltzmann		
processing.....	119981	299	Bioluminescence <u>see</u>			equation.....	118845	24
Batteries, storage -			Luminescence, Biological			Bone(s):		
analysis.....	111932	156	Bismuth - cross			development.....	119238	172
Beaches - erosion -			sections.....	118324	19	marrow - effect of cor-		
protection.....	119414	128	Bits, drilling -			tisone.....	119476	213
Beams:			design.....	119555	212	Boolean functions.....	118992	50
box - stress			Blood:				119445	105
analysis.....	119559	173	carbon monoxide			Borohydrides - reactions with		
vibration - tests.....	119866	305	content.....	119483	160	deuterium.....	119179	122
theory.....	119866	305	electric conducti-			Boron:		
concrete - tests.....	119007	73	ivity.....	119180	109	compounds - chemical		
hinged - stress analysis -			plasma -			properties.....	111892	4
Sweden.....	118689	26	substitutes.....	119246	109	effects.....	121101	294
steel - impact			tests.....	118800	11	fluoride - counters -		
tests.....	118899	26	testing equipment - Great			contamination.....	118718	20
stress analysis.....	118899	26	Britain.....	118840	9	Great Britain.....	118841	20
structural -			vessels - walls - electrical			purification.....	118718	20
elasticity.....	119614	174	properties.....	119180	109	Botany - North		
stress analysis.....	119614	174	Blossom:			Pole.....	119773	231
vibration -			IV (Rocket).....	119896	296	Boundary layer:		
theory.....	119614	174		119897	296	aerodynamics.....	119100	75
twisted - bending.....	119599	176	IV-E (Rocket).....	119900	297		119878	228
vibration - testing equipment -			IV-F (Rocket).....	119901	297	flow.....	119123	69
Sweden.....	118689	26	IV-G (Rocket).....	119899	296	laminar -		
tests - Sweden.....	118689	26	Bodies of revolution:			compressibi-		
theory -			aerodynamics.....	111993	178	lity.....	118973	17
Sweden.....	118689	26		118737	29	flow.....	118974	30
Bearings:			effect of Mach				119869	309
anti-friction - lubrication -			number.....	119277	126	Germany.....	119882	229
tests.....	119122	56	Germany.....	119882	229	heat trans-		
friction -			contour - calcula-			ference.....	119849	222
load - calculations -			tion.....	120101	311		121007	176
Germany.....	119740	212	deformation -			mathematical		
materials -			theory.....	119750	302	analysis.....	119223	169
Germany.....	119740	212	drag.....	119590	177	theory.....	119214	169
pressure distribution -			effect of nose			transition point.....	119097	76
Germany.....	119740	212	design.....	119130	75		119809	230
materials -			viscous -				119870	229
Germany.....	120139	213	theory.....	119876	309	effect of leading		
Beckman spectrophotometer			wind tunnel			edge.....	119874	229
(Model DU) -			tests.....	119876	309	turbulent -		
Sweden.....	119564	157	droplet impinge-			flow.....	119936	308
Benzene, p-dichloro -			ment.....	119383	126	heat trans-		
reaction			heat transference.....	121007	176	ference.....	121007	176
products.....	111765	26	pitching moments.....	119374	177	theory.....	118977	28
							119994	217

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Chemicals - production			Circuits - Continued			Clothing - Continued		
statistics.....	111640	204	electromagnetic -			cold weather -		
Chemisorption.....	120035	205	theory.....	118716	57	insulation.....	119547	145
Chemistry:			electronic.....	119596	152	protective -		
organic -			elements.....	111740	101	design.....	111803	97
research.....	119154	146	mathematical			nylon - neoprene-coated -		
synthesis.....	119154	146	analysis.....	119802	205	storage		
physical -			printed.....	118861	9	tests.....	111728	27
gas kinetics.....	119166	168	adhesives.....	118939	48	ventilation.....	111803	97
isotope chemis-				118940	49	Cloud(s):		
try.....	119179	122		118941	3	chambers -		
Chenier plain.....	119082	77		118942	3	design - Great		
Chickens - metabo-				118943	3	Britain.....	118846	21
lism.....	119156	54		118944	3	uses.....	120053	223
Chlorine compounds, aliphatic -				118945	3	cumulus - temperature -		
fluorination.....	119722	146	materials.....	111869	280	measure-		
Chloropicrin -				118941	3	ment.....	119763	217
toxicity.....	118683	11		118942	3	distribution - Great		
Chromaticity - measure-				118943	3	Britain.....	119310	115
ment.....	119139	57		118944	3	observation - equip-		
Chromatographic				118945	3	ment.....	119443	163
analysis.....	111861	104	equivalent -			photography.....	119393	107
Great Britain.....	119321	99	design.....	119089	53	radar detection....	119514	117
Chromatography -				120377	285	reflecting prop-		
bibliography... 119813	204	204	feed-back.....	119000	74	erties.....	119514	117
	119813s	204		119802	205	water content.....	119393	107
Chromium:			frequency divider -			Clutches, magnetic-fluid -		
determination.....	111730	113	Canada.....	118964	8	design.....	111782	54
	111830	147	gain-lag - mathematical			Coal - hydrogenation -		
hydrogen treat-			analysis.....	119792	303	Germany.....	120607	286
ment.....	119721	162	nonlinear - mathematical				120660	287
iron-manganese-molybdenum-			analysis.....	118741	31		120662	287
titanium-vanadium alloys -				119462	154	Coalitions (Political) -		
thermal prop-			phase shifting.....	119982	208	research.....	119561	225
erties.....	111988	161	design.....	119772	230		119562	225
molybdenum-nickel-tungsten			resonant.....	118698	7		119563	225
alloys.....	121101	294	time delay.....	119252	108	Coatings:		
titanium alloys -			trigger.....	119688	154	aluminum-chromium-silicon -		
welding.....	111707	114	design.....	119536	151	tests.....	111965	202
manganese-titanium alloys -			video erasure -			cathodic - evalua-		
thermal prop-			design.....	119510	100	tion.....	119014	77
erties.....	111988	161	Circulator, microwave -			corrosion resistant -		
purification.....	119721	162	design.....	121095	232	tests.....	111886	98
silicon alloys - prop-			Clams - growth.....	119184	127	fungicidal.....	111788	49
erties.....	121018	295	Clay:			evaluation.....	111868	98
	121019	295	minerals -			tensile prop-		
thermal prop-			dispersion charac-			erties.....	121020	280
erties.....	119721	162	teristics.....	118766	33	germanium -		
titanium alloys -			origin.....	119098	56	electrical conduc-		
crystal struc-			properties.....	120031	218	tivity.....	119805	208
ture.....	111990	162	Cleaning compositions -			preparation.....	119805	208
mechanical			tests.....	119603	147	nickel.....	119857	202
properties.....	111990	162	Climate - effect on aeronautical			oxidation		
properties.....	121018	295	equipment.....	119369	115	resistant.....	111965	202
uses.....	119511	112		119537	175	oxide - tests.....	111725	3
Chronometers.....	118499	58	Climatology -			plastic - fungus resist-		
performance.....	111774	157	research.....	118813	13	ance.....	121020	280
Circuits:				119687	164	protective -		
amplifier.....	118988	71	Germany.....	119579	165	analysis.....	122084	280
design.....	111747	54	Clocks, time:			122085	280	
carry propagation -			design.....	118717	10	application.....	122086	280
theory.....	118716	57	tests.....	118717	10	corrosion resist-		
counting.....	119688	154	Closures -			ance.....	111957	148
design.....	120799	284	design.....	111804	118	evaluation.....	122087	280
electric - theory... 119207	100	100	Clothing:			materials.....	111983	146
			arctic - tests.....	119547	145	titanium.....	111798	111

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Coatings - Continued			Compressors - Continued			Cones, convex - mathematical		
vinyl resin -			blades -			analysis.....	119760	302
tests.....	111824	98	aerodynamics.....	118974	30	Coniometers - Great		
zinc chromate - micro-			vibration.....	119493	300	Britain.....	118838	24
analysis.....	120446	280	centrifugal - design - Great			Connectors, electric -		
Cobalt:			Britain.....	119313	107	design.....	120075	282
alloys -			supersonic - blades -			Construction, shell - biblio-		
tensile tests.....	111891	12	design.....	118883	29	graphy.....	111964	231
thermal prop-			tests.....	119411	105	Containers:		
erties.....	111891	12	Computers:			food.....	120021	209
chromium-molybdenum alloys -			analog -			gasoline -		
properties.....	121019	295	circuits.....	111900	158	closures.....	111804	118
Cockpits - visibility - standardi-				111969	210	oil - closures.....	111804	118
zation.....	121011	174		118876	57	shipping.....	111754	118
Coding devices.....	118993	59	design.....	111969	210	closures.....	111804	118
Coefficients,				118876	57	sizes - standardi-		
binomial.....	119424	170		121200	290	zation.....	111754	118
Cold - physiological			Australia.....	119812	211	storage.....	111754	118
effects.....	118798	11	operation.....	121200	290	Control(s):		
	118874	24	performance.....	111900	158	automatic -		
Coliformin:			research.....	118876	57	gust effects.....	120102	307
bioassay -			astronomical.....	111711	289		120113	228
Sweden.....	119565	146	circuits.....	118715	9	operation -		
production -			components.....	118715	9	theory.....	120113	228
Sweden.....	119565	146	research.....	118716	57	feedback -		
Colloids - physical			digital.....	111996	107	theory.....	119000	74
properties.....	119098	56	circuits.....	111954	211		119451	106
Color:				120495	291	pitch acceleration -		
measurements.....	120022	209	coding.....	118993	59	theory.....	119428	125
standards.....	118898	34	components.....	111751	106	specimens - prepara-		
	120022	209		118861	9	tion.....	119131	60
vision.....	120054	224		119282	107	surfaces -		
tests.....	121016	159		119729	156	hinge moments...120104	308	
Colorimeters.....	120022	209		120495	291	wind tunnel		
design.....	119139	57	design.....	118861	9	tests.....	120260	310
Colorimetry.....	119787	204		119445	105	systems - design...11978	224	
Combustion:				120495	291	Controllers, electric - Great		
chambers - liners - openings -			errors.....	119493	300	Britain.....	118839	19
discharge co-			operation.....	111751	106	Convection:		
efficient.....	120256	307	optical elements...118861	9	(forced) - mathematical			
gas - heat				119729	156	analysis.....	119994	217
transfer.....	119371	127	electronic.....	111996	107	(free) -		
measuring equip-				119072	57	heat transfer.....	119397	177
ment.....	118900	12		119139	57	Great Britain...118832	20	
research.....	119063	61	coding.....	111784	59	mathematical analysis - Great		
	119167	54		111816	211	Britain.....	118832	20
Communication(s):				119278	107	theory.....	119123	69
auditory -			uses.....	118715	9		119903	285
research.....	118851	15	Conalbumin - reactions with			Converters, High pressure -		
equipment - high			lysozyme.....	119161	110	design -		
frequency.....	118723	6	Concrete:			Germany...120666	287	
research.....	119017	72	prestressed -			Coolants - Flow - theory - Great		
systems.....	119176	99	tests.....	119007	73	Britain.....	118831	20
noise reduction...119364	101		reinforced - fatigue			Copolymers, heat resistant:		
theory.....	119496	205	tests.....	119998	226	preparation.....	111765	26
Compensators, digital -			Condensation -			properties.....	111765	26
design.....	119451	106	theory.....	111893	22	Copper:		
Complexing				111894	22	determination.....	111888	155
agents.....	119325	99	Conductors, semi:			electrodeposi-		
Compressibility, linear -			electrical conductivity -			tion.....	111960	161
measurement...120667	292		effects of pres-			fatigue - testing...119978	293	
	120668	292	sure.....	119805	208	gamma re-		
Compressors:			ferromagnetic.....	118878	54	actions.....	119250	122
axial - blades -			thermoelectric			liquid - vaporization - measure-		
flow.....	121052	291	properties.....	119240	103	ment.....	120049	282

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Copper - Continued			Counters - Continued			Crystals - Continued		
magnetic reson-			boron-trimethyl.....	121029	178	cadmium tungstate - lumines-		
ance.....	119463	170	electronic -			cence.....	118394	62
oxides - adhesive			design.....	118824	7	calcium fluoride - electrical		
effects.....	119879	202	Great Britain.....	118829	23	properties....	120672	292
pressure.....	120670	292		118830	24	calcium tungstate - lumines-		
vapor - permeation of			sensitivity - Great			cence.....	118394	62
graphite.....	120049	282	Britain.....	118841	20	cobalt sulfide -		
Coral - ecology.....	119230	172	Van de Graaff -			structure.....	119046	61
Cordage:			sensitivity - Great			twinning.....	119046	61
fibers - mechanical			Britain.....	118841	20	elasticity		
properties.....	121044	306	Couples, aluminum-magnesium -			modulus.....	120667	292
structure.....	121044	306	coatings.....	111886	98		120668	292
mechanical			Cozi (Communication Zone			electrical properties - effect		
properties.....	121044	306	Indicator).....	119132	64	of pressure...	120668	292
Cores:			Cracking, catalytic -				120669	292
magnetic.....	111954	211	Germany.....	120663	287	holders -		
storage prop-			Cranes:			design.....	118872	6
erties.....	111900	158	hoisting factor - calculation -				119538	148
	111969	210	Sweden.....	118584	11	lattices -		
testing equip-			standards - Sweden.....	118584	11	constants.....	119464	157
ment.....	118716	57	Cranium:			defects.....	119556	303
vortex - effect of			fractures.....	120032	213	thermal prop-		
stretching.....	119076	67	impact tests.....	120032	213	erties.....	120668	292
Coriolis parameter -			Creep:			lithium fluoride - radiation		
effects on ocean			effect of tempera-			damage.....	111863	71
currents....	120037	231	ture.....	119388	112	magnesium -		
Corona discharges... 119520	300		high temperature			growth.....	111762	62
Correlators, electronic -			effects.....	119841	214	nitro-guanadine -		
design.....	119181	53	measurement.....	119388	112	structure.....	118875	6
Corrosion:			measuring equipment -			piezoelectric - electrical		
electrolytic -			design.....	111896	12	properties.....	119209	100
Germany.....	119455	293	Creosote - fractiona-				119210	100
measuring equip-			tion.....	111866	128	properties.....	119602	152
ment.....	111772	112	Crude oil - hydrogenation -			research.....	118872	6
	111950	148	Germany.....	120660	287		119600	151
rust - removal.....	111744	63	Crustacea - rhythm -				119601	207
sea water -			research.....	119151	129		119602	152
prevention.....	111807	215	Crystallography,			potassium chloride -		
	119014	77	X-ray.....	118878	54	magnetic prop-		
tests - methods.....	111848	118		119464	157	erties.....	119542	301
Cortisone:			Crystals:			radiation		
physiological			alkali halide -			effects.....	119805	208
effects.....	119476	213	electrical			potassium iodide - photocon-		
therapeutic use.....	119220	159	properties.....	120672	292	ductivity.....	119538	148
Cosmic radiation.....	111966	162	magnetic			quartz -		
	119616	171	properties.....	119542	301	growth.....	118868	5
acceleration.....	119578	302	aluminum -				118870	5
analysis.....	119084	70	grain boundary				118871	5
biological effects... 119257	116		diffusion.....	119125	61		118872	6
	119489	159	plastic defor-				118873	5
measuring equip-			mation.....	119125	61	lapping.....	111936	284
ment.....	119084	70	arsenous oxide -			polishing.....	111936	284
physiological			structure.....	111894	22	silicon -		
effects.....	118888	20	barium azide -			junctions.....	111819	285
	119131	60	growth.....	111893	22		120305	285
showers.....	119028	69	barium titanate -			preparation.....	120305	285
	119221	121	dielectric prop-			thermal prop-		
Cosmic rays -			erties.....	119254	101	erties.....	111819	285
interactions....	119084	70	growth.....	119254	101	silver chloride -		
Coulomb functions... 119250	122		low temperature			photographic		
	119754	223	properties.....	119282	107	properties.....	111897	16
Counters:			cadmium			preparation.....	111897	16
binary - mathematical			sulfide.....	119367	114	surface prop-		
analysis.....	119536	151	photoconduc-			erties.....	111897	16
			tivity.....	119541	148			

	PB	Page		PB	Page		PB	Page
Crystals - Continued			Data - analysis.....	119000	74	Dicyclohexylammonium nitrate -		
sodium chloride -				119194	102	analysis.....	119471	149
magnetic prop-				119447	120	Dielectric(s):		
erties.....	119542	301	Deacidite (Trade			bibliography.....	119254	101
radiation			name).....	119604	214	breakdown		
effects.....	119805	208	Decision theory.....	119525	300	theory.....	119254	101
	120001	203		119983	303	constants.....	119254	101
Curie point - effect of			Deck markers, radioactive -			electrical conduc-		
pressure.....	120671	292	luminescence..	111746	49	tion.....	119254	101
	120672	292	Decomposition - pressure -			Germany.....	119155	101
Currents:			measuring equip-			losses -		
air -			ment.....	111950	148	Germany.....	119155	101
measurements.....	118818	13	Decompression:			radiation		
measuring equip-			chambers.....	118874	24	effects.....	111863	71
ment.....	119219	59	physical effects.....	118811	32	research.....	118878	54
ocean -			Dehydrogenation, catalytic -			Canada.....	119833	207
flow.....	118635	33	Germany.....	120663	287	Germany.....	119155	101
mathematical			De-icing equipment -			Diffraction -		
analysis.....	118858	32	aerodynamic			theory.....	119280	119
	119845	312	effects.....	119856	228	Diffractometers, Geiger-		
	120037	231	Density - mathematical			counter -		
models.....	120037	231	analysis.....	111839	282	design.....	119464	157
velocity -				118340	18	Diffusers:		
Florida.....	119211	128	Dental research.....	119147	60	aerodynamics.....	119100	75
measurement.....	118432	33	Dermatitis -			subsonic.....	119878	228
	119845	312	therapy.....	119292	170	pressure distribu-		
Curve followers - design -			Detectors:			tion.....	119100	75
Australia.....	119812	211	infrared -			supersonic.....	119741	308
Cyanamide - use as curing			design.....	111872	201	design.....	119384	125
agent.....	119613	147	ionization -			wind tunnel		
Cyanide process.....	119604	214	design.....	118989	57	tests.....	119466	175
Cyanides - waste			neutron.....	119250	122	Diffusion:		
disposal.....	111744	63	design.....	111859	157	grain boundary -		
Cyanogen -				118989	57	theory.....	118853	8
reactions.....	118903	2	radiation -			theory -		
Cyclones:			design.....	118511	14	Sweden.....	119570	221
development.....	119272	115	radio frequency -			Dirac equation.....	119083	67
mathematical			design.....	121012	156		119546	303
analysis.....	119683	217	scintillation.....	118699	22		119582	170
theory.....	119270	116		119084	70		119692	301
dynamics.....	118817	14	design.....	119187	78	Disdrometers -		
forecasting -				120320	290	design.....	119508	117
methods.....	118814	13	Deterioration:			Dispensers, gas -		
	119015	64	testing equip-			design.....	111952	149
frequency.....	119439	116	ment.....	120688	282	Dispersing		
research.....	119021	65	tests.....	120688	282	agents.....	118766	33
	119683	217	Detonation:			Distance measuring equip-		
structure.....	119683	217	effects.....	119091	63	ment.....	118921	29
Cyclotrons.....	119616	171	research.....	118563	18	Distillation, pressure -		
shielding.....	118695	21	theory.....	119091	63	Germany.....	120663	287
walls -			velocity - measuring			Diving.....	118811	32
materials.....	118695	21	equipment.....	119712	219	Dogs - capillaries -		
Cylinders, circular - stress			Deuterium - compressi-			effects of high		
analysis.....	119941	298	bility.....	118710	16	altitude.....	119478	213
Cysteine - radiosensitivity			Deuterostyrene see			Dolomite - thermal		
effects.....	119512	122	Styrene-d			properties.....	120673	293
			Dextrans - purifica-			Doppler effect.....	119712	219
			tion.....	111836	159	Dosimeters - readers:		
D			Diabetes -			design.....	111887	212
Dacron - tests.....	111763	73	research.....	119148	109		111977	212
Damping:			o-Dianisidine hydro-			operation.....	111887	212
capacity - wind tunnel			chloride.....	119787	204		111977	212
tests.....	118752	30	Diaphragms, rubber -			Dowex 2 (Trade		
derivatives -			tests.....	119090	72	name).....	119744	167
stability.....	118752	30	Dicyclohexylamine -				119745	166
	120126	310	analysis.....	119471	149		119746	166
							119748	167

	PB	Page		PB	Page		PB	Page
Downwash -			Eggs, dehydrated.....	119926	209	Electron(s) - Continued		
theory.....	118908	31	Eigenvalues <u>see</u> Atoms -			scattering.....	119182	101
Drainage, surface...	120364	289	Orbits			measurement.....	119582	170
Drains, sand.....	120364	289	Elasticity:			theory.....	119438	121
Drills, rotary.....	119555	212	measuring equip-			119582	170
Drives, universal			ment.....	119810	201	temperature.....	119110	51
lubrication.....	119543	155		121151	293	theory.....	111799	283
Drops, liquid:			theory.....	119231	119		118889	6
atomization.....	119023	105	Electric conductivity - measure-	119723	303	tubes - electromagnetic		
	119685	155	ment.....	111839	282	effects.....	119838	284
evaporation.....	119391	104	apparatus.....	111863	71	Electronic equipment:		
heat transference.....	119391	104	119218	53	assembling		
impingement on			methods.....	119591	301	methods.....	111819	285
aircraft.....	119873	308	methods.....	119591	301	components.....	111813	206
airfoils.....	118978	17	Electric probes <u>see</u> Probes,			design.....	118876	57
	121135	307	Electric			failures.....	111740	101
spheres.....	118979	17	Electricians - performance -			119902	282
mass trans-			tests.....	118996	67	cooling.....	119267	103
ference.....	119391	104	Electricity, static - elimi-			maintenance and		
size -			nation.....	121141	305	repair.....	111841	152
determination.....	119393	107	Electrodes, hydrogen -			miniaturized -		
distribution -			effect of supersonic			assembling		
theory.....	119685	155	waves.....	119052	51	methods.....	111997	103
measurement.....	119763	217	Electrodynamics -			design.....	111997	103
Drugs - psychological			theory.....	119553	152	packaging.....	111714	298
effects.....	119477	225	Electrohydrodynamics -			research.....	118716	57
Drying agents.....	119739	204	theory.....	119474	152	thermal prop-		
DT-60 (Dosimeter)..	111887	212	Electrolumines-			erties.....	119267	103
	111977	212	cence.....	118861	9	Electroretino-		
Ducts, air:			Electrolytic:			grams.....	120054	224
design.....	118894	29	apparatus,			Emulsification - testing equip-		
	118977	28	gyratory.....	111813	206	ment.....	111727	55
effect.....	118975	31	cells, galvanic -			Emulsions:		
inlet pressure.....	118894	29	Germany.....	119455	293	preparation.....	118783	3
supersonic.....	118894	29	Electromagnetic			research.....	118783	3
	119741	308	theory.....	119553	152	Enamels, porcelain -		
design.....	119375	125	Electromedical research -			adherence to		
Duhamel's			Canada.....	119833	207	metals.....	119857	202
equation.....	119372	168	Electrometers, vacuum tube -			Endocrinology.....	118800	11
Duolite DS 253 (Trade			design.....	119253	108	Energy - transmission -		
name).....	119744	167	Electrometric			theory.....	119685	155
Dust particles - measure-			method.....	119106	55	Engineering:		
ment.....	111995	129	Electron(s):			civil.....	119098	56
Dyes and dyeing -			beams -			electrical.....	119208	178
fastness.....	121051	306	deflection.....	118716	57	research -		
Dynamics, gas:			electromagnetic			Canada.....	119833	207
measurement.....	120034	210	effects.....	111799	283	mechanical.....	119208	178
theory.....	118815	30		118863	7	Engines:		
	119798	297	focussing.....	119118	52	aircraft - technical orders -		
	120034	210	modulation.....	119593	151	indexes.....	119693	176
Great Britain.....	118831	20	noise - measure-			diesel - corrosion - biblio-		
Dysprosium - nuclear			ment.....	119838	284	graphy.....	111817	160
properties.....	119232	121	testing tubes -			name).....	111832	145
			design.....	119838	284	Enumeration -		
			collisions.....	119110	51	theory.....	119758	223
			diffraction - photographic			Environment - physiological		
			analysis.....	119801	220	effects.....	119018	71
			emission.....	119020	70	Environmental chambers -		
				119120	52	design.....	119131	60
			theory.....	119593	151	Enzymes -		
			interactions.....	119551	171	research.....	119583	159
			internal conversion -			Epilepsy -		
			mathematical			research.....	119226	159
			analysis.....	118704	23	Equations:		
			pairs -			differential.....	119214	169
			production.....	118856	21			

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Equations - Continued			Explosives:			Feldspar -		
differential -			bibliography.....	119795	219	chemistry....	118538	66
Continued.....	119223	169	plastic.....	119140	50	Ferrite - electric		
linear.....	119750	302	Extrapolation.....	119423	119	properties.....	111813	206
non-linear.....	119815	302	Eyring theory.....	121000	165	Ferroelectricity....	118715	9
integral.....	119816	302				Ferromagnetic		
non-linear - Great	118999	68				materials.....	119254	101
Britain.....	119079	69				magnetic properties - meas-		
linear.....	119104	69	F-36D (airplane)....	119788	227	urement.....	111826	151
non-linear.....	119223	169	Fabrics:			Ferromagnetism -		
of motion.....	119372	168	cotton - coatings -			research.....	118878	54
Great Britain.....	119430	167	fungicidal.....	121020	280	Fertilizers, ammonium		
Equilibrium -	119611	223	dyes and dyeing....	121051	306	nitrate.....	119969	231
theory.....	119757	301	impregnated -			Fiberglas:		
Equipment, army - testing	119793	206	physiological			dielectric prop-		
methods.....	118843	21	effects.....	111800	124	erties.....	111789	281
Esters, fluorinated	118999	68	tests.....	111800	124	elasticity.....	111789	281
lubricating prop-	119214	169	nylon - deterio-			manufacture.....	111719	49
erties.....	119214	169	ration.....	111728	27	physical prop-		
Ethane:	111958	223	parachute.....	121100	306	erties.....	111789	281
adsorption.....	111991	176	nylon - surface			strength.....	111719	49
desorption.....	118287	24	treatment.....	121141	305	uses.....	111719	49
2-chloro-1, 1-diethoxy -	118818	13	pile - insulating			Fibers:		
hydrolysis.....	118858	32	properties.....	111985	174	classification -		
1,1-diethoxy -	118883	29	sound trans-			Sweden.....	119569	299
hydrolysis.....	119051	76	mission.....	111832	145	cordage <u>see</u> Cordage fibers		
pentachlorofluoro -	119076	67	synthetic -			synthetic -		
entropy.....	119083	67	physical properties -			tests.....	111763	73
thermodynamic	119123	69	insulating			Films:		
properties.....	121015	298	effects.....	111985	174	blood - spreading		
vapor pressure....	120262	310	tests.....	111884	227	equipment - Great		
Ethers, vinyl - fluorinated -	118843	21	testing machinery..	97711s	58	Britain.....	118840	9
synthesis.....	118720	18	97711s2	58	magnetic -			
Ethylene - vapor pressure -	118720	18	testing methods.....	97711s	58	research.....	118715	9
Great Britain,.,	111862	178	Factor analysis.....	119080	72		118716	57
Ethylenepentamine, tetra -			Fajan's theory (Polarization				119282	107
ionization.....	118663	2	of ions).....	119737	150	metallic - electric		
Evaporation (meteorology):			Fatigue:			properties....	119212	111
measurement.....	119994	217	auditory.....	119410	109	Filters:		
measuring equip-			structural -			band-pass -		
ment.....	119994	217	photomicrography,	111618	110	design.....	111787	5
theory.....	119994	217	testing equip-				111864	157
Explosions, ammonium			ment.....	111618	110	radio frequency -		
nitrate.....	119969	231	France.....	119814	226	design.....	111787	5
			tests.....	118890	26	smoke.....	119781	210
				119548	174	ultraviolet.....	111773	107
				119814	226	Fire:		
				111987	165	control equipment -		
				118890	26	design.....	118717	10
				119092	66	tests.....	119735	218
				119548	174	extinguishers,		
				121002	297	foam.....	121042	290
						fighting equipment -		
						airplanes.....	111983	146
						prevention -		
						airplanes.....	111831	308
							118914	28
							121010	175
						Fish -		
						anatomy.....	119199	129
						Fission products:		
						absorption - Great		
						Britain.....	118830	24
							119319	120
						determination - Great		
						Britain.....	119333	171

	PB	Page		PB	Page		PB	Page
Fission products - Continued			Flow - Continued			Flow - Continued		
mounting - Great			jet mixing - Continued			transonic - Continued		
Britain.....119333	171		theory.....119073	119		wind tunnel		
separation - Great			119770	230		tests.....118972	31	
Britain.....119333	171		laminar.....120028	279		two-dimensional -		
Fjortoft's theory.....119270	116		measurements.....119395	177		theory.....120310	311	
	119271	163	theory.....118973	17		120311	310	
Flame:			119398	118		turbulent.....118818	13	
cyanogen-			119399	177		measurements...119096	59	
oxygen.....119063	61		Germany.....119882	229		119395	177	
hydrogen-			secondary -			Germany.....119726	221	
fluorine.....119063	61		measurement.....121052	291		measuring equipment -		
oxyacetylene -			theory.....121052	291		Germany.....119726	221	
analysis.....119943	203		slip - theory.....118815	30		pressure distri-		
oxy-aluminum - radiation -			subsonic -			bution.....119100	75	
measurement...118900	12		measurement.....120256	307		theory.....111958	223	
oxy-germanium.....119063	61		pressure distribu-			118977	28	
oxy-hydrogen -			tion.....119100	75		119076	67	
analysis.....119943	203		theory.....119100	75		119100	75	
research.....111994	129		119398	118		119126	69	
spectrographic			119913	309		119589	168	
analysis.....111743	9		supersonic.....119097	76		119770	230	
stability.....119167	54		diffusion.....119384	125		Germany.....119726	221	
throwers, mechanized -			heat transference...119809	230		viscosity - Great		
equipment.....119411	105		119865	311		Britain.....118831	20	
velocities.....119030	50		119870	229		two dimensional -		
Flares, pyrotechnic - com-			measurements.....118682	17		theory.....119770	230	
position.....119366	99		119395	177		viscous -		
Flexol plasticizer 3GH (Trade			120109	310		coefficients.....118815	30	
name).....119720	201		photographic			theory.....118859	17	
Flight path - calcula-			analysis.....119756	221		119123	69	
tion.....119995	217		theory.....111993	178		zonal - effect on cyclone		
	120041	300	118737	29		formation.....119439	116	
Flow:			118751	31		Fluorescent materials -		
axially symmetric -			118883	29		tests.....111785	49	
theory.....118737	29		118894	29		Fluorination - equipment -		
baroclinic -			118908	31		design.....119626	155	
theory.....121013	164		119375	125		Fluorine compounds:		
barotropic -			119378	177		chemical prop-		
theory.....121013	164		119384	125		erties.....111959	200	
compressible -			119398	118		fungicidal prop-		
measurement.....120256	307		119590	177		erties.....111983	146	
theory.....111894	22		119854	229		lubricating prop-		
118973	17		119860	229		erties.....111983	146	
Germany.....120116	229		119877	311		organic.....119626	155	
thermodynamics...119858	309		119886	309		preparation.....119722	146	
Great Britain....118831	20		120101	311		research.....111983	146	
fluid -			120103	310		Fluorocarbons:		
measurement.....119783	211		120104	308		physical prop-		
theory.....119166	168		120262	310		erties.....119117	73	
Germany.....120119	229		Russia.....120118	310		polymerization...119117	73	
hydrodynamic - measure-			thermodynamics...118983	26		synthesis.....119117	73	
ment.....119845	312		118984	27		Flutter:		
hypersonic.....120108	229		118985	27		calculation.....118741	31	
aerodynamics.....119095	76		119384	125		testing equip-		
incompressible -			119394	126		ment.....119051	76	
theory.....119126	69		three dimensional -			tests.....119051	76	
119396	177		measurement.....121052	291		theory.....118741	31	
velocity.....119123	69		measuring equip-			119051	76	
120310	311		ment.....118883	29		119095	76	
120311	310		theory.....118883	29		Flying:		
jet mixing -			119095	76		physiological		
density.....119073	119		121052	291		effects.....118874	24	
measurement.....119441	120		transonic -			instrument.....118915	28	
noise.....119385	127		theory.....118907	19		supersonic -		
119386	127		120260	310		Sweden.....118758	30	

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Foldy-Wouthuysen - Hamilton equation.....	118704	23	Fuel(s) - Continued residues -			Gas(es) - Continued dynamics -		
Food:			Canada.....	119432	104	Germany.....	120116	229
browning			servicing equipment -			electrical prop-		
reaction.....	119925	209	controls.....	119587	175	erties.....	111778	70
color.....	120022	209	Fungi - nutritive				120367	286
preservation - effects of			value.....	119225	154	flow-		
radiation.....	121103	210	Fungicides:			chemical		
rations -			evaluation.....	111788	49	reactions.....	119166	168
stability.....	119925	209		111868	98	measurements...	118682	17
storage.....	120021	209	tests.....	119146	59	measuring equip-		
Foot - measuring			Furnaces:			ment.....	118682	17
devices.....	119732	146	controls - Great			theory - Great		
Foreign trade zones:			Britain.....	118839	19	Britain.....	118831	20
Germany.....	119174	77	induction -			ions - condensa-		
Sweden.....	119174	77	design.....	121018	295	tion.....	119370	118
Fourier analysis.....	119372	168	Fuselages - shape -			handling - Great		
France - Politics and			effects.....	119870	229	Britain.....	118835	20
government - 1947-						heat transfer -		
1951.....	119563	225				measurement.....	119855	222
Freezing point -						theory.....	118709	17
determination - equip-			Gages:			ionization.....	120323	300
ment.....	111950	148	ring - design.....	119771	210	measurement.....	119020	70
Frequency:			strain -			119110	51	
changers -			design.....	119944	211	Great Britain...	118829	23
theory.....	111786	153	performance.....	119529	170	theory.....	119370	118
equations.....	119372	168	wire resistance...	119529	170	measuring equip-		
modulation -			Gallium:			ment.....	119370	118
research.....	118806	8	antimonide - electrical			theory.....	119370	118
radio frequency.....	119558	176	properties.....	119805	208	ionized -		
Friction:			titanium alloys - equilibrium			conductivity -		
Coulomb.....	119450	121	diagrams.....	119217	114	measuring equip-		
measurements.....	119859	288	Galvanic cells see Electrolytic			ment.....	119591	301
119872	286		cells - Galvanic			theory -		
measuring equipment -			Galvanometers:			Germany... 119053	68	
design.....	119859	288	design.....	118896	8	electrical properties -		
theory.....	119589	168	uses.....	118896	8	Germany..... 119053	68	
theory.....	119766	289	Games - theory.....	119552	302	electron density -		
Frost - research.....	119766	289	Gamma rays:			theory - Great		
Froude number -			absorption.....	118692	21	Britain..... 119296	121	
effect.....	119858	309	angular distribu-			ions -		
Fuel(s):			tion.....	119450	121	condensation.....	120232	300
additives - explosive			attenuation.....	118692	21	scattering - measure-		
effects - Great				118695	21	ment.....	119216	121
Britain.....	119168	105	detection.....	118695	21	measuring equip-		
atomization.....	119391	104	emission.....	118856	21	ment.....	119216	121
aviation -				119232	121	kinetic theory.....	119166	168
aging charac-			intensity - measuring			metallurgical		
teristics.....	119103	56	equipment.....	118692	21	effects.....	111899	161
components.....	119103	56	nuclear reactions...	118692	21	purification - Great		
119106	55		shielding.....	118693	21	Britain.....	119313	107
dyes - color standardi-			Gas(es):			equipment - Great		
zation.....	118898	34	adsorption.....	118709	17	Britain.....	119313	107
lead content.....	119103	56		119212	111	radiochemical		
spectrophotometric			analysis -			reactions.....	118709	17
analysis.....	111888	155	methods.....	111952	149	temperature - calcula-		
stability.....	119103	56	combustion tempera-			tion.....	119423	119
tests.....	119124	55	tures.....	119063	61	thermodynamic		
water content - determi-			compression equip-			properties....	119851	300
nation.....	119106	55	ment.....	120669	292	119855	222	
gum content - determi-				120670	292	Gates, magnetic -		
nation.....	111861	104	diffusion - measuring			materials.....	119729	156
Liquid -			equipment.....	119110	51	Gaussian law (mathe-		
combustion.....	119167	54				matics).....	119493	300
flow characteristics - Great								
Britain.....	119168	105						

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Gears:			Glass - Continued			Gun(s) - Continued		
lubrication -			laminated - Continued			electron - Continued		
corrosion			tensile tests.....	118994	74	theory.....	119522	205
tests.....	119543	155	119376		97	120000		205
tests - methods....	119543	155	thermal			sights, aircraft -		
universal see Drives,			properties.....	119102	49	design.....	119728	157
Universal			tensile			tapered bore.....	119068	117
Geiger counters -			properties.....	121002	297	Gunfire:		
supports - Great			Gliders - towing -			small arms -		
Britain.....	118827	24	Germany.....	119401	126	research.....	119795	219
Generators.....	119789	219	Gloss - measuring equipment			theory - biblio-		
aircraft -			see Meters, Gloss			graphy.....	119795	219
cooling.....	111903	175	GLT-700-60			Gust loads.....	119095	76
electrical			(lubricant).....	111739	55	119586		177
properties.....	119114	74	Glycerides - metabo-			119867		227
119116		74	lism.....	119156	54	alleviation		
thermodynamic			Glycerol pectate -			systems.....	120247	307
properties.....	119114	74	physiological			120249		308
119116		74	effects.....	119246	109	velocities.....	118740	15
electrostatic.....	118696	22	Gold:					
pulse.....	119688	154	ore - cyanidation... 119604	214				
Geography:			silver alloys - ther-					
economic.....	118767	34	modynamic prop-					
research.....	119581	200	erties.....	121095	232	Hall:		
Geological time - determi-			Goniometers - align-			coefficient.....	119217	114
nation.....	119187	78	ment.....	119464	157	effect.....	119805	208
Geology:			GPB PA supple-			Halogen compounds - com-		
Alligator Harbor,			ment.....	111854	34	bustion.....	119626	155
Florida.....	119977	313	Graphite - lubricating			Hamiltonian		
Louisiana.....	118777	34	properties.....	119872	286	equations.....	118704	23
research.....	120546	299	Gravimeters - calibra-			118904		68
Geomagnetism.....	111966	162	tion.....	118499	32	Hardy-Littlewood		
Geometry:			Gravity:			equations.....	119079	69
optical - Sweden....	119570	221	measurements.....	118499	32	Harmonic		
plane - Great			measuring instru-			functions.....	119077	69
Britain.....	118845	24	ments.....	118499	32	119079		69
symmetric - Great			Greases:			119214		169
Britain.....	118845	24	antioxidants.....	121017	286	Hartree-Fock		
Geomorphology -			anti-rust - tests....	119122	56	equations.....	119551	171
research.....	119082	77	Green's			Haynes 88		
119785		313	function.....	118990	53	(alloy).....	121101	294
Germanium:			Grids - flow characteristics -			Headgear, low temperature -		
electrical			Germany.....	118901	28	acoustic - prop-		
properties.....	118808	6	Group behavior.....	118986	72	erties.....	11832	145
118853		8				Hearing - effects of		
119539		169				noise.....	119016	60
119805		208				Heat:		
optical proper-						exchangers -		
ties.....	111748	62				design.....	120253	308
photoconductivity....	111748	62				120494		290
preparation.....	118853	8				materials.....	111772	112
silicon alloys - electrical						theory.....	120253	308
properties.....	120671	292				physiological		
surface treatment..	118808	6				effects.....	118874	24
118853		8				119018		71
Glass:			GTP70-2 (power			transference -		
calcium			supply).....	111831	308	aerodynamics....	118815	30
aluminate.....	111789	281	Guanidine, nitro -			119097		76
compression.....	120672	292	microscopy....	118875	6	119382		126
laminated -			Guinea pigs -			119398		118
bending tests.....	119102	49	anatomy.....	119238	172	119399		177
creep tests.....	119376	97	Gun(s):			119865		311
elasticity.....	119102	49	aircraft - lubrica-			121007		176
heat resistance....	119376	97	tion.....	111739	55	coefficients.....	119809	230
119613		147	electron.....	119801	220	measurement.....	119126	69
strength.....	118994	74	design.....	119118	52	119397		177
119613		147						

	PB	Page		PB	Page		PB	Page
Heat - Continued			Hormones - Continued			Hydrogen - Continued		
transference - Continued			adrenocorticotropic - Continued			peroxide -		
measuring equip-			physiological			analysts.....	119030	50
ment.....	119126	69	effects.....	119220	159		120070	202
	119573	222	Hospitals, military -			chemical prop-		
theory.....	119267	103	rehabilitation pro-			erties.....	118913	4
	119371	127	grams.....	119039	60	decomposition....	118913	4
	119397	177	Hostility -				119030	50
	119589	168	research.....	119595	224	effect on		
	119903	285	Houses:			leather.....	111882	10
	120494	290	construction.....	119193	124	handling.....	120070	202
	121007	176	design.....	119193	124	reactions.....	118913	4
	121135	307	Hulls:			stability.....	119030	50
Great Britain....	118832	20	coatings,			storage.....	120070	202
Heating, aerody-			electrolytic....	111807	215	thermodynamic		
namic.....	120133	311	corrosion - pre-			properties....	119030	50
measurement.....	119809	230	vention.....	111807	215	production -		
Helicopter(s):				119014	77	Germany.....	120660	287
aerodynamics.....	119101	76	Humidity, atmospheric -			Hydrogenation:		
blades -			effect on thermal decom-			catalytic -		
design.....	119817	228	position.....	120362	280	apparatus -		
mathematical				120688	282	Germany.....	120607	286
analysis.....	119817	228		120689	282	methods -		
pressure distribu-			Hydraulic fluids:			Germany.....	120607	286
tion.....	118980	28	effect on rubber....	111766	73		120662	287
controls,				119124	55	high pressure -		
automatic.....	118891	28	foaming characteris-			Germany.....	120660	287
flight tests.....	119101	76	tics.....	111727	55		120661	287
hovering.....	119885	228	ignition.....	118924	9		120662	287
instrument panels....	118891	28	noninflammable....	119626	155		120663	287
noise.....	119883	309	fluorine content....	111983	146		120664	287
rotors -			storage.....	119124	55	plants -		
flapping coeffi-			tests.....	119124	55	construction materials -		
cients.....	119864	228	Hydrazine mononitrate -			Germany.....	120664	287
models - tests....	118980	28	thermal decom-			equipment -		
tandem -			position.....	118705	4	Germany.....	120664	287
control.....	119101	76	Hydrides, metallic - prepa-				120665	287
stability.....	119101	76	ration.....	119684	203		120666	287
theory.....	118980	28	Hydrocarbons, fluorinated -			residues - utilization -		
	119885	228	preparation.....	119117	73	Germany.....	120661	287
wind tunnel			Hydrochloric acid:			Hydrography - Alligator Harbor,		
tests.....	118980	28	electrodynamic			Florida.....	119977	313
stability.....	118891	28	properties.....	119234	98	Hydrology - research -		
	119101	76	electrolysis.....	119234	98	Greenland.....	118848	14
directional - effect of tail			vapor pressure.....	119234	98	Hydrophones -		
rotor.....	119885	228	Hydrocortisone acetate -			tests.....	118987	58
Helium:			therapeutic			Hyperventilation....	119480	172
adsorption.....	111895	23	use.....	118801	11			
energy measure-			Hydrocyanic acid - detection -			I		
ments.....	119110	51	Germany.....	119887	279	Ice:		
liquid - thermal			Hydrodynamics:			ablation - Green-		
properties.....	118710	16	Congresses.....	119070	77	land.....	118848	14
thermodynamic			theory.....	119377	231	aerodynamic		
properties.....	118710	16		120105	312	effects.....	119856	228
Hexogen -			Hydrogen:			bibliography.....	119032	64
production.....	119140	50	absorption.....	111905	150		119137	115
Hilbert space (mathe-			active -			crystals - formation - theory -		
matics).....	119088	169	adsorption.....	111895	23	Germany.....	111893	22
	120302	302	reactions.....	118903	2	formation - measuring		
HOLDERS, Crystal see			compressibility....	118710	16	equipment.....	120154	307
Crystals - Holders			diffusion.....	111772	112	Greenland.....	118849	14
Holothuria atra.....	119230	172	energy levels.....	118704	23	island, T-3.....	119773	231
Hormones:				119109	70	prevention systems -		
adrenal.....	118800	11	ion concentration -			design.....	121135	307
adrenocorticotro-			calculation.....	119109	70	strength.....	119138	115
pic.....	118800	11	nuclear reactions....	119438	121			

	PB	Page		PB	Page		PB	Page
Ignition:			Instrument(s):			Ionization		
spontaneous -			aeronautical -			chambers.....	118699	22
temperature.....	119390	105	calibration.....	118969	27	apparatus.....	118989	57
tests - Great			effect of location on			design.....	111859	157
Britain.....	119168	105	instrument				118807	23
theory.....	119167	54	panel.....	119222	125		118867	23
Great Britain.....	119168	105	installation.....	119222	125		119650	289
testing equipment -			approach system -			energy loss.....	118807	23
design.....	118924	9	components.....	119710	175	Great Britain.....	118829	23
Illumination:			measuring -			research.....	118807	23
measurement.....	119251	123	color.....	120022	209		118867	23
sources.....	111746	49	corona discharge..	119520	300	testing equip-		
Impact:			electron			ment.....	118807	23
testing equip-			velocity.....	119212	111		118867	23
ment.....	120032	213	noise.....	119389	106	Ionosphere:		
	120254	294	pressure.....	119807	206	bibliography.....	119834	217
theory.....	119724	302	pyrotechnic.....	119139	57	calcium content -		
	119876	309	radio inter-			mathematical		
Impedance:			ference.....	119043	51	analysis....	119026	68
Interface see also Cathodes,			refractive			electron den-		
Oxide - Impedance			index.....	119237	103	sities.....	119793	206
matching.....	119194	102	sound.....	119066	106	F-layer -		
measurements.....	119255	101	stresses.....	119810	201	analysis.....	119132	64
Impellers, centrifugal:			temperature.....	119204	106	physics.....	111966	162
design.....	119749	300	vapor pressure....	120019	203	research.....	118963	13
internal flow charac-			meteorological -				119026	68
teristics.....	119749	300	design.....	119219	59		119132	64
Impregnants, anti-mildew -			tests.....	119506	116		119550	164
physiological			nuclear -	119115	57		119834	217
effects.....	111800	124	design.....	120026	303		119550	164
Impregnating oils - dielectric			radiation			Ions:		
constants.....	111961	165	detection.....	111743	9	exchange processes -		
Indicators:			testing - fabrics see			theory.....	119743	166
distance -			Fabrics - Testing machinery				119744	167
design.....	118917	27	Insulation:			negative -	119747	167
tests.....	118917	27	electrical.....	120367	286	scattering....	119216	121
ice.....	119534	175	materials.....	119254	101	sources.....	119020	70
design.....	120154	307	thermal -			IRA-400 (Trade		
Indium:			fabrics.....	111985	174	name).....	119746	166
arsenide - electrical			Insulating:			Iron:		
properties.....	119805	208	fluids.....	119254	101	absorptive prop-		
antimonide - electrical				120367	286	erties.....	119085	60
properties.....	119805	208	materials.....	120367	286	alloys -		
cross sections.....	118324	19	ceramics.....	119254	101	ductility.....	111999	215
Industrial research:			plastics.....	119254	101		121014	215
Austria.....	111703	78	properties.....	120490	304	high tem-		
bibliography.....	119617	231	radiation			perature.....	111891	12
Industries -			effects.....	111863	71	impact tests.....	111999	215
location.....	111640	204	rubber.....	119254	101		121014	215
Infrared:			Interference, aerodynamic -			cross sections.....	118324	19
illumination.....	119367	114	theory.....	118968	28	determination.....	111730	113
radiation -			Interferometers, acoustic -			energy levels.....	119085	60
absorption.....	121048	217	design.....	119855	222	hydrogenation....	119047	61
scattering.....	119113	65	International			oxides -		
transmission.....	119108	64	trade.....	119174	77	absorptive		
	121048	217	Intestines - Mucosa -			properties....	119085	60
	121201	314	analysis.....	119150	54	energy levels.....	119085	60
Inhibitors, corro-			Ionac A-300 (Trade			magnetic prop-		
sion.....	119454	204	name).....	119746	166	erties.....	119610	166
tests.....	111848	118		119747	167	titanium alloys -		
	119471	149		119748	167	heat treat-		
	121017	286				ment.....	111767	13
Inland navigation -			Ionic conductivity - effect of			mechanical prop-		
traffic.....	119081	128	pressure.....	120668	292	erties.....	111990	162
Instruction, visual....	119192	124		120669	292	vanadium		
Instructors - equipment -						alloys.....	119528	113
design.....	111879	123						

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Isonicotinic acid - reactions.....	119583	159	Junctions - Continued			Leather:		
Isotopes:			germanium - electrical properties.....	120224	285	acid resistance.....	111882	10
energy measurements.....	119556	303	silicon - electrical properties.....	111814	207	impregnation.....	111882	10
exchange reactions.....	119179	122				manufacture - machinery - Germany.....	118603	108
			K			Lenses:		
J			K-1 system (electronics equipment).....	119681	220	calcium fluoride - design.....	119444	106
Jan-B-121 (barrier material wax).....	118794	10	K-151A (titanium carbide).....	119092	66	photographic - fabrication.....	119728	157
Jet(s):			Kel-F (Trade name).....	111984	173	Life saving apparatus - color.....	121016	159
air - noise.....	119386	127	Kerr cell.....	118714	7	Lift - theory - Italy.....	119400	126
supersonic - flow.....	119441	120	Kirchhoff's theory... ..	119280	119	Light:		
engines - fuels - gum content - determination.....	111861	104	Krypton - heats of adsorption.....	119975	301	intensity - measuring equipment.....	119084	70
pulse-jet - aerothermodynamics.....	119379	127	Kinetic reactions, molecular.....	119109	70	refraction - theory.....	119756	221
drag - measurement.....	118286	31		119711	147	transmission - theory.....	111979	313
tests.....	118286	31		119855	222	Lightning - electrical properties.....	121004	163
thrust - measurement.....	118286	31	L			Lime:		
	119379	127	L-3028 (vacuum tube).....	119054	52	calcinated - tests - Sweden.....	119004	66
wind tunnel tests.....	119379	127		119055	52		119005	63
ram jet - combustion.....	119167	54		119056	52	chemical properties - Sweden.....	119004	66
vibration - mathematical analysis.....	118975	31		119057	52	Linear systems: analysis.....	119088	169
turbo-jet - carbon formation.....	119167	54	Laboratory equipment: decontamination.....	111745	57	computing methods.....	120207	221
controls.....	119587	175	design - Great Britain.....	119316	149	Lines, delay: performance.....	111809	221
flow.....	119095	76	Lagrange equations.....	118751	31		119282	107
fuel systems.....	119587	175		119692	301	theory.....	119089	53
fuels - injection.....	119685	155	Land:			uses.....	119001	53
noise.....	119386	127	forms - analysis....	119993	220	Link trainers - instruments.....	118921	29
measurement.....	119392	126	surveys.....	120546	299	Lipoproteins - biochemistry.....	119148	109
operation.....	119392	126	Landing:			Liquids:		
stability.....	119587	175	approach - photographic interpretation.....	119884	228	effect of ultrasonics.....	120451	281
thrust.....	119392	126	gear - wheels.....	119862	306	electrical properties....	120367	286
propulsion - research.....	119392	126	instrument.....	118915	28		120670	292
theory.....	119073	119	Lead:			heat transference.....	120669	292
Job analysis.....	111841	152	hydrogen phosphates - thermal decomposition.....	120362	280	measurements.....	111851	107
	119681	220	sulfide - photoconductivity.....	119540	148	organic - surface properties....	111902	147
Joints:			Leadership.....	119409	123	surface tension - measurement.....	111902	147
adhesive bonded - stress distribution.....	118966	26	research.....	119829	225	viscous - cavitation.....	119210	100
brazed - molybdenum-tungsten.....	119440	113	Learning:			volume - theory.....	119186	67
riveted - stress distribution.....	118966	26	psychological factors.....	119755	225	Literacy - training.....	119597	220
welded - fracture tests.....	111616	112		119980	304	Lithium:		
	119803	218		120047	225	borohydrides - preparation.....	111876	61
Junctions:				119064	72	compounds - preparation.....	111889	56
aluminum-copper - formation.....	111960	161	theory.....	119064	72			
electrical.....	111790	50	transference.....	119755	225			
	118889	6	Least squares.....	119279	168			
				120038	301			

	PB	Page		PB	Page		PB	Page
Lithium - Continued			Luminescence - Continued			Magnesium:		
hydrogen phosphates -			measurement.....111785	49		alloys -		
thermal decompo-			Luminescent materials -			coatings, protec-		
sition.....120362	280		luminescence - measure-			tive.....121140	295	
hydroxide - uses....119778	211		ment.....111785	49		compression		
magnesium - zinc alloys -			Lymph -			tests.....119091	63	
equilibrium dia-			research.....119150	54		corrosion resist-		
grams.....111762	62		Lymphocytes:			ance.....121140	295	
Loads:			migration.....119160	213		corrosion		
aerodynamic.....118736	29		research.....119160	213		tests.....111886	98	
theory.....118740	15			119162	110	elasticity.....119091	63	
	119013	75	Lysozyme - reactions with			impact tests.....119091	63	
landing -			conalbumin....119161	110		mechanical prop-		
impact.....119862	306					erties.....111762	62	
	119884	228	M			structure.....111762	62	
	120105	312	M-1 (odograph).....119632	157		surface treat-		
mathematical			M-1 (propellant).....118681	50		ment.....121140	295	
analysis.....119853	228		M-3 (propellant).....118681	50		coatings.....111886	98	
structural -			M-15 (propellant)....118875	6			119044	64
dynamic tests.....119996	226		Mach number:			fabrication.....119044	64	
	119997	226	effect.....118571	31		powders - corro-		
static tests.....119996	226			118737	29	sion.....119532	313	
	119997	226		118894	29	use in aircraft....119044	64	
	119998	226		118969	27	Magnetic:		
transmission - testing				118971	30	fields -		
equipment.....111828	56			118977	28	control equipment -		
Logistics - operation main-				119100	75	design.....118698	7	
tenance.....119273	117			119126	69	decay -		
Low temperature				119130	75	theory.....119033	51	
research.....119539	169			119248	126	stellar - decay -		
Lubricants:				119375	125	theory.....119032	51	
additives -				119378	177	theory.....119474	152	
analysis.....119093	55			119380	113	flux - theory.....118432	33	
air - design - Great				119384	125	materials, ceramic -		
Britain.....118833	24			119394	126	research.....119610	166	
aircraft.....111739	55			119395	177	Magnetite:		
	111994	129		119441	120	crystal struc-		
cold weather				119466	175	ture.....119465	150	
tests.....119093	55			119788	227	magnetic prop-		
combustion.....119390	105			119858	309	erties.....119465	150	
gear see Gears -				119861	309	properties.....118878	54	
Lubrication				119874	229	Magneto hydrody-		
high temperature -				119877	311	namics.....119822	222	
properties.....121003	155			120109	310	Magnets, permanent -		
synthesis.....111889	56			120260	310	ceramic.....119610	166	
tests.....111889	56			121007	176	Manganese:		
	111906	154		measurement.....119398	118	antiferromag-		
ice resistant.....111739	55		Machinery:			netism.....120672	292	
synthetic - tests....111906	154		catalogs -			determination.....111730	113	
tests.....118887	9		Germany.....118602	108		electrical prop-		
	119543	155		118603	108	erties.....120671	292	
Lubricating oils:				118604	108	recovery from		
ignition.....118924	9		hydrogenation see			slag.....119780	215	
low temperature -			Hydrogenation plants -			titanium alloys -		
additives.....119093	55		Equipment			heat treatment....111767	13	
viscosity.....119093	55		Machines:			tensile prop-		
pour point depres-			testing - design.....111752	58		erties.....111898	13	
sants.....119093	55		washing - automatic -			welding.....111707	114	
Lucite - humidity			design.....111745	57		Manifolds - stability -		
tests.....120689	282		Mac Mahon's theory			theory.....119461	169	
	120690	282	(enumeration)..119758	223		Mannitol:		
	120691	282	Magnesia - lumines-			1, 6-diamino -		
Lumber - specifi-			cence.....120029	281		synthesis.....119804	201	
cations.....111998	158					1, 6-dibenzenesulfonate -		
Luminescence:						synthesis.....119804	201	
biological -								
intensity.....119188	78							

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Manufactures -			Mathematics - statistical			Metal(s) - Continued		
inspection.....	118909	18	theory.....	119022	68	molten - viscosity - meas-		
	118910	18		119758	223	urement.....	111945	105
	118911	18		120207	221	oxidation -		
Maps, meteorological.....	118304	15	Mathieu-Hill equation	120302	302	Germany.....	119455	293
Marine:			(variables).....	119425	168	testing equip-		
biology.....	119230	172	Matrix theory.....	119279	168	ment.....	121021	294
borers - control.....	111866	128		119760	302	plastic deforma-		
life productivity.....	119184	127	Medical research.....	119148	109	tion.....	119185	61
Markers, luminescent -			bibliography.....	119808	214	powders -		
properties.....	111746	49	Memory - effects of:			combustion.....	119063	61
Marksmanship -			cerebral depres-			preparation.....	121021	294
training.....	120450	291	sants.....	119477	225	121023	294	
Marshes:			motivation.....	119477	225	pressure.....	120671	292
formation.....	119082	77	overlearning.....	119477	225	radiation		
vegetation.....	119082	77	Mercury:			effects.....	119020	70
Mass:			liquid - vaporization -			tests - correla-		
spectrometers - auxiliaries -			measurement..	120049	282	tion.....	120688	282
Great Britain..	118835	20	vapor - permeation of			thermal		
transference -			graphite.....	120049	282	properties....	111756	216
theory.....	119589	168	Mesotrons:			bibliography.....	111756	216
	119685	155	conversion coeffi-			effect of low tempera-		
Materials, porous - perme-			cients.....	118856	21	ture.....	119539	169
ability.....	119380	113	decay schemes.....	119221	121	vaporization - measuring		
Mathematical:				120052	224	equipment.....	120049	282
equations and			nuclear			Meteorology:		
solutions.....	111799	283	reactions.....	119035	71	marine.....	119846	296
	111878	168	properties.....	119028	69	observations - Pacific		
	118340	18	research.....	120053	223	Ocean.....	119417	115
	118376	18	scattering.....	119221	121		119418	115
	118612	19	theory.....	119035	71		119419	115
	118641	8	Metal(s):				119420	115
	118704	23	aromatic complexes -				119421	115
	118719	6	spectrographic			research.....	118825	14
	118720	18	analysis.....	119836	279		119021	65
	118858	32	testing.....	119836	279	Meteors:		
	118897	18	corrosion -			ionization		
	118992	50	Germany.....	119455	293	effects.....	119460	163
	118995	69	prevention.....	111744	63	radio detection.....	119132	64
	118999	68	tests.....	111962	215	Meters:		
	119077	69	damping			flow -		
	119104	69	capacity.....	119548	174	design.....	119783	211
	119121	68	deformation.....	119213	111	fuel - diaph-		
	119207	100	effect on electro-			ragms.....	119090	72
	119235	169	magnetic field -			gas - design.....	111952	149
	119239	169	Russia.....	119434	102	gloss - design.....	119497	147
	119425	168	density - effect of			radiation -		
	119445	105	pressure.....	120671	292	design.....	111863	71
	119447	120	diffusion -			Methanol:		
	119461	169	measurement.....	121066	295	adsorption.....	111895	23
	119545	151	theory.....	121066	295	optical effects.....	119153	109
	119546	303	ductile fracture.....	119978	293	toxicity.....	119153	109
	119692	301	electrical properties - effect			Michell's theory (wave resist-		
	119757	301	of pressure.....	120673	293	ance).....	119611	223
	119815	302	fatigue.....	119548	174	Microanalysis - equip-		
	119816	302	heat treatment.....	119213	111	ment.....	119801	220
	120038	301	humidity tests.....	120688	282	Microbiology:		
	120041	300		120689	282	marine -		
	120051	222		120690	282	research.....	119247	128
	120495	291		120691	282	research.....	119178	109
	121013	164	Liquid -			Micrometeorology - research -		
functions - symmetrization -			compressibility....	120669	292	Australia.....	119812	211
theory.....	119758	223	diffusion.....	121066	295	Microorganisms:		
			handling - Great			effect of pres-		
			Britain.....	118834	24	sure.....	119247	128

	PB	Page		PB	Page		PB	Page
Microorganisms - Continued			Mollusks:			Mufflers, exhaust:		
effect on pave-			calcification.....	119229	314	attenuation.....	119883	309
ment.....	120363	288	shells - growth.....	119229	314	design.....	119883	309
marine -			Molybdenum:			Muons - decay		
distribution - biblio-			alloys -			spectrum.....	120053	223
graphy.....	119481	231	oxidation.....	119850	215	Muscle - testing equipment -		
ecology - biblio-			scaling.....	119850	215	design.....	111947	171
graphy.....	119481	231	brazing.....	119440	113	Musical instruments, Electronic -		
North America - biblio-			coatings.....	111965	202	Research -		
graphy.....	119481	231	determination.....	111730	113	Canada.....	119833	207
Microscopes, electron -			disilicide -			Mycelium -		
uses.....	118875	6	heat transfer.....	119498	148	growth.....	119225	154
	119020	70	thermal prop-			Mycosis,		
	119135	63	erties.....	119498	148	cutaneous.....	119162	110
Microscopy,			recrystallization.....	111898	13			
electron.....	119472	157	tensile prop-			N		
Microtronics -			erties.....	111898	13	N3N-3 (Airplane)...	118690	27
research.....	118853	8	titanium alloys - heat				118691	27
Microwave:			treatment.....	111767	13	N-155 (Alloy).....	111618	110
equipment.....	119110	51	zirconium alloys -			Naphthalene:		
	119111	51	metallurgy.....	119135	63	absorption		
power.....	119452	103	microstructure.....	119135	63	spectra.....	119711	147
Military training.....	118877	25	Monitors:			fluorescence.....	119711	147
methods.....	119192	124	design.....	111827	51	λ-methyl - purifi-		
Mineral(s):			radar - design.....	111956	150	cation.....	111861	104
oils - viscosity.....	119093	55	Monkeys:			NAREC (Naval Research Labo-		
recrystallization...	120673	293	effects of methanol			ratory Electronic Digital		
research.....	119208	178	poisoning.....	119153	109	Computer).....	111784	59
Mines, oil shale -			laboratory			Navier - Stokes equation of		
drilling.....	119555	212	records.....	119141	60	fluid		
Missiles:			procurement.....	118799	11	motion.....	119123	69
effectiveness -			Monte Carlo			Navigation,		
calculation.....	119735	218	method.....	111951	171	automatic.....	120133	311
guided -			Monticellite:			Navigational aids -		
kinematics.....	119797	230	decomposition.....	118852	15	Canada.....	119833	207
	120338	312	formation.....	118852	15	Neomycin - therapeutic		
navigation.....	119797	230	thermal prop-			use.....	118801	11
	120338	312	erties.....	118852	15	Nervous system - effects of		
MK IV-A (depth			Morphology - research -			X-ray.....	119512	122
recorder).....	119784	212	Greenland.....	118848	14	Networks:		
ML-329 (vacuum			Motion pictures,			electrical -		
tube).....	119776	206	educational.....	120450	291	mathematical		
Mobile AMA fabric			Motor vehicles - noise -			analysis.....	111770	100
tester.....	97711s	58	prevention.....	119490	156		119522	205
	97711s2	58	Mountings:				119524	151
Molding materials, heat			rubber - tests.....	120493	305	synthesis.....	118805	6
resistant.....	119042	49	shock - design.....	111813	206		118806	8
Molecular:			vibration -				119111	51
interactions.....	111853	122	testing equip-			pulse forming -		
	118704	23	ment.....	120490	304	theory.....	118805	6
	119109	70		120491	304		118806	8
	119154	146	tests.....	120491	304	theory.....	119470	152
	119216	121		120492	304		119553	152
	119408	303		120493	305	Neurology.....	119226	159
	119556	303	theory.....	120490	304	Neurophysiology -		
bibliography.....	119254	101		120493	305	research.....	120054	224
theory.....	118704	23	Mucous membranes, Intestinal			Neutron(s):		
	119109	70	see Intestines - Mucosa			absorption		
	119408	303	Mucus:			spectra.....	119295	170
	119999	223	chemical			attenuation.....	118695	21
Molecules:			analysis.....	119196	110	cross sections.....	111853	122
collisions.....	119999	223	formation.....	119196	110		119249	121
magnetic			secretion.....	119196	110		119295	170
moments.....	119408	303				measurement.....	118696	22
vibration -						density.....	118694	21
theory.....	119855	222						

	PB	Page		PB	Page		PB	Page
Neutron(s) - Continued			Nitramide - Continued			Noise - Continued		
detection.....	119249	121	preparation.....	119215	98	propeller -		
	119754	223	reactions.....	119215	98	airplanes.....	119248	126
diffusion -			Nitramines -			measuring equip-		
theory.....	111865	70	preparation.....	119804	201	ment.....	119389	106
	120255	304	Nitric acid:			psychological		
Great Britain.....	118842	19	decomposition.....	111950	148	effect.....	119827	214
	118844	24	fuming -			random - mathematical		
distribution.....	118697	22	corrosive effect.....	111877	4	analysis.....	118892	19
energy				111882	10	solar - research -		
distribution.....	119249	121		111950	148	Canada.....	119833	207
	119295	170	handling.....	111877	4	Noses (Aircraft) - drag		
	119028	69		111950	148	effect.....	119130	75
	119035	71		119783	211	Nozzles:		
	119582	170	thermal			design - Great		
levels.....	119232	121	properties.....	111877	4	Britain.....	119313	107
measurements.....	118692	21		111950	148	jet flow - measure-		
Great Britain.....	118841	20	properties.....	111950	148	ment.....	119441	120
fluxes -			Nitro benzene -			noise - effect of nozzle		
measurements.....	111769	19	properties.....	118714	7	shape.....	119385	127
	118694	21	Nitrocellulose -			laval.....	119166	168
	119650	289	reactions.....	119574	204	tests.....	119095	76
Great Britain.....	118841	20	Nitrogen:			Nuclear:		
	118844	24	adsorption.....	111895	23	chemistry -		
theory.....	120255	304	determination.....	111730	113	research.....	119616	171
interactions.....	118696	22	oxide gas -			physics - Con-		
scattering.....	118324	19	production.....	120108	229	gresses.....	111893	22
	118692	21	oxides - decom-				111894	22
measurement.....	118696	22	position.....	120108	229	reactions -		
theory - Great			oxygen-titanium alloys -			theory.....	118696	22
Britain.....	118844	24	welding.....	111707	114	theory.....	111893	22
shielding.....	118692	21	radioactive -				118697	22
	118693	21	absorption -			Great Britain.....	118834	24
	118694	21	measuring equip-			Nutrition -		
	118695	21	ment.....	119107	123	research.....	119225	154
	118696	22	theory.....	119107	123	Nylon, neoprene-coated -		
	118697	22	emissions - measure-			deterio-		
slowing down.....	118699	22	ments.....	119019	70	ration.....	111728	27
sources.....	119582	170	production.....	119754	223			
spectra.....	118694	21	properties.....	119019	70	O		
	119295	170	ultraviolet			Ocean:		
transparent			absorption.....	119107	123	bottom -		
theory.....	111865	70	specific heat.....	120100	204	measurement - Bahama		
	118697	22	thermodynamic			Islands.....	120508	313
	120255	304	properties.....	120100	204	temperature - measure-		
velocity - theory - Great			titanium alloys - tensile			ments.....	119133	77
Britain.....	118845	24	properties.....	111898	13	temperature - measure-		
Nickel:			vapor pressure.....	120100	204	ments.....	119133	77
alloys -			Nocardia - bacterio-			Oceanography:		
oxidation.....	121001	161	logy.....	119178	109	Bahama Islands...	120508	313
tests.....	121001	161	Noise:			Puget Sound.....	118295	15
amalgam <u>see</u> Amalgams,			atmospheric - measure-			research.....	119133	77
Nickel			ment.....	119364	101	Florida.....	119211	128
powders - pro-				119777	217	strait of Juan de		
duction.....	119281	112		119807	206	Fuca.....	118295	15
radioactive -			background - measure-			Oceans - electromagnetic		
uses.....	119857	202	ment.....	119520	300	fields.....	118432	33
substitutes.....	111783	114	detection.....	119462	154		118706	31
Niobium - determina-			effects on speech			OCL (Vacuum tube testing		
tion - Great			intelligibility...	119496	205	equipment)....	119094	58
Britain.....	119327	111	intensity spectra - measure-			Odographs -		
Nitramide:			ment.....	119462	154	operation.....	119632	157
bromomagnesium -			theory.....	119641	154	Officer:		
reactions.....	119215	98	magnetic -			candidate school - qualifica-		
infrared absorption			theory.....	118432	33	tions.....	118812	15
spectra.....	119215	98	measurements.....	119807	206			

	PB	Page		PB	Page		PB	Page
Officer - Continued			Ozalid process.....	119981	299	Patents.....	118273	34
candidate school - qualifications -			Ozone:			bibliography.....	111854	34
Continued.....	118879	25	physical proper-			Pavements:		
.....	118885	25	ties.....	120055	203	asphalt -		
.....	120040	220	purification.....	120055	203	chlorination.....	120363	288
performance records -			thermodynamic			effect of micro-		
evaluation.....	118812	15	properties.....	120055	203	organisms.....	120363	288
Oils - distillation....	119266	108				bituminous -		
Olefins:						design.....	119495	156
polymerization						tests.....	119495	156
products.....	111959	200				concrete -		
reactions.....	111959	200	Package cushioning:			loads.....	120365	288
Operations research -			materials - tests...	121145	298	traffic tests.....	120365	288
Congresses.....	119273	117	theory.....	121015	298	flexible -		
Operators (Mathe-			Packaging materials:			construction	119134	56
matics).....	119088	169	bibliography.....	111848	118	design.....	120373	288
.....	119214	169	tests.....	111848	118	impact tests.....	119134	56
.....	120302	302	Pain - therapy.....	119228	159	loads.....	111828	56
Ophthalmology.....	119482	158	Paints:			120373	288
Optics, geometrical -			camouflage - specifica-			materials -		
theory.....	118641	8	tions.....	119497	147	tests.....	111828	56
Ordnance:			ceramic - high tem-			119134	56
corrosion -			perature.....	111957	148	maintenance and		
prevention.....	119454	204	priming -			repair.....	119165	105
equipment -			anti-corrosive....	111886	98	Pectin - physiological		
design.....	111997	103	zinc chromate....	120446	280	effects.....	119246	109
inspection.....	119099	66	Pallets:			Pendulums.....	118499	58
Ore - spectrographic			bonding.....	119260	118	Penetrometers -		
analysis - Great			wooden - construc-			design.....	119781	210
Britain.....	119327	111	tion.....	111998	158	Permafrost - biblio-		
Organic compounds -			inspection.....	111998	158	graphy.....	119002	64
reduction.....	119684	203	maintenance and			119137	115
Orientation:			repair.....	111755	78	Permutation -		
animals, aquatic -			Pancreas -			theory.....	118376	18
Bermuda.....	119149	172	physiology.....	119148	109	Personality -		
birds.....	119731	178	Paper:			research.....	119484	172
fish.....	119199	129	making			121032	224
tests.....	118998	60	machinery.....	121029	178	Personnel:		
textile fibers.....	119979	306	recording.....	111864	157	communications -		
Oscillators:			Parachutes:			training.....	118851	15
crystal.....	119602	152	instrument			electronics -		
harmonic.....	118904	68	dropping.....	119899	296	ability tests.....	111841	152
ultra high frequency -			materials.....	121100	306	118996	67
theory.....	119536	151	nylon - electrical			training.....	111841	152
Oscillography, high			properties.....	121141	305	flying -		
speed.....	118863	7	Paraffin wax - additives -			ability tests.....	117829	75
Oscilloscopes - sweep			chemical			psychiatric		
circuits.....	111953	205	effects.....	119093	55	records.....	119484	172
Otitis externa -			Parkerizing.....	122084	280	psychological		
therapy.....	118801	11	122085	280	records.....	117829	75
Otolaryngology.....	119410	109	122086	280	statistics.....	119680	220
Otology.....	118801	11	122087	280	training.....	117829	75
Oxygen:			Particles:			bibliography.....	118822	29
cross sections.....	119182	101	charged -			120213	304
deficiency - effect on body			distribution.....	119793	206	120214	304
temperature....	119475	160	scattering -			120215	304
physiological			theory.....	119999	223	guided missile -		
effects.....	119152	110	cosmic ray -			ability tests.....	119819	220
research.....	119152	110	interactions.....	119028	69	119820	220
equipment.....	118874	24	reactions.....	119523	301	119821	219
metallurgical			counting.....	111893	22	training.....	119821	219
effects.....	111741	214	distribution - mathematical			maintenance -		
nuclear			analysis.....	111958	223	training.....	119681	220
reactions.....	119182	101	motion - theory.....	119474	152	military -		
physiological			scattering.....	119616	171	rehabilitation		
effects.....	118811	32	screening - theory -			programs.....	119039	60
spectrographic			Sweden.....	119566	299	tests.....	118877	25
analysis.....	119182	101	size - effect on magnetic					
			properties.....	119610	166			

	PB	Page		PB	Page		PB	Page
Personnel - Continued			Photoconductivity:			File fabrics for		
naval -			measurements.....	119540	148	insulation.....	111985	174
ability tests.....	120040	220		119541	148	Pilot(s):		
literacy -			measuring equip-			air - training.....	118850	29
training.....	119597	220	ment.....	119538	148	automatic -		
training.....	119191	123	theory.....	119367	114	tests.....	118915	28
	119844	219	Photoelectric cells -				119129	74
vocational interests - meas-			design.....	118714	7	tubes - perform-		
urement.....	119828	226	Photogeography.....	118464	16	ance.....	119936	308
radar - perform-			Photographic:			Piston rings - packing		
ance.....	119507	117	printers.....	118809	25	materials.....	120673	293
sonar -			solutions - regene-			Pituitary body.....	118800	11
ability tests.....	119598	172	ration.....	119743	166	Plains, coastal - form-		
performance - rating				119744	167	ation.....	119082	77
scales.....	119598	172		119745	166	Planning.....	111801	305
psychological				119746	166	Plasma, electron:		
records.....	119598	172		119747	167	analysis.....	119107	123
submarine -				119748	167	Germany.....	119053	68
ability tests.....	119040	67	Photography:			oscillations -		
selection and			aerial.....	119796	230	theory.....	119110	51
training.....	119040	67		120134	312	Plaster - tensile		
training.....	119681	220	Greenland.....	118849	14	tests.....	121002	297
Perturbation -			interpretation.....	118464	16	Plastic(s):		
theory.....	119214	169		119993	220	deformation -		
	119438	121		120546	299	solids - testing equip-		
Petrochemical industry -			bibliography.....	118905	16	ment.....	111752	58
location.....	111640	204		118906	16	theory.....	118859	17
Petroleum			land forms.....	119993	220	Netherlands.....	120117	226
products.....	111640	204	research.....	118809	25	elasticity.....	119091	63
PF (Scrambling			shadow.....	119756	221	humidity tests.....	120688	282
equipment).....	119911	283	Photometers -				120689	282
Pharmaceuticals -			design.....	111785	49		120690	282
research.....	118801	11	Photometry, photo-				120691	282
Phase transitions:			electric.....	111780	99	laminated - compression		
theory.....	111894	22	Photoneutrons:			tests.....	119376	97
	119083	67	emission.....	119019	70	curing.....	111823	3
	119982	208	sources - energy measure-			fillers.....	111719	49
Phenolite - humidity			ment.....	119019	70	gluing.....	111869	280
tests.....	120689	282	Photons - energy				118939	48
	120690	282	levels.....	119538	148		118940	49
	120691	282	Physical geography:				118941	3
Phosphates - decom-			measuring equip-				118942	3
position.....	120362	280	ment.....	119935	279		118943	3
Phosphatides - bio-			suriname.....	119075	78		118944	3
synthesis.....	119150	54	Physics -				118945	3
Phosphonitridic dichloride -			research.....	119177	120	strength.....	119102	49
hydrogenation.....	119684	203	Physiology.....	119487	172	thermal		
Phosphorescent			research.....	119018	71	properties....	111823	3
materials.....	111872	201		119475	160		119102	49
Phosphoric acid - esters -				119480	172		119376	97
halogenation.....	119626	155		120449	291	mechanical properties -		
Phosphors:			underwater.....	118811	32	measurement.....	119810	201
cadmium zinc			Bermuda.....	119149	172	molded -		
sulfide.....	111872	201	Physiopathology.....	119152	110	tests.....	119042	49
electron			Picea excelsa - diseases and			thermosetting -		
emission.....	111872	201	pests.....	119567	314	stability.....	119042	49
light emission - measuring			Pigments:			polyethylene - electric con-		
equipment.....	118394	62	tests.....	111886	98	ductivity.....	111863	71
tests.....	118394	62	yellow -			radiation		
	118861	9	double refraction - meas-			effects.....	111863	71
Phosphorus:			urements.....	120028	279	sound trans-		
black - electrical			optical			mission.....	111832	145
properties.....	120672	292	properties....	120028	279	Plasticity -		
compounds - prepa-			Pigeons - Orientation <u>see</u>			theory.....	119839	222
ration.....	111889	56	Orientation - Birds					

	PB	Page		PB	Page		PB	Page
Plasticizers:			Polystyrene-benzene-isopropanol			Precipitation:		
fungicidal			system - equilibrium dia-			effect on radar		
properties.....	121020	280	grams.....	120017	202	signals.....	119509	117
fungus resistance -			Polystyrene-benzene-methanol			radar analysis.....	119510	100
tests.....	119682	201	system - equilibrium dia-			theory.....	119506	116
Plates:			grams.....	120017	202	Pressure:		
aluminum alloy -			Polystyrene-polyisobutylene			blast - measure-		
stresses - measure-			carbon tetrachloride			ments.....	119944	211
ment.....	119388	112	system - equili-			breathing.....	118874	24
tensile prop-			brium dia-			effect of tem-		
erties.....	119388	112	grams...	120017	202	perature.....	118710	16
flat -			Population:			fluid - physiological		
boundary layer,			estimates.....	119235	169	effects.....	119247	128
laminar.....	118973	17	statistics.....	119235	169	high -		
buckling.....	119078	69	Porcelain:			equipment.....	120667	292
	119559	173	tensile prop-			120668	292	
compression			erties.....	121002	297	120669	292	
tests.....	119559	173	tests.....	119092	66	research.....	120670	292
	119912	301	Porosity - testing			120671	292	
elasticity.....	119012	67	equipment.....	119380	113	120672	292	
heat trans-			Position finding.....	119268	107	120673	293	
ference.....	118973	17	Potassium:			measuring equip-		
plastic deforma-			bromide - chemical			ment.....	119724	302
tion.....	119912	301	reactions.....	119242	112	Germany.....	120666	287
Netherlands.....	120117	226	chloride -			Primers:		
stability.....	119559	173	chemical reac-			Paint see Paints, Priming		
stiffened.....	119012	67	tions.....	119242	112	sensitivity.....	119795	219
	119559	173	elastic con-			small arms -		
stress analysis....	119078	69	stants.....	119242	112	research.....	119795	219
	119373	124	energy levels.....	119551	171	Printers, reduction -		
vibration -			thermodynamic			calibration....	118809	25
theory.....	119078	69	properties.....	119242	112	Probability -		
rectangular - vibration -			hydrogen phosphates -			theory.....	119022	68
theory.....	118897	18	thermal decompo-			119121	68	
Plating,			sition.....	120362	280	119276	119	
chromium.....	119511	112	hydroxide - chemical			119525	300	
analysis.....	111830	147	analysis - Great			119983	303	
bibliography.....	119511	112	Britain.....	119321	99	Probes:		
Plugs - design.....	119771	210	iodide - chemical			air - design.....	119520	300
Poisson's ratio.....	118888	20	reactions.....	119242	112	design - Russia...	119203	125
	119522	205	photoconductivity..	119538	148	electric.....	119591	301
Polarization, electromagnetic -			radiation.....	119848	290	temperature -		
testing - equip-			Powders:			design.....	119204	106
ment.....	111950	148	crystalline - research -			Project:		
Polishing:			Sweden.....	119004	66	Lion.....	118857	7
electrolytic -			research -			Squid.....	119023	105
France.....	118965	12	Sweden.....	119004	66	119685	155	
equipment, electrolytic -			smokeless -			119726	221	
France.....	118965	12	stability.....	118681	50	Projectiles:		
Polygonal paths.....	119751	300	Power:			fin-stabilized - aerody-		
Polyisobutylene:			plants,			namics.....	119277	126
synthesis.....	119390	105	aerodynamic.....	121010	175	impact.....	119087	67
thermal properties..	119390	105	auxiliary - fire			penetration.....	119087	67
Polymerization -			prevention.....	111831	308	photography.....	119756	221
equipment.....	111986	147	electric - fire			stresses.....	119941	298
Polymers:			prevention....	111831	308	velocities - measure-		
boron - research....	111892	4	fire prevention....	118914	28	ments.....	119087	67
fluorinated - prepara-			supplies - design...	120223	283	Propellants:		
tion.....	111986	147	electronic.....	111814	207	compositions.....	118875	6
radiation effects....	111863	71	Prandtl number -			research.....	118681	50
research.....	120016	201	effect.....	119399	177	solid -		
structure.....	120017	202		119589	168	mechanical properties -		
Polynomials.....	119798	297		119726	221	testing - equip-		
Polyomyelitis - virus -				119849	222	ment.....	111752	58
inoculations....	119227	160	Prandtl's equation...	119073	119	stability - testing equip-		
Polysaccharides - bio-						ment.....	120452	298
chemistry.....	111836	159						

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Propellers:			Puccinia graminis			Radar - Continued		
aerodynamics -			tritici.....	120033	314	signals - Continued		
Germany.....	120116	229	Pulse:			recording		
angle of attack.....	118970	28	circuits -			devices.....	119143	52
blades - design.....	119599	176	design.....	118716	57	tracking.....	111901	163
stresses.....	111802	228		119282	107		111995	129
wind tunnel			transmission - measure-			visual display		
tests.....	119557	176	ment.....	119724	302	systems.....	118918	6
drag.....	118970	28	Pumps:			Radiation:		
lift - tests.....	118970	28	displacement -			absorption -		
marine -			design.....	111851	107	mathematical		
scale effects.....	119070	77	electromagnetic -			analysis.....	118826	16
tests.....	119070	77	design - Great			measuring equip-		
performance - measurement -			Britain.....	118834	24	ment.....	119085	60
standardiza-			fire fighting.....	121042	290	black body - trans-		
tion.....	119449	126	liquefied gases -			mission.....	119108	64
pitch - measure-			design.....	120232	300	counters.....	118696	22
ment.....	118970	28	theory.....	119370	118		118699	22
slipstream -			Punched card			design.....	119848	290
deflection.....	119868	309	system.....	119278	107		120026	303
theory.....	119248	126	Pyrotechnics - testing			Great Britain,..	119320	170
thrust.....	119248	126	equipment.....	119139	57	effect of		
measurements.....	119449	126		119366	99	X-rays.....	111769	19
vibration - tests.....	119557	176				performance.....	118718	20
Propiophenone, p-amino -							120026	303
physiological						uses - Great		
effects.....	119512	122	Quantum:			Britain.....	119334	171
Protectors, ear -			mechanics.....	118643	17	electromagnetic -		
evaluation.....	119575	213		118904	68	theory.....	118641	8
Proteins:				119083	67	fields.....	119205	102
biochemistry.....	111836	159	theory.....	119083	67	theory.....	118641	8
chemical prop-				119761	221	injuries -		
erties.....	119161	110		119999	223	therapy.....	119292	170
purification.....	111836	159				intensity - mathematical		
Psittacosis - virus - inocu-						analysis.....	118826	16
lations.....	119227	160				physiological		
Psychiatric						effects.....	118902	12
research.....	119039	60	Rabbits - cold - exposure -				119512	122
Psychoacoustics -			effect on leg			scattering -		
research.....	120054	224	muscles.....	119152	110	theory.....	118826	16
Psychological:			Radar:			shielding.....	118699	22
research.....	118936	72	airborne - meteorological			Great Britain.....	119329	171
	119064	72	effects.....	119619	153	theory.....	111951	171
	119080	72	atmospheric			sources.....	111905	150
	119488	160	effects.....	118823	7	design.....	118807	23
	120506	304	automatic				118867	23
tests.....	119157	124	tracking.....	118919	7	ultrasonic -		
	121032	224	bands K.....	119514	117	absorption....	111809	221
Psychology.....	119487	172	bands L.....	111907	151	Radio:		
applied.....	111879	123	beacons,			astronomy -		
	111880	72	transponder....	111776	8	research.....	111711	289
	118879	25	evaluation tests....	118823	7		118991	50
	118885	25	ground - equip-				121095	232
	118998	50	ment.....	119001	53	direction finders -		
	119017	72	meteorological.....	119506	116	circuits.....	119982	208
	119157	124		119619	153	equipment -		
	119158	123	design.....	119510	100	tests.....	118916	5
	119195	123	effects.....	119509	117	frequencies - modulation -		
	119365	123	operation.....	119507	117	theory.....	119446	99
	119730	225	use.....	111901	163	interference - elimi-		
	119824	225		119514	117	nation.....	119043	51
social.....	119069	124	receivers - com-			long range -		
	119595	224	ponents.....	111907	151	navigation....	118915	28
	119835	224	search - tests.....	118824	7	monitoring		
Psychrometers,				118857	7	devices.....	111827	51
thermistor....	119976	313	signals -					
			modification.....	119510	100			

	PB	Page		PB	Page		PB	Page
Radio - Continued			Railroads - North			Recorders - Continued		
noise.....	119364	101	Africa.....	119175	78	temperature -		
	119807	206	Rain and rainfall:			design.....	119211	128
receivers -			effects on vision...	118920	29	time-interval.....	119139	57
tests.....	118916	5	Guam.....	119687	164	Rectifiers:		
signals -			measurement.....	119275	116	design.....	111770	100
detection.....	119430	167	Raindrops - size -			germanium -		
intensity measure-			distribution.....	119241	163	junctions.....	118808	6
ment.....	119641	154		119509	117	silicon -		
modulation -			measuring equip-			design.....	111819	285
theory.....	119446	99	ment.....	119508	117	120305	285	
teletype,			Random distribution -			manufacture.....	111819	285
frequency shift -			theory.....	111875	120	120305	285	
design.....	119364	101		111951	171	tests.....	120305	285
noise.....	119364	101		118904	68	testing equip-		
transmitters -				119525	300	ment.....	111819	285
radiation - measure-			Rats:			Reflection - measure-		
ment.....	118922	5	effect of tryptophan			ment.....	119251	123
(VHF) - tests.....	119468	153	deficiency.....	119831	213	Sweden.....	119570	221
	119469	153	metabolism.....	119156	54	Reflectors - Great		
waves -			Raw materials -			Britain.....	118842	19
attenuation - ionos-			Germany.....	120660	287	Refraction:		
phere.....	119550	164	Rawins:			double -		
echoes.....	119189	100	errors.....	119774	206	theory.....	120028	279
over-water transmission -			theory.....	119774	206	indexes.....	118823	7
measurement.....	119469	153	Rayleigh:			118825	13	
polarization.....	111904	150	principle (mathe-			measuring equipment see		
	119189	100	matics).....	118897	18	Instruments, Measuring -		
ionosphere.....	119132	64	waves.....	119233	117	Refractive index		
measuring equip-				119723	303	seismic - measure-		
ment.....	119189	100	Reaction:			ment.....	118825	14
theory.....	119189	100	(psychology).....	118986	72	Refractometers.....	118825	14
propagation.....	119468	153	measurement.....	119595	224	design.....	119794	208
effect of			testing equip-	120047	225	microwave -		
meteors.....	119460	163	ment.....	119144	72	operation.....	118823	7
in metals.....	111826	151	time - measure-			Reichardt's		
ionosphere.....	119416	102	ment.....	119144	72	theory.....	119073	119
mathematical analysis -			Reactors:			Relaxation:		
Russia.....	119459	208	neutron -			method (engi-		
troposphere.....	119416	102	components -			neering).....	119522	205
	119469	153	tests.....	111859	157	Great Britain.....	118842	19
reflection -			flux distribution...	111865	70	Germany.....	119155	101
ionosphere.....	119549	162		118989	57	Replicas - prepara-		
research.....	118847	5	Great Britain.....	118842	19	tion.....	119472	157
scattering -			power - fission			Research,		
ionosphere.....	119132	64	products - Great			scientific.....	119208	178
	119549	162	Britain.....	119319	120	Resins:		
theory.....	118847	5	Reading - rate.....	119064	72	alkyd - corrosion		
Radioactive substances -			Receivers, electroacoustic -			tests.....	111824	98
luminescence - measure-			design.....	119176	99	epoxy-epon.....	119613	147
ment.....	111785	49	Recoil fluids - foaming charac-			ion exchange.....	119743	166
Radiobiology.....	119482	158	teristics.....	111727	55	119744	167	
	119487	172	Recorders:			119745	166	
	119488	160	depth -			119746	166	
Radiochemistry -			design.....	119211	128	119747	167	
research.....	118853	8		119784	212	119748	167	
Great Britain.....	118829	23	operation.....	119784	212	uses.....	119604	214
Radiography - photographic			drum -			silicone - adhesive		
aspects.....	119091	63	design.....	118570	10	properties.....	111768	49
	120667	292	writing equip-			Resistance, electrical		
Radiosondes:			ment.....	118570	10	measuring equip-		
meteorological			infrared absorp-			ment.....	111741	214
records.....	118825	14	tion.....	121048	217	Resistors:		
performance.....	119159	105	signal - design.....	119181	53	nonlinear - use in digital		
	119774	206				computers.....	119729	156
testing equipment.....	118825	14						

	PB	Page		PB	Page		PB	Page
Resistors - Continued			Road(s) - Continued			Rubber - Continued		
wire-wound -			roadside - develop-			synthetic - Continued		
tests.....	120455	285	ment.....	119490	156	fluorinated.....	111946	173
Resonance:				120374	289	high temperature		
electromagnetic.....	119712	219	surface treat-			tests.....	111766	73
absorption.....	111778	70	ment.....	119165	105		111946	173
electronic.....	118863	7	frost damage.....	119766	289	low temperature		
ferromagnetic.....	118715	9	Rocket(s):			tests.....	111946	173
	118716	57	combustion chambers -				111984	173
measurement.....	119282	107	erosion.....	119892	312	patents.....	120575	305
theory.....	119233	117	heat transfer.....	119865	311	preparation.....	111946	173
	119282	107	motors -				111949	173
magnetic -			combustion			tests.....	111984	173
absorption.....	119753	284	chambers.....	119371	127	thermal		
measurement.....	119463	170	design.....	120106	230	properties....	111949	173
theory.....	118698	7	tests.....	119898	297	vulcanization....	111949	173
	118716	57	walls - temperature			tensile tests.....	118816	25
	119753	284	distribution.....	119371	127	testing equip-		
nuclear -			propellants - compo-			ment.....	118816	25
measurement.....	119463	170	sitions.....	120106	230	Rubidium - determination -		
theory.....	118698	7	sounding - Upper Air see			Great		
Resonant cavities -			Rockets, Upper air			Britain.....	119321	99
design.....	119593	151	upper air.....	118963	13	Runways - temperature -		
Resonators, quartz..	119601	207	control systems..	118511	14	Houma, La... 119112		75
meteorological			design.....	119896	296	Rupture (mechanics) - testing		
effects.....	119600	151		119899	296	equipment....	118923	9
Respirators - evalua-				119900	297	Ruthenium - isotopes:		
tion.....	111874	10		119901	297	absorption - Great		
Resuscitation -			equipment.....	118511	14	Britain.....	119320	170
methods.....	111874	10		119145	65	energy levels - Great		
Retina:				119809	230	Britain.....	119320	170
electrical stimu-				119896	296	S		
lation.....	120054	224		119897	296	SAE 4340		
sensitivity - measure-				119899	296	(Steel).....	111948	111
ment.....	120054	224		119900	297	Salmonella in-		
Retorts, oil shale:				119901	297	fection.....	119926	209
design.....	119266	108	firing - tests.....	119145	65	Salts:		
operation.....	119266	108		119898	297	liquid - testing equip-		
Reynolds number -				119899	296	ment.....	120027	291
effect.....	118818	13		119900	297	metallic - prepara-		
	118967	30	pressure - measure-			tion.....	119836	279
	119013	75	ment.....	119800	230	Sampling:		
	119076	67	research.....	119809	230	devices - tests....	119000	74
	119100	75	wind tunnel			industrial.....	119099	66
	119380	113	tests.....	119800	230	(statistics).....	111750	120
	119394	126	Rotors - design - Great				111875	120
	119395	177	Britain.....	118833	24		118910	18
Germany.....	119726	221	RTV-A-1 (Rocket				118995	69
Great Britain.....	118831	20	engine).....	119898	297		119448	170
Rheology -			RTV-N-10b			theory.....	119447	120
research.....	120031	218	(Rocket).....	119145	65		119735	218
Rho/theta (trans-			Rubber:				119802	205
ponder).....	111776	8	compounds - testing			variables.....	118909	18
Rhythm:			equipment.....	118816	25		118911	18
lunar - biological			cutting -				120051	222
effects.....	119151	129	testing equipment..	118816	25	Sand -		
tidal - biological			tests.....	118816	25	properties....	120031	218
effects.....	119151	129	foam - proper-					
Road(s):			ties.....	118966	26	Sandwich con-		
construction.....	119165	105	mechanical			struction.....	121152	307
design.....	119165	105	properties.....	120492	304	core materials....	119615	173
	120339	288	synthetic -			Sarin (Trade		
	120374	289	acid resistance....	111946	173	name).....	119887	279
land acquisition....	120374	289		111984	173	SBS-30 (Cleaning prepa-		
materials.....	119165	105	fabrication.....	111946	173	ration).....	119603	147

	PB	Page		PB	Page		PB	Page
Scanners, electronic -			Sediment - Continued			Shoes:		
design.....	118876	57	marine - Continued			fitting.....	119732	146
Schlichting theory (aerody-			density.....	119413	127	tests.....	119732	146
namics).....	118908	31	effect on marine			Shot peening.....	111802	228
Schmidt number -			life.....	119184	127	Shutters, optical.....	118714	7
effect.....	119589	168	ionium content.....	119187	78	Sidewash - damping		
Screens, Air inlet <u>see</u> Ducts,			sampling equip-			effects.....	120103	310
Air - Insect screens			ment.....	119413	127	Signals:		
Schrödinger equation			viscosity.....	119413	127	auditory - scrambling equip-		
(Particle inter-			Selenium:			ment.....	119911	283
actions).....	118904	68	absorptive			pyrotechnic - chromati-		
	119249	121	properties.....	119085	60	city.....	119139	57
Schwinger theory (Atomic			energy levels.....	119085	60	Silane(s):		
transitions).....	119999	223	metallic -			dodecyltrialkyl -		
Scientific:			preparation....	119085	60	physical prop-		
methods - biblio-			Sense organs -			erties.....	121003	155
graphy.....	119074	77	fishes.....	119199	129	thermal prop-		
research -			Separation processes -			erties.....	121003	155
Austria.....	111703	78	electrolytic - Great			preparation.....	111889	56
bibliography.....	119074	77	Britain.....	119333	171	Silica:		
project reports....	11994	129	Servomechanisms:			gels - adsorp-		
	111995	129	components.....	111782	54	tion.....	119737	150
	121029	178	nonlinear.....	119428	125		119739	204
	121095	232	predictors.....	119428	125	spectrographic		
	121201	314	specifications.....	111711	289	analysis.....	119576	216
Scrap metal - recovery			Seyboth penetrating			Silicates:		
processes.....	121093	295	cone fabric			chemistry.....	118538	66
Sea water:			tester.....	97711s	58	crystallization....	118538	66
chemical analysis..	119036	77	Shells:			phase dia-		
119037	76		(aircraft) - cylindrical -			grams.....	118538	66
conductivity - recording			buckling.....	119921	305	stability.....	118852	15
equipment.....	119211	128	stresses.....	119921	305	Silicon:		
pollution - biblio-			vibration -			determination....	111889	56
graphy.....	113697s	31	theory.....	120002	221	optical		
salinity.....	119036	77		120003	223	properties....	111748	62
119037	76		elastic - theory....	119231	119	photoconducti-		
Florida.....	119211	128	119750	302		vity.....	111748	62
measurement - Bahama			(submarine) - biblio-			purification.....	120227	281
Islands.....	120508	313	graphy.....	111964	231	spectrographic		
temperature.....	119036	77	Shielding materials - neutron			analysis.....	120227	281
119037	76		reactions.....	118695	21	Siloxanes, polymethyl -		
measurement - Bahama			Ship(s):			surface prop-		
Islands.....	120508	313	cargo.....	119081	128	erties.....	111902	147
Seals, metallic:			coatings - tests....	111824	98	Silver:		
materials.....	119818	216	models -			bromide -		
tests.....	119818	216	tests.....	119070	77	creep.....	120671	292
Seaplanes:				119071	127		120672	292
drag.....	119863	313	wave resistance....	119070	77	determination....	119745	166
hulls -			propulsion.....	119070	77	elasticity.....	120673	293
dead rise.....	119377	231	effect of propeller clearance -			electrical prop-		
	120105	312	Sweden.....	119071	127	erties.....	120671	292
impact pressure...	119377	231	effect of rudder -				120672	292
length-beam			Sweden.....	119071	127		120673	293
ratio.....	120105	312	routes.....	120346	312	plastic deforma-		
spray effect.....	119863	313	skin -			tion.....	120672	292
Sears-Haack minimum-drag			friction.....	119070	77	120673	293	
bodies.....	119886	309		119936	308	specific heat....	120669	292
Sediment:			ventilation.....	120449	291	120670	292	
analysis -			wave resistance -			halides - thermal		
Suriname.....	119075	78	theory.....	119611	223	properties....	120670	292
deposition.....	118766	33	Shipments, overseas -			liquid - vaporization - measure-		
bibliography.....	113697s	31	packaging.....	120346	312	ment.....	120049	282
Louisiana.....	118777	34	Shock waves:			ore - cyanida-		
marine -			attenuation.....	119067	119	tion.....	119604	214
analysis.....	119187	78	propagation -			vapor - permeation of		
	119415	128	theory.....	119065	120	graphite.....	120049	282

	PB	Page		PB	Page		PB	Page
Similarity - theory.....	120506	304	Soil(s):			Sound - Continued		
Simulators:			absorption - tests.....	118810	5	propagation - Continued		
electronic - design.....	121200	290	analysis.....	119098	56	effect of tempera-		
flight.....	118850	29	bonding agents.....	119098	56	ture.....	118738	19
design.....	118921	29	chemical treat-			theory.....	119280	119
radar - design.....	118824	7	ment.....	118810	5	Russia.....	119881	299
	118857	7	conditioning -			transmission.....	119837	222
Sirens - design.....	119066	106	research.....	119098	56	underwater -		
Skin:			erosion - Badlands, Perth			absorption.....	120445	312
animal.....	119162	110	Amboy.....	119785	313	analysis.....	118987	58
physiology.....	119160	213	freezing effects.....	119766	289	detection.....	118987	58
sensitivity.....	120054	224	laterite - stabiliza-			measuring equip-		
temperature - measure-			tion.....	119098	56	ment.....	118987	58
ment.....	119258	109	mechanics.....	119098	56	speed.....	120671	292
	119259	109		119200	120	Sounding leads -		
Slag - manganese			stabilization.....	118810	5	tests.....	119413	127
recovery.....	119780	215		119098	56	Soundings, meteoro-		
Sleep - biblio-				119491	156	logical.....	119800	230
graphy.....	119190	110		120364	289	Sova bead -		
Slots, waveguide -			trafficability.....	119165	105	adsorption....	119739	204
radiation.....	111904	150	Solar:			Space, differential -		
Smokes:			flares -			theory.....	118643	17
filter penetration -			origin - theory.....	119183	64	Spallation.....	119850	215
measuring equip-			relation to radio			Spectra:		
ment.....	119781	210	noise.....	119364	101	absorption.....	119452	103
particle size.....	119781	210	radiation -			analysis.....	111860	64
Snow:			measurement.....	118621	13	119085	60	
ablation -			measuring equip-			acoustic - measure-		
Greenland.....	118848	14	ment.....	118511	14	ments.....	111864	157
bibliography.....	119002	64	Solids:			119462	154	
	119137	115	elastic properties..	119091	63	119641	154	
electrical			119200	120		Spectrographic analysis -		
properties.....	121004	163	electronic theory....	119551	171	methods.....	119576	216
measurements -			low temperature			121106	215	
Greenland.....	118848	14	properties.....	119539	169	Spectrographs:		
	118849	14	surface structure....	119737	150	fluorite -		
Sociology -			theory.....	119801	220	design.....	119444	106
research.....	119824	225	Solutions, Photographic <u>see</u>			sound - design....	111864	157
Sociometrics <u>see</u> Sociology -			Photographic solutions			Spectrometers:		
Research			Solvent extraction processes -			design.....	119237	103
Sodium:			equipment - Great			flame - design....	111743	9
aluminum hydride -			Britain.....	119316	149	micro - design...	119979	306
uses.....	119684	203	Solvents - solvent			theory.....	119237	103
chloride -			properties.....	120031	218	Spectrophotometers - design -		
crystal structure -			Sonar - listening			Sweden.....	119564	157
effect of radia-			devices.....	118987	58	Spectrophoto-		
tion.....	120001	203	Sound:			metry.....	119943	203
electrical			cavitation effects..	119209	100	differential - Great		
properties.....	111839	282	diffraction.....	119280	119	Britain.....	119317	160
thermodynamic			high frequency -			infrared.....	119531	149
properties.....	111839	282	absorption in			Spectroscopy, di-		
water systems - phase			fluids.....	120445	312	electric.....	118878	54
diagrams.....	111839	282	electrochemical			Spectrum		
diffusion - effect of			effects.....	119052	51	analyzers....	118988	71
pressure.....	120670	292	physiological			Speech:		
hydroxide -			effects.....	119485	214	analysis.....	119473	158
containers -			low frequency -			clipping.....	120541	282
materials.....	111883	63	attenuation.....	119067	119	compression and		
reactions.....	111883	63	theory.....	119065	120	expansion....	119473	158
thermal prop-			measurements.....	119066	106	119577	205	
erties.....	111883	63	physiological			120541	282	
phosphates - thermal decom-			effects.....	119016	60	intelligibility.....	120541	282
position.....	120362	280	propagation.....	119827	214	effects of		
potassium alloys - chemical			atmospheric			emotion.....	118819	25
analysis - Great			effects.....	118738	19	sidetone.....	118819	25
Britain.....	119321	99				tests.....	118820	25

	PB	Page		PB	Page		PB	Page
Speech - Continued			Steel:			Steel - Continued		
transmission.....	119176	99	alloys -			transition tempera-		
	120541	282	austenite content..	121149	296	ture.....	119047	61
Spherical			bainite reaction....	111771	114	welds -		
harmonics.....	118826	16	cooling - effect on tensile			cracking.....	111994	129
Great Britain.....	118845	24	properties.....	121149	296		119010	62
Spin wave theory....	119465	150	hardenability -			fatigue tests.....	119010	62
Spleen:			tests.....	111783	114	X-ray tests.....	111870	149
effects of corti-			impact tests.....	111617	113	Sterilization:		
sons.....	119476	213	mechanical prop-			aligodynamic.....	118443	33
nucleic acid metabolism -			erties.....	111617	113	radioinduced.....	121103	210
effects of			microstructure....	121149	296	Steroids, adrenal cortical -		
X-rays.....	119512	122	stresses.....	111948	111	analysis.....	118761	11
Spores - dissemi-			substitutes.....	111783	114	Stiffeners, ring - vibration -		
nation.....	120033	314	tensile prop-			theory.....	120002	221
Sprays, fuel.....	119023	105	erties.....	111617	113		120003	223
	119685	155	effect of strain			Stills, vacuum.....	118714	7
combustion.....	119167	54	rate.....	111948	111	Stochastic		
Springs, steel - fatigue -			tests.....	111948	111	methods.....	118904	68
effect of			thermal prop-				119121	68
coatings.....	122087	280	erties.....	121149	296	Strain measurements -		
Spruce:			transformation....	111771	114	methods.....	119529	170
diseases and			X-ray tests.....	111771	114	Strength of		
pests.....	119567	314	arsenic content.....	111870	149	materials....	119373	124
Swedish see Picea excelsea				111899	161	theory.....	111987	165
Stability:			bainite content - biblio-				121002	297
directional -			graphy.....	111760	113	Streptococcus infections -		
dynamic tests.....	118752	30	brittle failure.....	111899	161	research.....	119832	213
	120251	307	castings -			Stress analysis....	118890	26
static tests.....	118752	30	design.....	111967	219	methods.....	119045	73
dynamic - mathematical			heat treatment....	111967	219	Stresses:		
analysis.....	120348	311	risers.....	111871	162	measurements... 119045	73	
lateral -			use in airplanes... 121148	295	propagation..... 118899	26		
dynamic tests..... 118752	30		chemical		theory..... 119045	73		
static tests..... 118752	30		analysis..... 111870	149	Strontium:			
	119127	75	coatings, oxide..... 111725	3	compounds - magnetic			
	120126	310	corrosion pre-		properties... 119610	166		
longitudinal -			vention..... 111807	215	oxides - lumines-			
dynamic..... 119558	176		ductility..... 119185	61	cence..... 120029	281		
	120348	311	friction coeffi-		radioactivity..... 111746	49		
effect of tail..... 119588	178		cients..... 119047	61	titanium - thermal			
static tests..... 119127	75		hardening - biblio-		properties... 119119	62		
	120260	310	graphy..... 111760	113	Structural materials -			
structural -			heat treatment..... 111899	161	fracture - measuring			
analysis..... 119559	173		humidity tests..... 120690	282	equip-			
Stalling - research.. 118967	30			120691	282	ment.... 121095	232	
	118974	30	hydrogen content... 119185	61	Structures - stress			
Stars:			peening..... 111802	228	analysis..... 119373	124		
radiation - theory -			plastic - humidity			119387	124	
Russia..... 119368	165		tests..... 120689	282	Styrene:			
scintillation..... 119777	217		stainless -		polymerization... 119142	73		
theory - Russia... 119368	165		coatings - copper		polymers..... 119791	201		
tracking..... 111711	289		oxide..... 119879	202	Styrene-d -			
Statistical:			corrosion		synthesis.... 119791	201		
analysis..... 119069	124		prevention..... 111877	4	Submarines:			
	119236	168		111950	148	air - analysis.... 121201	314	
	119241	163	tests..... 111962	215	carbon dioxide elimi-			
methods..... 118910	18		creep tests..... 111896	12	nation..... 119778	211		
	118911	18	physical prop-		Sulfur:			
	119022	68	erties..... 119213	111	cross sections... 118324	19		
theory..... 111878	168		strength..... 119213	111	evaporation..... 111895	23		
	119121	68		119387	124	Sulfuric acid - esters - prepa-		
	119276	119	welding..... 119010	62	ration..... 119224	160		
Steam boilers:			tensile properties.. 111899	161	Surface(s):			
materials..... 120027	291		transformation..... 111771	114	absorptive prop-			
standards..... 120027	291			111783	114	erties..... 119737	150	

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Surface(s) - Continued			Tantalum - cross			Thermocouples:		
active sub-			sections.....	118324	19	design.....	119650	289
stances.....	111902	147	Targets, gunnery - impact				120026	303
aircraft <u>see</u> Aircraft -			tests.....	119087	67	Russia.....	119203	125
Surfaces			Taste - sensitivity...	120054	224	housing.....	119443	163
chemical prop-			Teaching			tests.....	119203	125
erties.....	119737	150	methods.....	119409	123	Thermodynamics -		
contact - friction...	119859	288	Technical orders -			theory.....	111893	22
tension -			indexes.....	119693	176		111894	22
measurement.....	111894	22	Teeth - caries -			Thermometers:		
theory.....	111894	22	research.....	119147	60	noise - design...	120667	292
SWAC (National Bureau of			Teflon - electric				120668	292
Standards Western Auto-			properties - radiation			thermistor.....	119976	313
matic Com-			effects.....	111863	71	thermocouple.....	119443	163
puter).....	118993	59	Teletypewriters -			design.....	119554	158
Swedish spruce <u>see</u>			evaluation.....	119742	205	vortex.....	119443	163
Picea excelsa			Television - educational			Thiophenoyl trifluoro-		
Swimming, under-			value.....	119191	123	acetone.....	119325	99
water.....	118811	32		119192	124	Thorium -		
equipment.....	118811	32	Tellurium:			emission.....	119020	70
Switches:			absorptive			Thread:		
closing time.....	119276	119	properties.....	119085	60	cotton - tests.....	111976	125
electronic - mathematical			electrical			nylon - tests.....	111976	125
analysis.....	118992	50	properties.....	119805	208	storage.....	111976	125
Symbols,			energy levels.....	119085	60	synthetic -		
electrical.....	120799	284	Temperature:			tests.....	111976	125
Synchronizers, electronic -			controls, electronic -			tests.....	111976	125
design.....	119893	290	design.....	119252	108	Thrombosis, intravas-		
Synchrotrons.....	119616	171	measurement.....	118304	15	cular.....	119180	109
theory.....	118287	24	measuring equipment -			Thrust reversers:		
Great Britain.....	118843	21	Germany.....	120666	287	design.....	119875	308
Systems analysis.....	111801	305	physiological				120257	309
	111879	123	effects.....	119018	71	performance.....	119875	308
			Terminal board (plastic) -				120257	309
			humidity			Thunderstorms - electrical		
			tests.....	120689	282	properties.....	121004	163
Tables:				120690	282	Thymus - effects of		
mathematical.....	111784	59		120691	282	cortisone.....	119476	213
	111875	120	Terrain data:			Thyratrons -		
	119038	69	analysis.....	119607	279	uses.....	119252	108
	119104	69		119935	279	Ti 150A (titanium		
	119239	169	presentation.....	119607	279	alloy).....	119738	161
	119372	168	Testing procedures -			Tides:		
	119424	170	evaluation.....	111862	178	Gulf Stream.....	118635	33
	119430	167	Tests, officer qualifi-			measuring equip-		
	119442	117	cation.....	118812	15	ment.....	119412	128
	119448	170		118879	25	theory - biblio-		
	119611	223		118885	25	graphy.....	113697s	31
	119798	297		120040	220	velocity -		
	119851	300	n-Tetradecane -			effects of		
	119860	229	stability.....	118783	3	winds.....	118880	32
meteorological.....	119422	116	Tetryl - thermal decom-				119412	128
Tabun (Trade			position.....	118705	4	theory.....	118880	32
name).....	119887	279	Textile(s):			TIE2 (Clock).....	118717	10
Tail:			fibers - micro-			Time:		
design - aircraft - stabilizing			scopy.....	119979	306	interval		
effect.....	119588	178	wool - tests.....	111884	227	methods.....	118714	7
surfaces - inter-			Theodolites, re-				119372	168
ference.....	118968	28	cording.....	119268	107	measurements -		
Tamm-Dancoff			Thermal conductivity:			standards....	118285	58
equations.....	119035	71	Great Britain.....	118832	20	series (mathe-		
Tanks, fuel - aircraft -			measurements.....	111756	216	matics).....	118999	68
materials.....	118923	9	measuring equip-			signals - broad-		
Tanning machines -			ment.....	121154	279	casting.....	118285	58
Germany.....	118602	108	Thermionic			study.....	118805	6
	118603	108	emissions.....	119240	103	Timepieces - rate - measure-		
	118604	108				ment.....	111774	157

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Tin - determina- tion.....	111730	113	Titanium - Continued			Titanium - Continued		
Tissue:			alloys - Continued			hardness tests....	119041	62
cells.....	119220	159	research.....	119261	114	heat treatment....	111767	13
citric acid				119262	114		111873	61
content.....	119486	159		119263	114	machinability.....	111873	61
culture.....	118798	11		119264	114	mechanical prop-		
effects of cold.....	118798	11		119265	114	erties.....	119041	62
effects of radia-			spectrochemical			effect of		
tion.....	119489	159	analysis.....	111730	113	carbon.....	111982	111
lactic acid				121106	215	effect of grain		
content.....	119486	159		121107	281	size.....	111881	12
temperature - measure-			stability.....	119009	64	effect of hydro-		
ment.....	119554	158		121156	293	gen.....	119544	161
Titanium.....	111873	61	standardization...	121107	281	effect of		
alloys.....	111873	61	tensile prop-			oxygen.....	111982	111
chemical			erties.....	111767	13	microanalysis....	111873	61
analysis.....	121107	281		111881	12	oxides - transforma-		
creep tests.....	120590	293		111898	13	tion.....	119198	216
	111896	12		111981	111	powders - com-		
	119008	63		119008	63	bustion.....	118900	12
	119009	64		119009	64	research.....	119261	114
	119401	62		121068	295		119262	114
	121068	295		121156	293		119263	114
crystal struc-			tensile tests.....	120590	293		119264	114
ture.....	119217	114	tests.....	111980	114		119265	114
elasticity.....	121151	293	thermal prop-			silver alloys - equili-		
embrittlement....	111898	13	erties.....	111980	114	brium dia-		
	111988	161		111988	161	grams.....	119217	114
	111990	162		120590	293	spectrochemical		
equilibrium dia-				121068	295	analysis.....	111730	113
grams.....	111767	13	weldability.....	121006	162	stress resist-		
	119217	114		111885	216	ance.....	120591	293
fatigue.....	111881	12	welding.....	111707	114	tensile strength...	120591	293
grinding.....	119738	161	antiferromag-			thermal prop-		
hardening.....	111990	162	netism.....	119217	114	erties.....	120590	293
hardness tests....	111881	12	carbides -			transformation....	111741	214
	119041	62	electrical prop-			trichloride -		
heat treatment....	111767	13	erties.....	111989	203	heat of forma-		
	111885	216	impregnation.....	111989	203	tion.....	119786	203
	111981	111	microanalysis....	111989	203	vapor pressure..	120019	203
	111988	161	physical prop-			vanadium alloys - weld-		
	119008	63	erties.....	111989	203	ability.....	121006	162
	119009	64	tensile tests.....	119092	66	welding.....	111707	114
	119528	113		121002	297		111873	61
impact tests.....	111881	12	chlorides -			-Titanium - decomposi-		
mechanical prop-			equilibrium dia-			tion.....	119528	113
erties.....	111885	216	grams.....	120050	202	TNT:		
	111990	162	thermodynamic prop-			burning rates....	119086	50
	119041	62	erties.....	119530	149	decomposition...	119086	50
	119528	113		120019	203	detonation tempera-		
effect of				120050	202	ture.....	119086	50
carbon.....	111982	111	cold working.....	120591	293	Tobacco mosaic:		
effect of grain			corrosion.....	111798	111	infrared absorp-		
size.....	111881	12	prevention.....	111877	4	tion.....	119243	313
effect of nitro-				111950	148	virus - analysis..	119243	313
gen.....	111982	111	creep tests.....	119041	62	Toluene:		
effect of				120591	293	2,4-dinitro - determina-		
oxygen.....	111982	111	dichloride - heat of			tion.....	119531	149
effect of tempera-			formation.....	120018	202	2,6-dinitro - determina-		
ture.....	119008	63	effect of hydro-			tion.....	119531	149
microstructure...	111767	13	gen.....	119544	161	m-nitro - determina-		
	119528	113	effects.....	121101	294	tion.....	119531	149
	121156	293	electrical properties -			o-nitro - determina-		
oxidation.....	119008	63	effect of			tion.....	119531	149
peening.....	111802	228	oxygen.....	111741	214	p-nitro - determina-		
preparation.....	121156	293	electrodeposition...	111798	111	tion.....	119531	149
				111876	61			

	PB	Page		PB	Page		PB	Page
p-Toluenesulfonamide - fungicidal prop- erties.....	111788	49	Transformers: circuits.....	120376	285	Tubes - Continued electron - Continued shields.....	119118	52
Tools, cutting: aluminum oxide - biblio- graphy.....	111759	108	cores - materials.....	120376	285	tests.....	119427	102
ceramic.....	111757	218	power - cooling.....	119903	285	thermal prop- erties.....	119427	102
molybdenum boride.....	111758	108	design.....	119335	104	plastic - reinforce- ments.....	111719	49
tungsten carbide.....	119738	161	heat transference.....	119903	285	TR.....	119427	102
Topograph, erosional - develop- ment.....	119785	313	high temperature - design.....	119283	104	TUI (transmitter).....	118922	5
Torque, propeller - measure- ment.....	119248	126	insulation.....	119335	104	TUK (transmitter).....	119710	175
Tracers, radioactive - materials.....	111952	149	materials.....	119335	104	Tungsten: brazing.....	119440	113
Tracking: operator response.....	111978	224	pulse - design.....	120375	285	carbides - binding agents.....	119136	60
measurement.....	111970	172	tests.....	120375	285	effect of cobalt.....	119136	60
psychological aspects.....	111970	172	Transistors: circuits - com- ponents.....	118889	6	microstructure.....	119136	60
Trade: routes - North Africa.....	119175	78	design.....	111821	284	sintering.....	119136	60
waste - disposal - effect of tides - biblio- graphy.....	113697s	31	gold bonded.....	118853	8	electron emission.....	119020	70
Traffic: control.....	119904	288	junction - theory.....	118889	6	Turbines: blades - air cooling.....	119399	177
research.....	119165	105	manufacture.....	111821	284	corrosion - tests - Canada.....	119432	104
North Africa.....	119175	78	manufacturing equipment - design.....	111820	284	materials - Canada.....	119432	104
surveys.....	119904	288	silicon.....	118853	8	testing equipment - Canada.....	119432	104
Training: devices.....	119639	176	specifications.....	111821	284	vibration.....	119493	300
equipment - design.....	111879	123	Translations - bibliography - Great Britain.....	118837	21	cooling.....	119397	177
transference.....	111880	72	Transmission lines: losses.....	119205	102	gas - cooling.....	119397	177
transference.....	111970	172	theory - Russia.....	119437	102	design.....	119105	75
transference.....	119844	219	Transmitters: design.....	119710	175	performance.....	119105	75
Trajectories: balloon - determi- nation.....	111779	10	high voltage - power.....	119453	152	Turbulence: measurements - method.....	119096	59
determination.....	119268	107	pulse - design.....	119453	152	photographic analysis.....	118818	13
guided.....	120338	312	tests.....	119710	175	theory.....	119096	59
particle - mathematical analysis.....	120000	205	Transponders: design.....	111776	8	2CM212A2 (Gene- rator).....	119114	74
water droplet - cal- culation.....	118978	17	evaluation.....	111776	8	Type - legibility.....	119251	123
Transducers, crystal - tests.....	118979	17	Transportation - geographic aspects - North Africa.....	119175	78	U U-2 (Reduction printer).....	118809	25
Transformations (mathe- matics).....	119083	67	Travelling salesman problem (mathe- matics).....	119751	300	Ultrasonics: chemical effects.....	120451	281
Transformations (mathe- matics).....	119088	169	Triangulation: photogrammetric.....	119494	166	propagation in liquid metals.....	120668	292
Transformations (mathe- matics).....	119447	120	stereophotogrammetric - mathematical analysis.....	119826	299	propagation in liquid sulfur.....	120669	292
Transformations (mathe- matics).....	119448	170	Tritium - recovery - Great Britain.....	119291	122	research.....	119052	51
			Troposphere - refraction indexes.....	119492	163	Ultraviolet radiation - trans- mission.....	111773	107
			Tryptophan deficiency - physiological effects.....	119831	213	Uniforms, military - materials.....	111763	73
			Tubes: electron - design.....	119775	207	Canada.....	118884	227
			leakage.....	119427	102			
			research - Canada.....	119833	207			

	PB	Page		PB	Page		PB	Page
U. S. Air Corps Tactical School - Graduates.....	119680	220	Valence theory.....	119551	171	Vortex motion - Continued theory - Continued		
U. S. Air Force - Generals - Rosters.....	119680	220	Valves: hydraulic.....	119799	211		118968	28
U. S. Command and General Staff School - Graduates.....	119680	220	tests.....	120219	290		119076	67
Uranium: compounds - spectrophotometry - Great Britain.....	119317	160	servo.....	119799	211		119095	76
determination - Great Britain.....	119317	160	Vanadium - determination.....	111730	113		119270	116
dioxide - microstructure - Great Britain.....	119331	113	Vanes - design.....	119749	300	Germany.....	119683	217
preparation - Great Britain.....	119331	113	Vapor(s): adsorption.....	118709	17	Russia.....	121052	291
properties - Great Britain.....	119331	113	injection - equipment - design.....	121106	215		120119	229
fission products - Great Britain.....	119333	171	pressure - measuring equipment - Great Britain.....	119297	97		119881	299
isotopes - separation - Great Britain.....	119333	171	Variance - analysis.....	111878	168	W		
uranyl ion extraction.....	119325	99		119236	168	Walls: asbestos cement - load tests.....	119996	226
Uranyl ions - extraction - Great Britain.....	119325	99		119279	168	brick - load tests.....	119996	226
Urease - detection - methods.....	119479	158		119754	223	concrete - load tests.....	119996	226
Urediniospores - fall.....	120033	314	Varnishes - fungus resistance.....	111788	49	stress analysis.....	119998	226
V				111868	98	metal - load tests.....	119996	226
V-37 (Antenna).....	118723	6	Vector analysis.....	119033	51		119998	226
Vacuum: pumps - design.....	119216	121		119080	72	stress analysis.....	119998	226
systems - design.....	118861	9	Vegetation - photographic analysis.....	119993	220	metal - load tests.....	119996	226
tubes, ceramic - design.....	119776	206	Vibration - bibliography.....	120490	304	metal curtain.....	119615	173
diode - silicon.....	111814	207	Viking: No. 10 (Rocket).....	119809	230	stress analysis.....	119996	226
failure.....	111740	101	No. 11 (Rocket).....	119796	230	tests.....	119996	226
magnetron.....	119118	52	Virial coefficients.....	118859	17	Waste - salvage.....	121093	295
design.....	119050	52	Virus: infections.....	119227	160	Watches - performance.....	111774	157
	119054	52	tobacco mosaic see Tobacco mosaic - Virus			Water: solvent properties.....	120031	218
	119055	52	Viscometers: design.....	111945	105	surface tension.....	111894	22
	119056	52		119093	55	vapor - absorption spectra.....	111860	63
	119057	52	rotating cylinder - theory.....	120013	210	condensation.....	111893	22
	119058	52	Vision: acuity - measurement.....	119256	110	infrared absorption.....	121048	217
	119059	52	dark adaptation.....	120054	224	Wave(s): elastic - measurement.....	119529	170
	119060	52	measuring equipment.....	120054	224		119723	303
	119061	52	tachistoscopic.....	111890	59	theory.....	119723	303
	119062	52	Visual: display systems.....	119256	110	electromagnetic - attenuation.....	119619	153
mathematical analysis.....	119596	152	field - restriction - effects.....	119256	110	theory.....	119089	53
research.....	119596	152	perception.....	119017	72	detection.....	119237	103
metal-ceramic - Germany.....	119725	166	effect of rain.....	118920	29		119794	208
testing equipment - maintenance and repair.....	119094	58	training.....	111890	59	diffraction.....	119194	102
tetrode.....	120232	300		119639	176		119255	101
design.....	119776	206	Voice - physiology.....	118820	25	mathematical analysis - Russia.....	119456	207
			Voltage regulators.....	111814	207		119457	208
			design.....	119789	219	theory.....	119734	206
			VOR (VHF omnidirectional radio range).....	121012	156	Russia.....	119433	100
			Vortex motion: measurement.....	119076	67		119434	102
				119095	76	generation.....	119237	103
			theory.....	118817	14	propagation - ducts.....	118641	8
				118858	32	ionosphere.....	120220	283

	PB	Page		PB	Page		PB	Page
Wave(s) - Continued			Wave(s) - Continued			Wind(s) - Continued		
electromagnetic - Continued			ocean - Continued			effects on waves - Continued		
propagation - Continued			measuring equip-			Puget Sound.....	118295	15
ionosphere -			ment.....	118881	33	Strait de Juan de		
Continued.....	120221	283		118882	32	Fuca.....	118295	15
	120222	283	surface elevation..	119414	128	ionospheric - measure-		
mathematical analysis -			velocity.....	118882	32	ment.....	119550	164
Russia.....	119458	208	measurement.....	118707	32	measurement - Marshall		
theory -			theory.....	118880	32	Islands.....	119422	116
Russia.....	119437	102	vorticity - mathematical			mountain - measuring		
radiation.....	111905	150	analysis.....	118858	32	equipment.....	119031	65
mathematical analysis -			propagation -			tropospheric - Pacific		
Russia.....	119456	207	theory.....	119200	120	Ocean.....	119417	115
theory.....	119089	53	supersonic - thermo-				119418	115
	119255	101	dynamics.....	119052	51		119419	115
reflection -			Waxes:				119420	115
theory.....	118641	8	acid content - effect				119421	115
	119734	206	of aging.....	118794	10	tunnels,		
scattering.....	119194	102	microcrystalline....	118794	10	supersonic -		
calculation.....	118993	59	Weather:			design.....	119097	76
ionosphere.....	120220	283	charts -			drybig sys-		
	120221	283	Atlantic Ocean.....	118813	13	tems.....	119739	204
	120222	283	Europe.....	118813	13	equipment.....	119097	76
Russia.....	119436	102	classification.....	118813	13		120125	310
theory.....	118990	53	forecasting.....	119995	217	flow.....	119097	76
	119545	151	mathematical				120108	229
Russia.....	119435	100	analysis.....	119271	163	tests.....	118752	30
	119436	102	methods.....	119015	64		120348	311
transmission.....	119794	208		119021	65	walls - effects...	119913	309
form				119206	164	velocities -		
analysis.....	118707	32	use of upper-air			analysis.....	119442	117
	118881	33	charts.....	119269	116	measurement....	111901	163
atmospheric.....	119807	206	long range.....	119269	116		111995	129
broadband -			reconnaissance.....	119006	66	Houma, La.....	119112	75
couplings.....	111790	50	Weatherometers....	118794	10	theory.....	119271	163
propagation.....	119194	102	Wedges:			Windshields:		
guides,			drag coefficients....	118907	19	effects on		
circular -			pressure distribu-			vision.....	118920	29
Russia.....	119456	207	tion.....	118907	19	laminated glass -		
components.....	111813	206	Weibull's theory (Strength of			design.....	118994	74
	111968	207	materials).....	111987	165		119163	74
design.....	111995	129		119092	66	mechanical prop-		
testing equip-			Weinsteins method (Mathe-	121002	297	erties.....	119163	74
ment.....	111968	207	matics).....	118897	18	mounts.....	119163	74
uses.....	119712	219	Welding:			testing equip-		
in water - genera-			arc -			ment.....	118994	74
tion.....	118707	32	materials.....	111616	112	tests.....	118994	74
length - measurements -			tests.....	111616	112		119163	74
recording.....	118881	33	electrodes -			Wing(s):		
magneto-hydrodynamic -			tests.....	119803	218	aerodynamics.....	111993	178
propagation - mathematical			Welds - fracture....	119803	218		119051	76
analysis.....	119578	302	Weyl's theory (Screen-				119394	126
theory.....	119523	301	ing).....	119737	150	aspect ratio -	120310	311
	119822	222	Wheat rust.....	120033	314	Sweden.....	118758	30
ocean -			Wheeler network,			boundary layer - measure-		
depth - determina-			modified.....	119111	51	ments.....	119395	177
tion.....	118882	32	White phosphorus -			downwash -		
duration - measure-			diffusion - effect of			Sweden.....	118758	30
ment.....	119533	231	pressure.....	120673	293	drag -		
effects of winds...	118707	32	Wind(s):			effect of		
forecasting.....	119533	231	Alligator Harbor,			aspect ratio....	118972	31
	120134	312	Florida.....	119977	313	thickness.....	118972	31
theory.....	119533	231	effects on waves....	118880	32	trailing edge....	118893	30
frequency measure-								
ment.....	119533	231						
measurement.....	119938	290						

	<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>		<u>PB</u>	<u>Page</u>
Wing(s) - Continued			Wing(s) - Continued			X-rays - Continued		
drag - Continued			sweptback - Continued			diffraction - measuring		
Sweden.....	118758	30	stability -			equipment - Great		
fatigue tests -			effect of			Britain.....	118838	24
Australia.....	119880	310	fuselage.....	119127	75	effects.....	111769	19
flaps - control.....	118736	29	tail.....	119588	178		120001	203
flat - pressure distribution -			temperature.....	118983	26	physiological		
Russia.....	120118	310		118984	27	effects.....	118902	12
heat transfer.....	118983	26		118985	27		119512	122
	118984	27	theory.....	120262	310			
	118985	27	triangular -					
lift.....	118908	31	drag.....	118751	31			
	119868	309	flutter - calcula-					
effect of			tion.....	119051	76	Young's modulus...	111789	281
aspect ratio.....	118972	31	interference.....	120126	310		121151	293
sweep.....	118972	31	lift.....	118751	31			
thickness.....	118972	31	wake.....	120103	310			
loading - calcula-			unswept -					
tion.....	118751	30	rolling moments -			Zeo Karb H (Trade		
materials - tests.....	111944	66	calculation.....	119381	177	name).....	119604	214
pressure distribution -			yawing moments -			Zinc:		
Sweden.....	118758	30	calculation.....	119381	177	chromate -		
theory.....	119378	177	vibration - theory -			uses.....	120446	280
rectangular - aerody-			Australia.....	119880	310	diffusion.....	120673	293
namics.....	120262	310	wind tunnel tests....	119394	126	phosphates - X-ray		
rolling moments....	119396	177	Wire cloth:			diffraction....	122085	280
span load distribu-			permeability.....	119380	113	radioactivity.....	119232	121
tion.....	119396	177		119382	126	sulfide -		
stress analysis.....	118983	26	tensile tests.....	119382	126	radiation.....	119848	290
	118984	27	Wollastonite:			Zirconium:		
	118985	27	decomposition.....	118852	15	alloys -		
swept -			thermal prop-			corrosion.....	119891	296
aspect ratio.....	118736	29	erties.....	118852	15	equilibrium		
pitching moment			Wood - preser-			diagrams.....	119891	296
coefficients....	120260	310	vation.....	111866	128	mechanical prop-		
span load distribu-			Wool - blending with synthetic			erties.....	119891	296
tion.....	118736	29	fibers.....	111884	227	combustion		
sweptback -						analysis.....	119063	61
aerodynamics.....	119013	75				Zoning regulations -		
loading - calcula-						Nebraska.....	120374	289
tions.....	119013	75						
spanload distribution -								
calculations... 119013		75						

PB Reports--Numerical Index

<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>
9771Is	58	111788	49	111884	227	111987	165	118710	16	118839	19
9771Is2	58	111789	281	111885	216	111988	161	118714	7	118840	9
111616	112	111790	50	111886	98	111989	203	118715	9	118841	20
111617	113	111798	111	111887	212	111990	162	118716	57	118842	19
111618	110	111799	283	111888	155	111991	176	118717	10	118843	21
111636s	154	111800	124	111889	56	111993	178	118718	20	118844	24
111637s	154	111801	305	111890	59	111994	129	118719	6	118845	24
111640	204	111802	228	111891	12	111995	129	118720	18	118846	21
111644r	103	111803	97	111892	4	111996	107	118723	6	118847	5
111703	78	111804	118	111893	22	111997	103	118736	29	118848	14
111707	114	111807	215	111894	22	111998	158	118737	29	118849	14
111711	289	111809	221	111895	23	111999	215	118738	19	118850	29
111714	298	111811	218	111896	12	113697s	31	118740	15	118851	15
111715s	53	111812	218	111897	16	117829	75	118741	31	118852	15
111719	49	111813	206	111898	13	118273	34	118751	31	118853	8
111722s	73	111814	207	111899	161	118285	58	118752	30	118856	21
111727	55	111816	211	111900	158	118286	31	118758	30	118857	7
111728	27	111817	160	111901	163	118287	24	118761	11	118858	32
111730	113	111819	285	111902	147	118295	15	118766	33	118859	17
111739	55	111820	284	111903	175	118304	15	118767	34	118861	9
111740	101	111822	284	111904	150	118324	19	118777	34	118863	7
111741	214	111823	3	111905	150	118340	18	118782	10	118867	23
111743	9	111824	98	111906	154	118376	18	118783	3	118868	5
111744	63	111826	151	111907	151	118394	62	118794	10	118869	5
111745	57	111827	51	111932	156	118432	33	118798	11	118870	5
111746	49	111828	56	111936	284	118443	33	118799	11	118871	5
111747	54	111829	108	111944	66	118464	16	118800	11	118872	6
111748	62	111830	147	111945	105	118499	32	118801	11	118873	5
111750	120	111831	308	111946	173	118511	14	118805	6	118874	24
111751	106	111832	145	111947	171	118520	15	118806	8	118875	6
111752	58	111836	159	111948	111	118538	66	118807	23	118876	57
111754	118	111839	282	111949	173	118563	18	118808	6	118877	25
111755	78	111841	152	111950	148	118570	10	118809	25	118878	54
111756	216	111848	118	111951	171	118584	11	118810	5	118879	25
111757	218	111851	107	111952	149	118602	108	118811	32	118880	32
111758	108	111852	212	111953	205	118603	108	118812	15	118881	33
111759	108	111853	122	111954	211	118604	108	118813	13	118882	32
111760	113	111854	34	111956	150	118612	19	118814	13	118883	29
111762	62	111859	157	111957	148	118621	13	118815	30	118885	25
111763	73	111860	64	111958	223	118635	33	118816	25	118887	9
111764	4	111861	104	111959	200	118639	14	118817	14	118888	20
111764s	4	111862	178	111960	161	118641	8	118818	13	118889	6
111765	26	111863	71	111961	165	118643	7	118819	25	118890	26
111766	73	111864	157	111962	215	118663	2	118820	25	118891	28
111767	13	111865	70	111964	231	118681	50	118821	33	118892	19
111768	49	111866	128	111965	202	118682	17	118822	29	118893	30
111769	19	111868	98	111966	162	118683	11	118823	7	118894	29
111770	100	111869	280	111967	219	118689	26	118824	7	118895	9
111771	114	111870	149	111968	207	118690	27	118825	14	118896	8
111772	112	111871	162	111969	210	118691	27	118826	16	118897	18
111773	107	111872	201	111970	172	118692	21	118827	24	118898	34
111774	157	111873	61	111976	125	118693	21	118828	20	118899	26
111776	8	111874	10	111977	212	118694	21	118829	23	118900	12
111778	70	111875	120	111978	224	118695	21	118830	24	118901	28
111779	10	111876	61	111979	313	118696	22	118831	20	118902	12
111780	99	111877	4	111980	114	118697	22	118832	20	118903	2
111782	54	111878	168	111981	111	118698	7	118833	24	118904	68
111783	114	111879	123	111982	111	118699	22	118834	24	118905	16
111784	59	111880	72	111983	146	118704	23	118835	20	118906	16
111785	49	111881	12	111984	173	118706	31	118836	20	118907	19
111786	153	111882	10	111985	174	118707	32	118837	21	118908	31
111787	5	111883	63	111986	147	118709	17	118838	24	118909	18

<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>
118910	18	119008	63	119076	67	119141	60	119213	111	119280	119
118911	18	119009	64	119077	69	119142	73	119214	169	119281	112
118913	4	119010	62	119078	69	119143	52	119215	98	119282	107
118914	28	119011	62	119079	69	119144	72	119216	121	119283	104
118915	28	119012	67	119080	72	119145	65	119217	114	119291	122
118916	5	119013	75	119081	128	119146	59	119218	53	119292	170
118917	27	119014	77	119082	77	119147	60	119219	59	119295	170
118918	6	119015	64	119083	67	119148	109	119220	159	119296	121
118919	7	119016	60	119084	70	119149	172	119221	121	119297	97
118920	29	119017	72	119085	60	119150	54	119222	125	119310	115
118921	29	119018	71	119086	50	119151	129	119223	169	119313	107
118922	5	119019	70	119087	67	119152	110	119224	160	119316	149
118923	9	119020	70	119088	169	119153	109	119225	154	119317	160
118924	9	119021	65	119089	53	119154	146	119226	159	119319	120
118939	48	119022	68	119090	72	119155	101	119227	160	119320	170
118940	49	119023	105	119091	63	119156	54	119228	159	119321	99
118941	3	119024	65	119092	66	119157	124	119229	314	119325	99
118942	3	119025	120	119093	55	119158	123	119230	172	119327	111
118943	3	119026	68	119094	58	119159	105	119231	119	119329	171
118944	3	119027	70	119095	76	119160	213	119232	121	119331	113
118945	3	119028	69	119096	59	119161	110	119233	117	119333	171
118963	13	119029	68	119097	76	119162	110	119234	98	119334	171
118964	8	119030	50	119098	56	119163	74	119235	169	119335	104
118965	12	119031	65	119099	66	119165	105	119236	168	119364	101
118966	26	119032	51	119100	75	119166	168	119237	103	119365	123
118967	30	119033	51	119101	76	119167	54	119238	172	119366	99
118968	28	119034	63	119102	49	119168	105	119239	169	119367	114
118969	27	119035	71	119103	56	119172	97	119240	103	119368	165
118970	28	119036	77	119104	69	119173	97	119241	163	119369	115
118971	30	119037	76	119105	75	119174	77	119242	112	119370	118
118972	31	119038	69	119106	55	119175	78	119243	313	119371	127
118973	17	119039	60	119107	123	119176	99	119244	158	119372	168
118974	30	119040	67	119108	64	119177	120	119245	98	119373	124
118975	31	119041	62	119109	70	119178	109	119246	109	119374	177
118976	30	119042	49	119110	51	119179	122	119247	128	119375	125
118977	28	119043	51	119111	51	119180	109	119248	126	119376	97
118978	17	119044	64	119112	75	119181	53	119249	121	119377	231
118979	17	119045	73	119113	65	119182	101	119250	122	119378	177
118980	28	119046	61	119114	74	119183	64	119251	123	119379	127
118981	30	119047	61	119115	57	119184	127	119252	108	119380	113
118982	27	119050	52	119116	74	119185	61	119253	108	119381	177
118983	26	119051	76	119117	73	119186	67	119254	101	119382	126
118984	27	119052	51	119118	52	119187	78	119255	101	119383	126
118985	27	119053	68	119119	62	119188	78	119256	110	119384	125
118986	72	119054	52	119120	52	119189	100	119257	116	119385	127
118987	58	119055	52	119121	68	119190	110	119258	109	119386	127
118988	71	119056	52	119122	56	119191	123	119259	109	119387	124
118989	57	119057	52	119123	69	119192	124	119260	118	119388	112
118990	53	119058	52	119124	55	119193	124	119261	114	119389	106
118991	50	119059	52	119124s	155	119194	102	119262	114	119390	105
118992	50	119060	52	119125	61	119195	123	119263	114	119391	104
118993	59	119061	52	119126	69	119196	110	119264	114	119392	126
118994	74	119062	52	119127	75	119197	97	119265	114	119393	107
118995	69	119063	61	119128	76	119198	216	119266	108	119394	126
118996	67	119064	72	119129	74	119199	129	119267	103	119395	177
118997	77	119065	120	119130	75	119200	120	119268	107	119396	177
118998	60	119066	106	119131	60	119203	125	119269	116	119397	177
118999	68	119067	119	119132	64	119204	106	119270	116	119398	118
119000	74	119068	117	119133	77	119205	102	119271	163	119399	177
119001	53	119069	124	119134	56	119206	164	119272	115	119400	126
119002	64	119070	77	119135	63	119207	100	119273	117	119401	126
119003	34	119071	127	119136	60	119208	178	119275	116	119408	303
119004	66	119072	57	119137	115	119209	100	119276	119	119409	123
119005	63	119073	119	119138	115	119210	100	119277	126	119410	109
119006	66	119074	77	119139	57	119211	128	119278	107	119411	105
119007	73	119075	78	119140	50	119212	111	119279	168	119412	128

PB	Page	PB	Page	PB	Page	PB	Page	PB	Page	PB	Page
119413	127	119479	158	119559	173	119710	175	119794	208	119865	311
119414	128	119480	172	119561	225	119711	147	119795	219	119866	305
119415	128	119481	231	119562	225	119712	219	119796	230	119867	227
119416	102	119482	158	119563	225	119720	201	119797	230	119868	309
119417	115	119483	160	119564	157	119721	162	119798	297	119869	309
119418	115	119484	172	119565	146	119722	146	119799	211	119870	229
119419	115	119485	214	119566	299	119723	303	119800	230	119871	216
119420	115	119486	159	119567	314	119724	302	119801	220	119872	286
119421	115	119487	172	119568	146	119725	166	119802	205	119873	308
119422	116	119488	160	119569	299	119726	221	119803	218	119874	229
119423	119	119489	159	119570	221	119727	167	119804	201	119875	308
119424	170	119490	156	119573	222	119728	157	119805	208	119876	309
119425	168	119491	156	119574	204	119729	156	119806	214	119877	311
119426	176	119492	163	119575	213	119730	225	119807	206	119878	228
119427	102	119493	300	119576	216	119731	178	119808	214	119879	202
119428	125	119494	166	119577	205	119732	146	119809	230	119880	310
119429	102	119495	156	119578	302	119734	206	119810	201	119881	299
119430	167	119496	205	119579	165	119735	218	119811	217	119882	229
119431	102	119497	147	119581	200	119736	227	119812	211	119883	309
119432	104	119498	148	119582	170	119737	150	119813	204	119884	228
119433	100	119506	116	119583	159	119738	161	119813s	204	119885	228
119434	102	119507	117	119586	177	119739	204	119814	226	119886	309
119435	100	119508	117	119587	175	119740	212	119815	302	119887	279
119436	102	119509	117	119588	178	119741	308	119816	302	119891	296
119437	102	119510	100	119589	168	119742	205	119817	228	119892	312
119438	121	119511	112	119590	177	119743	166	119818	216	119893	290
119439	116	119512	122	119591	301	119744	167	119819	220	119895	297
119440	113	119514	117	119593	151	119745	166	119820	220	119896	296
119441	120	119517	284	119594	167	119746	166	119821	219	119897	296
119442	117	119519	153	119595	224	119747	167	119822	222	119898	297
119443	163	119520	300	119596	152	119748	167	119824	225	119899	296
119444	106	119522	205	119597	220	119749	300	119826	299	119900	297
119445	105	119523	301	119598	172	119750	302	119827	214	119901	297
119446	99	119524	151	119599	176	119751	300	119828	226	119902	282
119447	120	119525	300	119600	151	119753	284	119829	225	119903	285
119448	170	119528	113	119601	207	119754	223	119831	213	119904	288
119449	126	119529	170	119602	152	119755	225	119832	213	119911	2 83
119450	121	119530	149	119603	147	119756	221	119833	207	119912	301
119451	106	119531	149	119604	214	119757	301	119834	217	119913	309
119452	103	119532	313	119607	279	119758	223	119835	224	119915	314
119453	152	119533	231	119610	166	119759	208	119836	279	119921	305
119454	204	119534	175	119611	223	119760	302	119837	222	119925	209
119455	293	119535	156	119613	147	119761	221	119838	284	119926	209
119456	207	119536	151	119614	174	119763	217	119839	222	119933	297
119457	208	119537	175	119615	173	119766	289	119841	214	119935	279
119458	208	119538	148	119616	171	119770	230	119842	214	119936	308
119459	208	119539	169	119617	231	119771	210	119844	219	119938	290
119460	163	119540	148	119619	153	119772	230	119845	312	119941	298
119461	169	119541	148	119626	155	119773	231	119846	296	119943	203
119462	154	119542	301	119632	157	119774	206	119847	227	119944	211
119463	170	119543	155	119639	176	119775	207	119848	290	119969	231
119464	157	119544	161	119640	150	119776	206	119849	222	119975	301
119465	150	119545	151	119641	154	119777	217	119850	215	119976	313
119466	175	119546	303	119650	289	119778	211	119851	300	119977	313
119467	232	119547	145	119651	307	119780	215	119853	228	119978	293
119468	153	119548	174	119680	220	119781	210	119854	229	119979	306
119469	153	119549	162	119681	220	119783	211	119855	222	119980	304
119470	152	119550	164	119682	201	119784	212	119856	228	119981	299
119471	149	119551	171	119683	217	119785	313	119857	202	119982	208
119472	157	119552	302	119684	203	119786	203	119858	309	119983	303
119473	158	119553	152	119685	155	119787	204	119859	288	119993	220
119474	152	119554	158	119687	164	119788	227	119860	229	119994	217
119475	160	119555	212	119688	154	119789	219	119861	309	119995	217
119476	213	119556	303	119689	226	119791	201	119862	306	119996	226
119477	225	119557	176	119692	301	119792	303	119863	313	119997	226
119478	213	119558	176	119693	176	119793	206	119864	228	119998	226

<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>	<u>PB</u>	<u>Page</u>
119999	223	120070	202	120224	285	120374	289	120668	292	121029	178
120000	205	120075	282	120226	291	120375	285	120669	292	121032	224
120001	203	120100	204	120227	281	120376	285	120670	292	121042	290
120002	221	120101	311	120232	300	120377	285	120671	292	121044	306
120003	223	120102	307	120247	307	120445	312	120672	292	121048	217
120013	210	120103	310	120249	308	120446	280	120673	293	121051	306
120016	201	120104	308	120251	307	120449	291	120688	282	121052	291
120017	202	120105	312	120253	308	120450	291	120689	282	121066	295
120018	202	120106	230	120254	294	120451	281	120690	282	121068	295
120019	203	120108	229	120255	304	120452	298	120691	282	121093	295
120021	209	120109	310	120256	307	120455	285	120799	284	121095	232
120022	209	120111	307	120257	309	120490	304	121000	165	121100	306
120026	303	120113	228	120258	294	120491	304	121001	161	121101	294
120027	291	120116	229	120260	310	120492	304	121002	297	121103	210
120028	279	120117	226	120261	297	120493	305	121003	155	121105	227
120029	281	120118	310	120262	310	120494	290	121004	163	121106	215
120031	218	120119	229	120267	298	120495	291	121005	161	121107	281
120032	213	120125	310	120302	302	120506	304	121006	162	121135	307
120033	314	120126	310	120305	285	120508	313	121007	176	121140	295
120034	210	120133	311	120310	311	120541	282	121010	175	121141	305
120035	205	120134	312	120311	310	120546	299	121011	174	121145	298
120037	231	120134s	312	120320	290	120575	305	121012	156	121148	295
120038	301	120139	213	120338	312	120590	293	121013	164	121149	296
120040	220	120154	307	120339	288	120591	293	121014	215	121151	293
120041	300	120207	221	120346	312	120607	286	121015	298	121152	307
120047	225	120213	304	120348	311	120660	287	121016	159	121154	279
120048	223	120214	304	120362	280	120661	287	121017	286	121156	293
120049	282	120215	304	120363	288	120662	287	121018	295	121200	290
120050	202	120219	290	120364	289	120663	287	121019	295	121201	314
120051	222	120220	283	120365	288	120664	287	121020	280	122084	280
120052	224	120221	283	120366	289	120665	287	121021	294	122085	280
120053	223	120222	283	120367	286	120666	287	121022	294	122086	280
120054	224	120223	283	120373	288	120667	292	121023	294	122087	280
120055	203										

AEC Reports – Numerical Index

<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>
A-28	179	A-2912 (Vol. II)	316	ACCO-56	85	AECD-3720	347
A-30	179	A-2940	181	ACCO-57	85	AECD-3721	347
A-36	252	A-3143	181	ACCO-58	85	AECD-3724	263
A-40	262	A-3205	316	ACCO-59	183	AECD-3727	184
A-99	179	A-3209	346	ACCO-60	184	AECD-3777	184
A-129	315	A-3226	181	ACCO-61	184	AECD-3778	252
A-132	252	A-3254	181	ACCO-64	316	AECD-3779	339
A-146	179	A-3271	316	ACCO-68	41	AECD-3780	347
A-149	179	A-3387	182	ACCO-68	316	AECD-3781	347
A-176	252	A-3505	316	ACRH-3	130	AECD-3782	263
A-193	315	A-3506	182	ACRH-4	233	AECD-3786	194
A-213	315	A-3507	182	AEC-tr-2156	320	AECD-3787	347
A-381	245	A-3511	182	AECD-3003		AECD-3788	252
A-456	179	A-3513	182	(Rev.)		AECD-3789	263
A-502	179	A-3550	182	AECD-3634	184	AECD-3791	263
A-538	245	A-3552	182	AECD-3654	36	AECD-3792	263
A-708	179	A-3554	182	AECD-3655	43	AECD-3793	184
A-726	179	A-3747	182	AECD-3661	139	AECD-3794	136
A-728	180	A-3784	245	AECD-3663	41	AECD-3795	192
A-731	180	A-3845	336	AECD-3664	39	AECD-3796	136
A-732	180	A-3904	182	AECD-3665	41	AECD-3797	132
A-740	180	A-3905	182	AECD-3666	43	AECD-3798	192
A-748	180	A-3947	252	AECD-3667	142	AECD-3799	263
A-750	262	A-3954	182	AECD-3668	89	AECD-3800	252
A-754	180	A-3957	263	AECD-3670	43	AECD-3801	184
A-777	180	A-3962	182	AECD-3671	36	AECD-3802	347
A-796	180	A-3971	36	AECD-3672	36	AECD-3803	252
A-888	180	A-4017	182	AECD-3673	85	AECD-3805	184
A-1008	180	A-4018	182	AECD-3674	36	AECD-3807	263
A-1025	180	A-4022	182	AECD-3675	43	AECD-3808	247
A-1058	180	A-4024	182	AECD-3677	89	AECD-3809	184
A-1072	180	A-4028	183	AECD-3678	91	AECD-3810	263
A-1076	180	A-4045	136	AECD-3679	79	AECD-3811	248
A-1083	180	A-4047	252	AECD-3680	85	AECD-3812	245
A-1099	315	A-4062	183	AECD-3681	89	AECD-3813	184
A-1240	315	A-4064	183	AECD-3682	89	AECD-3814	184
A-1268	180	A-4065	183	AECD-3683	36	AECD-3815	332
A-1277	180	A-4174	183	AECD-3684	35	AECD-3816	263
A-2157	180	A-4243	347	AECD-3685	35	AECD-3817	248
A-2158	180	A-4254	245	AECD-3686	35	AECD-3818	263
A-2300	233	A-4256	347	AECD-3687	316	AECD-3820	332
A-2301	315	A-4257	263	AECD-3688	85	AECD-3822	194
A-2308	315	A-4315	347	AECD-3691	139	AECD-3825	184
A-2314	181	A-4735	263	AECD-3693	136	AECD-3826	184
A-2321	181	ACCO-1	41	AECD-3696	136	AECD-3828	252
A-2329 Pts. 3 and 4	252	ACCO-5	136	AECD-3697	339	AECD-3829	185
A-2553	181	ACCO-8	131	AECD-3698	84	AECD-3830	263
A-2586	315	ACCO-19	183	AECD-3700	184	AECD-3831	332
A-2588	181	ACCO-25	183	AECD-3701	136	AECD-3836	185
A-2702	233	ACCO-27	131	AECD-3702	131	AECD-3837	194
A-2703	181	ACCO-29	183	AECD-3703	184	AECD-3838	233
A-2704	316	ACCO-30	85	AECD-3704	136	AECD-3839	339
A-2705	181	ACCO-31	183	AECD-3705	316	AECD-3840	194
A-2706	316	ACCO-32	183	AECD-3706	194	AECD-3841	263
A-2707	316	ACCO-33	85	AECD-3707	347	AECD-3842	264
A-2708	316	ACCO-35	183	AECD-3708	317	AECD-3843	252
A-2709	181	ACCO-36	183	AECD-3709	317	AECD-3845	185
A-2710	181	ACCO-40	183	AECD-3710	79	AECD-3846	264
A-2711	181	ACCO-42	183	AECD-3711	347	AECD-3847	252
A-2712	181	ACCO-46	316	AECD-3713	317	AECD-3848	347
A-2714	181	ACCO-48	183	AECD-3715	263	AECD-3849	347
A-2903	181	ACCO-51	85	AECD-3716	347	AECD-3850	317
A-2907	316	ACCO-52	131	AECD-3717	339	AECD-3851	252
A-2912 (Vol. I)	316	ACCO-53	131	AECD-3718	263	AECD-3852	253
		ACCO-55	183	AECD-3719	347	AECD-3853	233

<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>
AECD-3854	233	AECD-3944	318	AECD-4051	336	ANL-4277	264
AECD-3856	347	AECD-3945	319	AECD-4052	349	ANL-4294	349
AECD-3857	253	AECD-3946	319	AECD-4059	340	ANL-4323	264
AECD-3859	233	AECD-3947	234	AECD-4067	320	ANL-4350	264
AECD-3860	264	AECD-3948	333	AECD-4069	349	ANL-4397	264
AECD-3861	192	AECD-3949	340	AECD-4074	333	ANL-4400	264
AECD-3864	339	AECD-3950	319	AECD-4083	349	ANL-4428	275
AECD-3868	339	AECD-3951	319	AECD-4084	333	ANL-4437	264
AECD-3869	234	AECD-3952	319	AECD-4142	320	ANL-4475	349
AECD-3870	317	AECD-3953	319	AECD-4143	349	ANL-4483	197
AECD-3871	339	AECD-3954	319	AECD-4146	320	ANL-4487	264
AECD-3873	332	AECD-3955	319	AECD-4167	349	ANL-4512	197
AECD-3874	347	AECD-3956	319	AECD-4201	337	ANL-4551	195
AECD-3875	317	AECD-3958	348	AECD-4209	333	ANL-4573	234
AECD-3876	339	AECD-3959	319	AECD-4210	333	ANL-4596	197
AECD-3877	317	AECD-3960	319	AECU-1428	192	ANL-4602	265
AECD-3878	234	AECD-3962	340	AECU-2960	79	ANL-4654	234
AECD-3879	234	AECD-3963	319	AECU-3025	43	ANL-4743	139
AECD-3881	317	AECD-3965	319	AECU-3029	36	ANL-4765	253
AECD-3882	347	AECD-3966	348	AECU-3031	349	ANL-4769	253
AECD-3883	317	AECD-3968	234	AECU-3036	36	ANL-4801	349
AECD-3884	339	AECD-3971	333	AECU-3046	139	ANL-4848	41
AECD-3885	317	AECD-3974	336	AECU-3054	89	ANL-4905	253
AECD-3887	317	AECD-3975	333	AECU-3062	142	ANL-4908	253
AECD-3888	317	AECD-3976	333	AECU-3064	83	ANL-4911	234
AECD-3889	317	AECD-3977	185	AECU-3069	79	ANL-4912	136
AECD-3890	339	AECD-3978	264	AECU-3071	36	ANL-4926	265
AECD-3891	339	AECD-3979	264	AECU-3074	89	ANL-4937	193
AECD-3893	348	AECD-3980	333	AECU-3074	337	ANL-4951	197
AECD-3895	234	AECD-3982	348	AECU-3076	39	ANL-4991	253
AECD-3897	317	AECD-3983	319	AECU-3077	79	ANL-5019	253
AECD-3899	317	AECD-3984	348	AECU-3078	139	ANL-5021	340
AECD-3900	339	AECD-3985	348	AECU-3079	79	ANL-5030	193
AECD-3901	340	AECD-3986	337	AECU-3081	79	ANL-5075	253
AECD-3902	332	AECD-3987	333	AECU-3082	80	ANL-5084	340
AECD-3903	340	AECD-3988	348	AECU-3083	80	ANL-5160	253
AECD-3904	340	AECD-3989	348	AECU-3084	80	ANL-5204	349
AECD-3905	317	AECD-3991	319	AECU-3085	85	ANL-5205	320
AECD-3906	317	AECD-3992	319	AECU-3086	89	ANL-5206	234
AECD-3907	318	AECD-3993	320	AECU-3088	80	ANL-5207	320
AECD-3908	318	AECD-3994	348	AECU-3095	80	ANL-5221	42
AECD-3909	348	AECD-3995	320	AECU-3097	80	ANL-5229	42
AECD-3910	318	AECD-3996	320	AECU-3098	85	ANL-5240	320
AECD-3911	318	AECD-3997	348	AECU-3101	179	ANL-5262	42
AECD-3912	253	AECD-3999	340	AECU-3106	80	ANL-5322	265
AECD-3913	253	AECD-4000	320	AECU-3107	139	ANL-5324	139
AECD-3916	340	AECD-4001	340	AECU-3108	139	ANL-5354	36
AECD-3917	318	AECD-4002	348	AECU-3109	79	ANL-5360	193
AECD-3919	318	AECD-4004	349	AECU-3112	135	ANL-5361	80
AECD-3921	348	AECD-4011	333	AECU-3113	185	ANL-5379	360
AECD-3922	348	AECD-4012	333	AECU-3115	142	ANL-5396	36
AECD-3924	264	AECD-4014	349	AECU-3117	132	ANL-5403	39
AECD-3926	253	AECD-4015	320	AECU-3139	315	ANL-5410	36
AECD-3929	318	AECD-4016	349	ANL-4010	264	ANL-5412	89
AECD-3930	332	AECD-4017	340	ANL-4066	234	ANL-5430	36
AECD-3931	348	AECD-4018	349	ANL-4076	264	ANL-5431	46
AECD-3932	318	AECD-4020	360	ANL-4092	333	ANL-5441	80
AECD-3933	318	AECD-4021	333	ANL-4097	349	ANL-5446	83
AECD-3934	318	AECD-4023	340	ANL-4153	192	ANL-5449	42
AECD-3935	318	AECD-4024	337	ANL-4174	264	ANL-5451	36
AECD-3936	318	AECD-4026	320	ANL-4177	234	ANL-5453	35
AECD-3937	318	AECD-4028	320	ANL-4181	234	ANL-5456	35
AECD-3938	318	AECD-4030	320	ANL-4182	349	ANL-5462	39
AECD-3940	318	AECD-4032	340	ANL-4196	194	ANL-5472	349
AECD-3941	332	AECD-4035	349	ANL-4208	264	ANL-5486	35
AECD-3942	348	AECD-4036	340	ANL-4224	185	ANL-5491	43
AECD-3943	348	AECD-4046	340	ANL-4248	234	ANL-5499	136

<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>
ANL-5500	340	BMI-928	254	BNL-1795	265	CC-3161	342
ANL-5501	136	BMI-945	254	BNL-1796	195	CC-3241	235
ANL-5509	83	BMI-951	86	BNL-1797	265	CC-3244	321
ANL-5512	245	BMI-957	42	BNL-1798	265	CC-3302	235
ANL-5513	195	BMI-962	86	BNL-1812	265	CC-3336	235
ANL-5518	315	BMI-978	132	BNL-1814	197	CC-3424	235
ANL-5522	349	BMI-1003	42	BNL-1986	195	CC-3489	80
ANL-5524	349	BMI-1016	342	BNL-1987	350	CC-3618	321
ANL-5545	341	BMI-1026	134	BNL-1992	350	CC-3638	321
ANL-5552	350	BMI-1033	37	BNL-2016	350	CD-454	186
ANL-WMM-		BMI-1037	137	BNL-2019	350	CE-288	333
1140	132	BMI-1041	80	BNL-2020	350	CE-364	254
APEX-121	234	BMI-1046	132	BNL-2022	265	CE-481	333
APEX-218	83	BMI-1047	132	BNL-2023	351	CE-805	245
ATC-54-12	89	BMI-1052	342	BNL-2024	351	CE-951	254
BBC-51	341	BMI-1056	254	BNL-2025	351	CE-1074	245
BBC-54	341	BMI-1067	234	BNL-2026	351	CE-1132	245
BC-18	320	BMI-1602	245	BNL-2027	351	CE-1149	245
BC-27	320	BMI-2396	321	BNL-2028	351	CE-1150	333
BC-71	321	BMI-JDS-202	234	BNL-2094	351	CF-338	265
BMI-65	253	BMI-T-54	342	BNL-2119	351	CF-863	351
BMI-66	341	BMI-T-55	342	BNL-2158	351	CF-1627	351
BMI-72	341	BNL-20	197	BNL-2184	351	CF-3067	266
BMI-79	341	BNL-22	197	BNL-2229	41	CF-3341	266
BMI-89	341	BNL-25	140	BNL-2383	245	CF-3599	266
BMI-97	185	BNL-69	254	BNL-2384	265	CF-45-2-1	352
BMI-245	185	BNL-86	350	BNL-2385	197	CF-45-6-144	248
BMI-261	321	BNL-118	185	BNL-2388	185	CF-46-6-23	352
BMI-264	85	BNL-123	350	BNL-2390	351	CF-47-4-115	352
BMI-269	193	BNL-126	195	BNL-2391	195	CF-47-8-240	248
BMI-272	253	BNL-130	350	BNL-2392	265	CF-47-9-305	352
BMI-273	85	BNL-143	185	BNL-2393	197	CF-47-11-13	352
BMI-274	185	BNL-146	185	BNL-2394	351	CF-47-12-58	266
BMI-276	86	BNL-152	195	BNL-2395	195	CF-48-2-139	352
BMI-277	86	BNL-156	185	BNL-2397	198	CF-48-3-264	195
BMI-278	86	BNL-178	350	BNL-2399	185	CF-48-8-328	352
BMI-522	137	BNL-203	89	BNL-2446	142	CF-48-9-128	266
BMI-550	185	BNL-350	179	BP-29	265	CF-48-10-219	321
BMI-700	245	BNL-355	142	BP-60	350	CF-49-1-65	333
BMI-717	341	BNL-357		BP-63	250	CF-49-1-193	198
BMI-718	341	(T-65)	46	C-88	265	CF-49-4-123	245
BMI-725	193	BNL-364		C-192	265	CF-49-9-69	352
BMI-728	193	(AS-9)	360	CC-264	321	CF-49-11-48	334
BMI-730	193	BNL-367	198	CC-648	235	CF-49-11-217	245
BMI-732	341	BNL-370	198	CC-1321	235	CF-49-11-226	266
BMI-744	253	BNL-375 (S-28)	360	CC-1366	186	CF-49-12-1	352
BMI-745	193	BNL-379 (T-70)	337	CC-1383	235	CF-49-12-18	352
BMI-751	341	BNL-1072	195	CC-1432	186	CF-49-12-30	352
BMI-757	341	BNL-1149	350	CC-1500	321	CF-49-12-82	334
BMI-766	253	BNL-1150	350	CC-1517	321	CF-49-12-83	352
BMI-776	137	BNL-1151	350	CC-1631	235	CF-50-1-45	198
BMI-781	42	BNL-1152	197	CC-2095	235	CF-50-1-125	352
BMI-793	137	BNL-1328	350	CC-2123	265	CF-50-1-157	266
BMI-798	341	BNL-1339	350	CC-2319	254	CF-50-3-102	334
BMI-809	253	BNL-1357	195	CC-2401	321	CF-50-4-3	352
BMI-818	341	BNL-1365	254	CC-2403	235	CF-50-4-17	352
BMI-819	341	BNL-1574	265	CC-2522	235	CF-50-4-148	321
BMI-829	193	BNL-1577	185	CC-2664	342	CF-50-5-140	266
BMI-832	137	BNL-1578	191	CC-2670	235	CF-50-6-25	266
BMI-833	341	BNL-1579	265	CC-2723	235	CF-50-7-125	334
BMI-835	341	BNL-1581	265	CC-2730	235	CF-50-8-49	352
BMI-849	341	BNL-1627	195	CC-2933	235	CF-50-8-85	
BMI-866	342	BNL-1690	350	CC-2947	351	(Rev.)	266
BMI-869	254	BNL-1779	195	CC-2957	254	CF-50-8-116	352
BMI-870	132	BNL-1782	342	CC-2962	321	CF-50-9-139	352
BMI-897	132	BNL-1783	195	CC-2994	235	CF-50-11-41	352
BMI-900	137	BNL-1785	350	CC-3069	235	CF-50-12-25	352

<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>
CF-50-12-104	266	CF-53-2-99	353	CN-1873	236	CT-890	255
CF-51-2-102	321	CF-53-2-112	353	CN-2041	236	CT-910	246
CF-51-4-110	353	CF-53-2-134	195	CN-2069	267	CT-969	269
CF-51-4-156	353	CF-53-3-166	267	CN-2088	186	CT-1477	255
CF-51-4-174	321	CF-53-4-48	246	CN-2216	236	CT-1515	342
CF-51-5-61	353	CF-53-5-211	342	CN-2834	236	CT-1571	255
CF-51-5-62	353	CF-53-7-221	354	CN-3190	248	CT-1780	342
CF-51-5-72	353	CF-53-9-33	334	CN-3343	322	CT-1897	255
CF-51-5-73	353	CF-53-9-75	246	CNL-5	342	CT-1943	255
CF-51-5-98	353	CF-53-9-96	354	CNL-17	267	CT-1985	342
CF-51-5-164	353	CF-53-9-134	342	CNL-34	236	CT-2400	255
CF-51-5-170	334	CF-53-9-169	334	CNL-36	267	CT-2529	255
CF-51-5-182	353	CF-53-10-73	191	CNL-39	246	CT-2619	342
CF-51-5-193	321	CF-53-12-94	191	CNL-41	186	CT-2712	323
CF-51-5-207	321	CF-53-12-108	267	COO-172	89	CT-2715	343
CF-51-6-9	334	CF-54-2-72	334	COO-177	89	CT-2717	255
CF-51-6-91	186	CF-54-2-159	354	COO-202	193	CT-2721	343
CF-51-7-106	353	CF-54-2-179	322	COO-207	137	CT-2780	255
CF-51-7-120	322	CF-54-3-57	191	CP-400	354	CT-2946	343
CF-51-7-149	322	CF-54-3-120	354	CP-445	267	CT-2959	255
CF-51-8-151	322	CF-54-3-164	267	CP-499	267	CT-2960	255
CF-51-8-216	246	CF-54-3-171	322	CP-597	354	CT-2965	255
CF-51-8-216	246	CF-54-3-175	354	CP-668	267	CT-3013	255
CF-51-8-256	254	CF-54-4-30	334	CP-1069	267	CT-3031	255
CF-51-9-63	248	CF-54-4-142	354	CP-1092	267	CT-3036	255
CF-51-9-112	198	CF-54-4-182	267	CP-1350	267	CT-3043	343
CF-51-10-28	322	CF-54-4-203	322	CP-1361	267	CT-3044	343
CF-51-10-97	337	CF-54-5-170	354	CP-1381	354	CT-3060	255
CF-51-11-44	322	CF-54-5-188	246	CP-1456	267	CT-3460	246
CF-51-11-59	334	CF-54-5-200	354	CP-1589	267	CT-3522	86
CF-51-11-92	195	CF-54-6-27	233	CP-1598	254	CT-3563	256
CF-51-11-123	322	CF-54-6-78	334	CP-1662	267	CT-3718	86
CF-51-11-149	266	CF-54-6-165	354	CP-1676	268	CU-107	269
CF-51-11-186	322	CF-54-6-180	267	CP-1729	268	CU-123	269
CF-51-12-1	198	CF-54-6-200	354	CP-1732	268	CUD-92	355
CF-51-12-67	322	CF-54-6-258	236	CP-1738	254	D-4,460,1	140
CF-52-1-30	235	CF-54-7-105	354	CP-1748	268	DOW-24	323
CF-52-1-62	353	CF-54-7-122	334	CP-1814	268	DOW-62	343
CF-52-1-160	266	CF-54-7-158	246	CP-1818	268	DOW-74	343
CF-52-2-37	353	CF-54-8-97	354	CP-1837	236	DOW-79	343
CF-52-2-55	353	CF-54-8-98	195	CP-1989	268	DOW-81	186
CF-52-2-72	322	CF-54-8-179	195	CP-2048	354	DOW-82	132
CF-52-2-164	322	CF-54-9-97	267	CP-2062	268	DOW-87	343
CF-52-2-217	186	CF-54-9-114	267	CP-2071	268	DOW-89	186
CF-52-2-232	334	CF-54-9-143	334	CP-2261	354	DOW-114	86
CF-52-3-34	246	CF-54-11-3	195	CP-2306	268	DOW-115	86
CF-52-3-134	198	CF-54-12-100	246	CP-2313	268	DOW-116	86
CF-52-3-151	322	CF-54-12-143	334	CP-2315	254	DOW-117	86
CF-52-3-155	246	CF-55-1-120	337	CP-2332	342	DOW-119	132
CF-52-4-39	198	CH-3578	248	CP-2541	255	DOW-127	343
CF-52-4-157	266	CH-3782	248	CP-2589	268	DOW-131	186
CF-52-5-142	322	CH-3875	233	CP-2629	268	DOW-132	86
CF-52-5-211	266	CK-942	254	CP-2701	246	DOW-134	42
CF-52-6-33	342	CK-3159	254	CP-2709	268	DOW-136	137
CF-52-6-67	186	CK-1526	322	CP-2824	354	DOW-138	256
CF-52-6-165	266	CK-1529	254	CP-2907	268	DOW-141	343
CF-52-7-126	353	CK-1712	236	CP-3061	236	DP-18	323
CF-52-8-31	334	CL-1039	236	CP-3068	268	DP-33	196
CF-52-9-75	266	CN-527	236	CP-3435	246	DP-47	337
CF-52-9-197	353	CN-795	254	CP-3453	355	DP-48	196
CF-52-10-9	353	CN-1060	186	CP-3580	355	DP-51	84
CF-52-10-38	334	CN-1205	236	CP-3581	268	DP-64	355
CF-52-11-7	342	CN-1702	236	CP-3750	268	DP-72	323
CF-52-12-118	266	CN-1791	236	CT-751	342	DP-74	186
CF-53-1-140	353	CN-1859	236	CT-816	255	DP-75	186
CF-53-1-283	322	CN-1869	236	CT-883	255	DP-76	80

<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>
DP-100	198	HW-15044	187	HW-32669	269	IDO-16022	140
DP-120	250	HW-15204	250	HW-32673	237	IDO-16026	92
DP-126	83	HW-15742	187	HW-32755	343	IDO-16031	92
DP-130	135	HW-15829	236	HW-32843	237	IDO-16035	92
DP-132	132	HW-15846	323	HW-33434		IDO-16036	140
DP-135	84	HW-16017	355	(Rev.)	43	IDO-16047	43
DP-137	246	HW-17046	187	HW-33486	323	IDO-16047	92
DP-138	84	HW-17096	257	HW-34079		IDO-16056	269
DP-139	343	HW-17175	187	(Rev.)	86	IDO-16057	92
DP-141	191	HW-17194	257	HW-34141	237	IDO-16062	355
DP-142	135	HW-17266	187	HW-34162	355	IDO-16064	355
DP-143	269	HW-17521	187	HW-34187	355	IDO-16067	89
DP-145	192	HW-17538	187	HW-34390	344	IDO-16071	92
EAH-87	246	HW-17775	187	HW-34431	237	IDO-16075	89
ETL-1	256	HW-18034	248	HW-34499	336	IDO-16076	140
ETL-2	256	HW-18083	257	HW-35038	43	IDO-16077	355
ETL-3-4	256	HW-18146	187	HW-35807	86	IDO-16078	269
ETL-5	256	HW-18260	323	HW-35808	86	IDO-16083	92
ETL-6	256	HW-18320	187	HW-36692	39	IDO-16084	89
ETL-7	256	HW-18476	187	HW-36760	130	IDO-16085	269
ETL-8	256	HW-19165	343	HW-36831	37	IDO-16092	247
ETL-9	256	HW-19284	258	HW-37636	258	IDO-16093	43
ETL-10	256	HW-19563	246	HW-37766	269	IDO-16095	140
ETL-11	256	HW-20722	258	HW-37983	137	IDO-16096	258
ETL-12	256	HW-20725	258	HW-38079	137	IDO-16100	140
ETL-13	256	HW-20765	258	HW-38198	248	IDO-16104	355
ETL-14 & 15	256	HW-21520	258	HW-38218		IDO-16105	140
ETL-16 & 17	256	HW-21793	43	(Rev.)	191	IDO-16112	355
ETL-18	257	HW-22680	187	HW-38387	142	IDO-16114	89
ETL-19	257	HW-22779	343	HW-38682	192	IDO-16118	355
ETL-20	257	HW-23314	258	HW-38758	130	IDO-16125	92
ETL-21	257	HW-23581	246	HW-38876	42	IDO-16127	92
ETL-22	257	HW-24455	258	HW-38912	42	IDO-16131	92
ETL-23	257	HW-24639	334	HW-38991	137	IDO-16133	92
FMPC-78	323	HW-25107	355	HW-39087	42	IDO-16136	92
FMPC-164		HW-25108	248	HW-39170	80	IDO-16140	92
(Rev. 1)	257	HW-25191	233	HW-39190	86	IDO-16141	92
FMPC-310	257	HW-25205	323	HW-39356	35	IDO-16155	92
FMPC-344	343	HW-25206	193	HW-39539	137	IDO-16161	140
FTH-25	191	HW-25239	248	HW-39767	132	IDO-16162	258
G-119	40	HW-25337	258	HW-39805	258	IDO-16168	250
G-123	40	HW-26323	246	HW-39945	187	IDO-16173	89
GEL-67	269	HW-26566	269	HW-39969	135	IDO-16180	90
H-89355.6	37	HW-27061	86	HW-39971	237	IDO-16182	140
HDC-852	323	HW-27090	250	HW-40142	237	IDO-16186	92
HEPL-34	135	HW-27207	343	HW-40285	237	IDO-16187	93
HKF-1 and Suppl.	355	HW-27214	355	HW-40459	323	IDO-16189	90
HKF-2	257	HW-28047	337	HW-40460	250	IDO-16195	81
HW-7737	186	HW-28129	258	HW-40494	193	IDO-16200	44
HW-8309	186	HW-28263	250	HW-40497	237	IDO-16208	140
HW-10137	186	HW-28711	269	HW-41025	323	IDO-16213	192
HW-10940	257	HW-29110	269	HW-41713	323	IDO-16214	44
HW-11379	269	HW-29298	233	IDO-14313	80	IDO-16222	356
HW-12326	193	HW-29748	43	IDO-14316	323	IDO-16244	44
HW-12450	186	HW-30384	237	IDO-14318	37	IDO-16246	93
HW-12552	257	HW-30641	343	IDO-14318	80	IDO-16248	140
HW-12637	257	HW-30727	258	IDO-14336	41	IDO-16249	44
HW-12832	257	HW-30898	187	IDO-14340	142	IDO-16250	140
HW-13134	250	HW-31011	323	IDO-14347	80	IDO-16251	90
HW-13167	198	HW-31200	337	IDO-14349	42	IDO-16259	356
HW-13300	186	HW-31482	355	IDO-14357	81	ISC-48	258
HW-13301	187	HW-31928	193	IDO-16005	355	ISC-66	323
HW-13658	250	HW-31929	237	IDO-16008	246	ISC-67	323
HW-14226	187	HW-32497	258	IDO-16011	196	ISC-72	323
HW-14429	257	HW-32535	269	IDO-16014	92	ISC-82	344
		HW-32634	237	IDO-16020	92	ISC-85	324

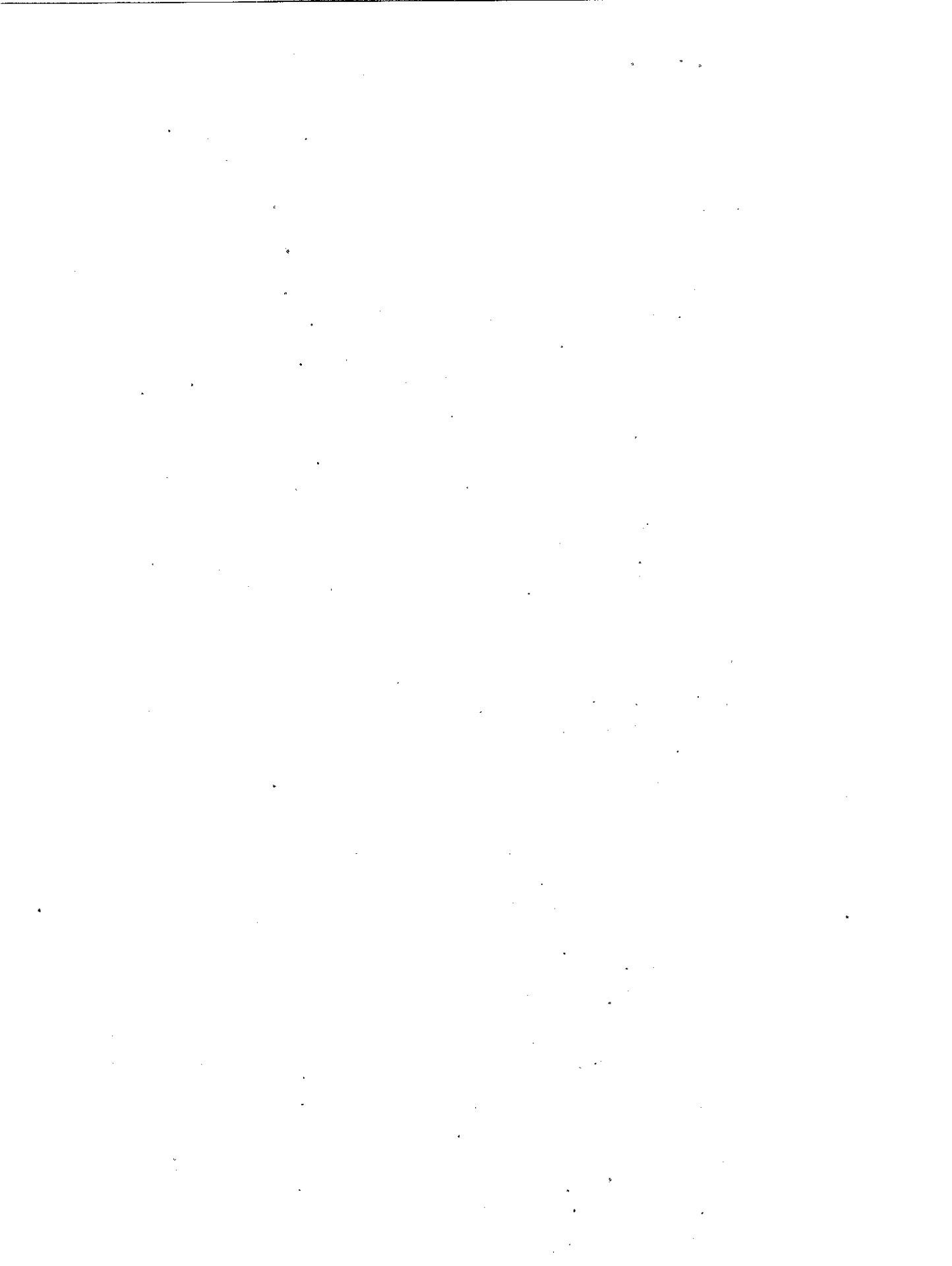
<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>
ISC-100	324	K-372	188	KAPL-511	140	KLX-1334	325
ISC-113	258	K-373	259	KAPL-513	191	KLX-1336	325
ISC-128	258	K-389	324	KAPL-527	270	KLX-1339	325
ISC-132	259	K-416	324	KAPL-528	356	KLX-1347	338
ISC-139	259	K-418	192	KAPL-531	270	KLX-1355	338
ISC-208	344	K-421	188	KAPL-532	270	KLX-1356	189
ISC-213	344	K-425	324	KAPL-546	270	KLX-1363	325
ISC-214	259	K-434	188	KAPL-551	198	KLX-1377	238
ISC-241	37	K-446	237	KAPL-677	196	KLX-1380	325
ISC-247	83	K-447	188	KAPL-718	325	KLX-1384	270
ISC-258	187	K-482	269	KAPL-755	132	KLX-1388	338
ISC-268	324	K-493	324	KAPL-789	259	KLX-1390	338
ISC-299	237	K-497	337	KAPL-793	196	KLX-1391	247
ISC-305	42	K-513	188	KAPL-828	87	KLX-1392	189
ISC-310	44	K-530	192	KAPL-834	132	KLX-1393	251
ISC-320	324	K-551	237	KAPL-851	87	KLX-1614	325
ISC-337	237	K-556	324	KAPL-854	259	KLX-1615	325
ISC-377	137	K-558	337	KAPL-915	336	KLX-1732	238
ISC-380	37	K-567	237	KAPL-919	356	KLX-1744	325
ISC-424	44	K-570	237	KAPL-964	198	KT-183	140
ISC-458	187	K-579	238	KAPL-1007	81	KY-166	338
ISC-463	137	K-586	238	KAPL-1109	140	LA-5	270
ISC-469	44	K-596	188	KAPL-1110	356	LA-28	270
ISC-510	44	K-621	238	KAPL-1154	132	LA-42	259
ISC-515	44	K-706	238	KAPL-1158	87	LA-44	259
ISC-521	81	K-719	250	KAPL-1278	196	LA-47	270
ISC-527	324	K-720	247	KAPL-1301	87	LA-55	259
ISC-530	81	K-736	196	KAPL-1318	44	LA-66	356
ISC-539	132	K-757	250	KAPL-1333	44	LA-70	344
ISC-540	132	K-835	324	KAPL-1340	259	LA-76	270
ISC-545	86	K-843	324	KAPL-1350	37	LA-78	259
ISC-549	81	K-864	196	KAPL-1366	42	LA-81	270
ISC-586	191	K-979	188	KAPL-1371	42	LA-91	270
ISC-588	140	K-1071	79	KAPL-1376	189	LA-112	189
ISC-595	344	K-1088	79	KAPL-1384	39	LA-147	259
ISC-596	37	K-1106	238	KAPL-1403	42	LA-149	270
ISC-597	188	K-1219	188	KAPL-1406	84	LA-172	189
ISC-606	324	K-1232	90	KAPL-1411	40	LA-206	270
ISC-612	81	K-1236	356	KAPL-1414	44	LA-243	270
ISC-617	132	K-1243	37	KAPL-1415	140	LA-266	271
ISC-626	81	K-1272	337	KAPL-1416	87	LA-276	259
ISC-632	44	K-1277	337	KAPL-1422	37	LA-303	325
ISC-642	83	K-1284	337	KAPL-1425	37	LA-313	259
ISC-643	37	KAPL-24	269	KAPL-1443	247	LA-347	271
ISC-644	259	KAPL-33	270	KAPL-1444	238	LA-381	189
ISC-682	188	KAPL-41	44	KAPL-1453	325	LA-422R	259
ISC-688	193	KAPL-42	44	KAPL-1454	140	LA-507	189
ISC-707	356	KAPL-50	356	KAPL-1467	337	LA-603	271
ISC-716	356	KAPL-58	44	KAPL-1469	270	LA-609	271
JENER-38	87	KAPL-70	356	KAPL-1502	356	LA-639	259
K-39	247	KAPL-71	270	KAPL-1523	344	LA-695	189
K-81	188	KAPL-82	356	KLI-1098	133	LA-696	189
K-89	324	KAPL-130	188	KLX-35	189	LA-703	189
K-101	269	KAPL-180	324	KLX-37	189	LA-738	189
K-104	188	KAPL-181	238	KLX-55	325	LA-739	189
K-106	324	KAPL-210	189	KLX-58	325	LA-753	251
K-120	140	KAPL-304	270	KLX-60	356	LA-1078	357
K-130	237	KAPL-329		KLX-61	325	LA-1106	238
K-137	247	(Pt. I)	356	KLX-63	334	LA-1123	196
K-236	250	KAPL-329		KLX-66	335	LA-1128	189
K-273	324	(Pt. II)	356	KLX-68	325	LA-1139	238
K-276	188	KAPL-337	344	KLX-71	325	LA-1176	238
K-286	250	KAPL-421	189	KLX-1036	270	LA-1188	271
K-299 (Rev.)	188	KAPL-428	344	KLX-1310	337	LA-1197	238
K-315	188	KAPL-429	251	KLX-1312	325	LA-1201	357
K-342	356	KAPL-472	325	KLX-1321	337	LA-1236	193
K-362	135	KAPL-494	356	KLX-1326	325	LA-1285	238

<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>
LA-1309	84	M-2554	271	MIT-1085	260	MonT-164	260
LA-1314	238	M-2555	271	MIT-1090	260	MonT-221	357
LA-1315	238	M-2783	326	MIT-1091	87	MonT-223	328
LA-1343	259	M-3009	344	MIT-1105	87	MonT-408	240
LA-1345	238	M-3090	37	MIT-1107	193	MTA-36	137
LA-1389	260	M-3095	326	MIT-1110	81	MTA-41	90
LA-1399	271	M-3105	344	MIT-EBR-14	87	MTA-50	192
LA-1423	315	M-3106	344	MITG-207	345	N-34	345
LA-1431	133	M-3107	344	MITG-208	239	N-381	345
LA-1439	271	M-3132	326	MITG-228	327	N-812	248
LA-1523	189	M-3300	344	MITG-235	239	N-985	357
LA-1550	238	M-3685	357	MITG-244	260	N-1367	251
LA-1551	192	M-3712	251	MITG-245	327	N-1372	251
LA-1557	196	M-3752	344	MITG-248	327	N-1570	328
LA-1565	84	M-3753	357	MITG-252	327	N-1668b	357
LA-1577	260	M-3754	357	MITG-262	327	N-1908	335
LA-1585	326	M-3845	251	MITG-263	327	N-1974	272
LA-1607	335	M-3846	251	MITG-A111	327	NAA-SR-4	260
LA-1706	37	M-3856	357	MITG-1092	327	NAA-SR-8	358
LA-1721	37	M-3975	357	MLM-188	248	NAA-SR-9	358
LA-1721 (Rev.)	189	M-3989	344	MLM-205	239	NAA-SR-10	260
LA-1727	44	M-4079	271	MLM-229	251	NAA-SR-13	260
LA-1858	130	M-4087	248	MLM-291	251	NAA-SR-16	260
LA-1864	37	M-4123	239	MLM-373	338	NAA-SR-20	260
LA-1878	84	M-4128	247	MLM-380	327	NAA-SR-21	345
LA-1891	37	M-4168	247	MLM-527	336	NAA-SR-23	193
LA-1894	41	M-4204	260	MLM-567	190	NAA-SR-24	272
LA-1897	238	M-4240	326	MLM-572	90	NAA-SR-30	233
LA-1912	44	M-4241 (Pt. III)	260	MLM-615	81	NAA-SR-32	345
LA-1913	87	M-4242	37	MLM-729	133	NAA-SR-33	260
LA-1917	84	M-4248	326	MLM-748	327	NAA-SR-37	345
LA-1920	130	M-4249	37	MLM-761	130	NAA-SR-38	196
LA-1930	196	M-4250	37	MLM-896	90	NAA-SR-43	272
LA-1942	90	M-4251	326	MLM-976	248	NAA-SR-49	260
LA-1943	90	M-4253	326	MLM-979	38	NAA-SR-58	260
LA-1947	87	M-4330	248	MLM-1003	336	NAA-SR-59	193
LA-1972UNM	326	M-4337	248	MLM-1020	251	NAA-SR-67	261
LAMS-121	271	M-4423	338	MLM-1045	251	NAA-SR-68	261
LAMS-289	326	M-4430	335	MLM-1050	191	NAA-SR-71	261
LAMS-727	198	M-4461	239	MLM-1057	130	NAA-SR-104	90
LAMS-769	271	M-4470	335	MLM-1060	84	NAA-SR-121	345
LAMS-1892	44	M-4483	239	MonC-37	335	NAA-SR-138	358
LAMS-1949	196	M-4528	326	MonC-77	327	NAA-SR-151	194
LRL-76	81	M-4534	239	MonC-132	239	NAA-SR-158	247
LRL-83	81	M-4556	239	MonC-398	271	NAA-SR-168	261
LRL-88	81	M-4558	327	MonC-422	327	NAA-SR-196	141
LRL-101	44	M-4576	271	MonN-157	335	NAA-SR-202	328
LRL-115	81	M-4585	260	MonN-262	335	NAA-SR-211	194
LRL-122	90	MCW-8	239	MonN-299	328	NAA-SR-226	240
LRL-134	271	MCW-10	327	MonP-47	357	NAA-SR-236	133
LRL-136	90	MCW-31	327	MonP-60	357	NAA-SR-248	261
LRL-160	271	MCW-102	38	MonP-152	357	NAA-SR-268	358
LWS-12019	271	MCW-103	239	MonP-172	357	NAA-SR-275	272
LWS-24552	344	MCW-124	38	MonP-246	196	NAA-SR-286	261
M-875	326	MCW-134	239	MonP-305	335	NAA-SR-287	345
M-887	326	MCW-136	239	MonP-321	357	NAA-SR-288	345
M-1320	326	MCW-168	239	MonP-356	272	NAA-SR-845	358
M-1379	326	MCW-175	239	MonP-357	272	NAA-SR-862	194
M-1485	335	MCW-185	327	MonP-360	272	NAA-SR-924	358
M-1772	338	MCW-210	239	MonP-402	357	NAA-SR-925	358
M-1974	336	MDDC-1134	38	MonP-412	357	NAA-SR-926	240
M-2142	239	MIT-1028	260	MonP-413	357	NAA-SR-1016	272
M-2177	326	MIT-1029 (Pt. I)	344	MonP-423	357	NAA-SR-1026	328
M-2273	271	MIT-1029 (Pt. II)	344	MonP-428	272	NAA-SR-1029	272
M-2327	239	MIT-1034 (Pt. I)	345	MonP-434	272	NAA-SR-1057	328
M-2408	37	MIT-1045 (Pt. I)	345	MonP-457	272	NAA-SR-1102	272

<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>
NAA-SR-1127	358	NYO-3499	137	NYO-6506	133	ORNL-472	338
NAA-SR-1137		NYO-3535	240	NYO-6513	138	ORNL-500	329
(Pt. 1)	91	NYO-3576	358	NYO-6543	40	ORNL-525	273
NAA-SR-1137		NYO-3606	81	NYO-6590	81	ORNL-550	247
(Pt. 2)	91	NYO-3738	335	NYO-6599	87	ORNL-563	198
NAA-SR-1152	328	NYO-3913	328	NYO-6620	138	ORNL-599	242
NAA-SR-1198	42	NYO-3916	190	NYO-6626	38	ORNL-614	329
NAA-SR-1204	272	NYO-3919	133	NYO-7048	138	ORNL-630	335
NAA-SR-1205	240	NYO-3920	133	NYO-7049	88	ORNL-636	346
NAA-SR-1287	240	NYO-3921	328	NYO-7050	43	ORNL-641	358
NAA-SR-1288	240	NYO-4000	315	NYO-7051	88	ORNL-692	90
NAA-SR-1357	38	NYO-4631	87	NYO-7053	88	ORNL-701	338
NAA-SR-1361	240	NYO-4632	42	NYO-7054	194	ORNL-704	261
NAA-SR-1367	91	NYO-4641	35	NYO-7055	88	ORNL-733	346
NAA-SR-1390	251	NYO-4642	35	NYO-7075	138	ORNL-772	346
NAA-SR-1398	91	NYO-4654	179	NYO-7076	88	ORNL-793	329
NAA-SR-1426	44	NYO-4663	79	NYO-7080	138	ORNL-833	346
NAA-SR-1452	358	NYO-4924	130	NYO-7135	141	ORNL-848	242
NAA-SR-1458	249	NYO-5052	345	NYO-7168	43	ORNL-887	82
NAA-SR-1459	91	NYO-5074	345	NYO-7173	138	ORNL-912	329
NAA-SR-1477	358	NYO-5075	240	NYO-7175	345	ORNL-920	346
NAA-SR-1525	358	NYO-5079	84	NYO-7214	38	ORNL-923	338
NBL-117	38	NYO-5084	345	NYO-7298	261	ORNL-958	359
NBS-6	194	NYO-5087	240	NYO-7379	88	ORNL-961	329
NBS-202	240	NYO-5097	345	NYO-7402 (Pt. 1)	38	ORNL-983	242
NBS-3328	141	NYO-5119	87	NYO-7455	141	ORNL-1064	329
NBS-3329	133	NYO-5123	240	NYO-7475	91	ORNL-1124	247
NBS-3985	81	NYO-5129	261	NYO-7477	138	ORNL-1144	190
NBS-3991	141	NYO-5130	240	NYOO-1009	190	ORNL-1146	346
NBS-4161	133	NYO-5131	87	NYOO-2006	38	ORNL-1196	359
NBS-4257	41	NYO-5134	240	ORNL-19	241	ORNL-1205	196
NBS-4342	135	NYO-5148	240	ORNL-25	272	ORNL-1209	329
NBS-D-106	81	NYO-5163	249	ORNL-26	272	ORNL-1232	359
NDA-14	141	NYO-5164	241	ORNL-30	272	ORNL-1310	329
NDA-16	247	NYO-5173	42	ORNL-32	273	ORNL-1317	90
NDA-27-39	141	NYO-5182	38	ORNL-33	273	ORNL-1325	330
NLCO-595	249	NYO-5184	38	ORNL-37	241	ORNL-1396	190
NMI-1119	87	NYO-5191	87	ORNL-40	328	ORNL-1419	242
NMI-1137	137	NYO-5194	241	ORNL-41	329	ORNL-1422	330
NPG-126	35	NYO-5195	241	ORNL-53	358	ORNL-1476	330
NYDO-33	328	NYO-5208	241	ORNL-73	338	ORNL-1513	338
NYO-110	261	NYO-5210	241	ORNL-93	329	ORNL-1583	330
NYO-626	38	NYO-5211	241	ORNL-96	329	ORNL-1617	359
NYO-968	91	NYO-5213	241	ORNL-105	329	ORNL-1700	359
NYO-1093	38	NYO-5214	241	ORNL-113	247	ORNL-1712	242
NYO-1114	345	NYO-5217	241	ORNL-113	247	ORNL-1712	242
NYO-1116	240	NYO-5218	241	ORNL-120	338	ORNL-1783	196
NYO-1126	194	NYO-5219	241	ORNL-120		ORNL-1790	359
NYO-1127	261	NYO-5221	328	(Suppl. 1)	338	ORNL-1797	330
NYO-1315	328	NYO-5225	241	ORNL-163	360	ORNL-1846	330
NYO-1326	38	NYO-5226	328	ORNL-167	273	ORNL-1871	45
NYO-1455	240	NYO-5229	241	ORNL-173	329	ORNL-1879	141
NYO-1521	240	NYO-5230	241	ORNL-178	329	ORNL-1888	135
NYO-1549	135	NYO-5236	241	ORNL-196	84	ORNL-1891	45
NYO-1594	45	NYO-5244	328	ORNL-203	358	ORNL-1902	82
NYO-2017	38	NYO-5259	328	ORNL-239	329	ORNL-1907	82
NYO-2028	38	NYO-5260	328	ORNL-241	358	ORNL-1913	90
NYO-3108	133	NYO-6267	196	ORNL-255	338	ORNL-1925	45
NYO-3273	133	NYO-6268	141	ORNL-275	329	ORNL-1928	141
NYO-3313	38	NYO-6269	196	ORNL-277	338	ORNL-1929	85
NYO-3320	35	NYO-6327	138	ORNL-300	329	ORNL-1930	82
NYO-3345	41	NYO-6328	85	ORNL-330	329	ORNL-1932	38
NYO-3454	345	NYO-6450	138	ORNL-360	242	ORNL-1933	135
NYO-3496	42	NYO-6451	42	ORNL-388	242	ORNL-1939	45
NYO-3497	137	NYO-6480	91	ORNL-418	358	ORNL-1942	130
NYO-3498	87	NYO-6482	272	ORNL-428	358	ORNL-1950	133
				ORNL-431	196	ORNL-1951	35

AEC-No.	Page	AEC-No.	Page	AEC-No.	Page	AEC-No.	Page
ORNL-1952	82	RME-4066	41	RMO-2726	262	TID-5281	93
ORNL-1953	130	RME-555 (Rev.)	41	RMO-2728	331	TID-5281	273
ORNL-1957	79	RMO-2013	82	RMO-2733	331	TID-5292	142
ORNL-1958	90	RMO-2016	38	RMO-4002	262	TID-5293	82
ORNL-1966	35	RMO-2017	38	SEP-6	262	TID-7001	142
ORNL-1972	141	RMO-2018	39	SEP-22	242	TID-7004	275
ORNL-1972	197	RMO-2019	39	SEP-33	138	TID-8001	46
ORNL-1975	273	RMO-2021	133	SEP-54	346	TID-8002	192
ORNL-1983	273	RMO-2021	330	SEP-85	194	TID-8003	192
ORNL-1987	83	RMO-2030	190	SEP-91	346	TID-8004	192
ORNL-1989	242	RMO-2031	82	SEP-113	43	TID-8005	275
ORNL-1992	90	RMO-2032	88	SEP-123	88	TID-8006	276
ORNL-2006	330	RMO-2041	190	SEP-127	346	TID-8007	276
ORNL-2013	249	RMO-2042	330	SEP-149	194	TID-8008	276
ORNL-2023	359	RMO-2502	43	SO-2041	138	TID-8009	276
ORNL-2025	191	RMO-2503	88	SO-2042	88	UCLA-30	242
ORNL-2026	335	RMO-2504	88	SO-2043	138	UCLA-64	
ORNL-2034	335	RMO-2505	88	SO-2521	138	(Pt. I)	336
ORNL-2035	335	RMO-2506	82	SO-2523	138	UCLA-326	36
ORNL-2040	346	RMO-2507	133	SO-3002	346	UCLA-337	249
ORNL-2047	359	RMO-2508	82	SO-3003	262	UCLA-342	36
ORNL-2050	359	RMO-2509	133	SO-3005	262	UCLA-343	39
ORNL-2066	359	RMO-2510	190	SOO-2	331	UCLA-344	45
ORO-109	179	RMO-2512	190	TEI-67	41	UCLA-346	141
ORO-139	40	RMO-2516	82	TEI-468	83	UCLA-349	130
ORO-143	83	RMO-2517	133	TEI-507	83	UCLA-350	130
ORO-145	35	RMO-2518	330	TEI-525	41	UCLA-353	134
ORO-148	330	RMO-2519	134	TEI-540	83	UCLA-354	338
R52GL51	247	RMO-2520	134	TEM-563A	41	UCLA-355	131
R52GL167	85	RMO-2522	134	TEM-874A	135	UCLA-356	242
RFP-56	330	RMO-2523	134	TID-256	359	UCLA-359	249
RL-4.6.151	330	RMO-2525	134	TID-1901	142	UCLA-360	331
RL-4.6.216	330	RMO-2526	82	TID-1902	198	UCLA-2689	
RL-4.6.231	242	RMO-2527	82	TID-1903	198	(see UCRL-2689)	
RL-4.6.260	261	RMO-2530	242	TID-1904	198	UCRL-78	273
RL-4.6.265	261	RMO-2531	242	TID-1905	275	UCRL-96	274
RL-4.6.271	273	RMO-2532	134	TID-1906	360	UCRL-111	251
RL-4.6.321	242	RMO-2611	82	TID-3010		UCRL-114	274
RL-16.6.49	273	RMO-2612	39	(Suppl. 2)	138	UCRL-116	274
RL-28.5.109	251	RMO-2616	39	TID-3043		UCRL-126	242
RL-28.5.114	273	RMO-2617	39	(Suppl. 2)	46	UCRL-130	274
RL-28.5.117	249	RMO-2701	330	TID-3044		UCRL-132	274
RL-28.5.120	249	RMO-2702	330	(Suppl. 1)	134	UCRL-139	274
RL-28.5.121	249	RMO-2703	330	TID-3053	335	UCRL-140	274
RL-28.5.135	249	RMO-2704	330	TID-5048	273	UCRL-184	274
RL-28.5.139	251	RMO-2705	331	TID-5049	273	UCRL-196	242
RL-28.5.144	251	RMO-2706	261	TID-5052	273	UCRL-226	243
RL-28.5.146	273	RMO-2707	331	TID-5054	197	UCRL-633	243
RME-58 (Pt. 1)	40	RMO-2708	331	TID-5055	273	UCRL-764	243
RME-79	40	RMO-2709	261	TID-5087	273	UCRL-778	190
RME-2015	40	RMO-2710	261	TID-5116	346	UCRL-840	274
RME-2019	40	RMO-2711	331	TID-5140	190	UCRL-1169	243
RME-2023	40	RMO-2712	331	TID-5184	138	UCRL-1244	
RME-2024	40	RMO-2713	331	TID-5194	331	(Rev.)	274
RME-2026	40	RMO-2714	331	TID-5212	88	UCRL-1280	251
RME-2032 (Pt. 1)	40	RMO-2715	261	TID-5213	194	UCRL-1294	243
RME-3107	83	RMO-2716	262	TID-5214	194	UCRL-1493	243
RME-3110 (Pt. 1)	135	RMO-2717	331	TID-5215	40	UCRL-1715	359
RME-3110 (Pt. II)	135	RMO-2718	331	TID-5216	40	UCRL-1830	
RME-3110 (Pt. III)	135	RMO-2719	262	TID-5217	91	(Rev.)	274
RME-3112	40	RMO-2720	262	TID-5218	40	UCRL-2020	141
RME-3113	40	RMO-2721	331	TID-5219	273	UCRL-2124	
RME-3125	135	RMO-2722	262	TID-5241	242	(Rev.)	84
RME-4054	41	RMO-2723	331	TID-5242	331	UCRL-2203	359
		RMO-2724	262	TID-5259	88	UCRL-2246	359
		RMO-2725	331	TID-5280		UCRL-2539	359
				(Suppl. 1)	135		

<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>	<u>AEC-No.</u>	<u>Page</u>
UCRL-2672	45	UCRL-3223	197	USBM-U-3	138	Y-299	275
UCRL-2674	191	UCRL-3228	336	USBM-U-42	139	Y-314	247
UCRL-2677	82	UCRL-3236	359	USBM-U-57	346	Y-315	244
UCRL-2689	131	UCRL-3237	192	WAPD-21	274	Y-317	135
UCRL-2689		UCRL-3240	190	WAPD-25	43	Y-321	275
(Add.)	131	UCRL-3242	191	WAPD-31	339	Y-327	332
UCRL-2808	45	UCRL-3247	315	WAPD-60	339	Y-328	275
UCRL-2854		UCRL-3250	192	WAPD-76	93	Y-331	244
(Rev.)	39	UCRL-3259	360	WAPD-77	142	Y-352	244
UCRL-2879	41	UCRL-3266	190	WAPD-79	142	Y-353	244
UCRL-2884	274	UCRL-3268	249	WAPD-84	262	Y-381	244
UCRL-2941	82	UCRL-3271	197	WAPD-128	197	Y-389	262
UCRL-3011	39	UCRL-3273	360	WAPD-129	262	Y-390	244
UCRL-3035	84	UCRL-3284	360	WAPD-131	139	Y-395	332
UCRL-3045	45	UCRL-3288	252	WAPD-134	360	Y-407	244
UCRL-3051	82	UCRL-3289	360	WAPD-146	360	Y-409	244
UCRL-3055	131	UCRL-3314	360	WAPD-P-361	91	Y-411	275
UCRL-3056	91	UCRL-3324	331	WAPD-SFR-		Y-414	244
UCRL-3062	136	UCRL-3326	360	Fe-192	346	Y-431	190
UCRL-3063	36	UCRL-3328	336	WAPD-T-38		Y-449	190
UCRL-3065	36	UCRL-4266	197	and Suppl.	192	Y-461	244
UCRL-3066	84	UCRL-4454	141	WAPD-T-170	45	Y-462	244
UCRL-3068	134	UCRL-4476	45	WAPD-TN-521	43	Y-463	244
UCRL-3072	36	UCRL-4485	91	WAPD-TN-522	142	Y-465	244
UCRL-3081	36	UCRL-4496	45	WAPD-TN-524	360	Y-471	244
UCRL-3084	41	UCRL-4503	40	WASH-275	39	Y-475	244
UCRL-3085	84	UCRL-4507	45	WASH-291		Y-477	190
UCRL-3088	45	UCRL-4513	39	(Pt. 1)	142	Y-478	244
UCRL-3094	41	UCRL-4516	252	WASH-292 (Pt.		Y-544	275
UCRL-3096	131	UCRL-4519	39	3, Suppl. 1)	45	Y-545	275
UCRL-3098	91	UCRL-4629	346	WIN-2	332	Y-553	191
UCRL-3103	91	UCRL-4531	45	WIN-5	88	Y-559	245
UCRL-3104	45	UCRL-4533	136	WIN-6	139	Y-560	191
UCRL-3112	134	UCRL-4536	41	WIN-11	139	Y-563	275
UCRL-3114	91	UCRL-4540	141	WIN-11	332	Y-565	332
UCRL-3115	91	UCRL-4556	83	WIN-12	88	Y-573	245
UCRL-3116	83	UCRL-4559	45	WIN-13	139	Y-589	332
UCRL-3135	136	UCRL-4563	142	WIN-16	88	Y-602	245
UCRL-3136	141	UCRL-4588	197	WIN-17	139	Y-611	134
UCRL-3141	249	UCRL-4628	194	WIN-17	243	Y-612	191
UCRL-3144	39	UCSF-12	336	WIN-18	89	Y-644	332
UCRL-3150	45	UR-295	249	WIN-19	335	Y-645	262
UCRL-3154	359	UR-296	131	WIN-20	139	Y-652	275
UCRL-3157	39	UR-302	249	WIN-24	139	Y-655	275
UCRL-3169	39	UR-305	134	WIN-25	139	Y-660	360
UCRL-3173	251	UR-381	36	Y-1	243	Y-685	250
UCRL-3176	243	UR-397	131	Y-27	252	Y-691	360
UCRL-3178	39	UR-399	249	Y-32	274	Y-697	275
UCRL-3179	339	UR-403	131	Y-42	243	Y-700	332
UCRL-3184	141	UR-404	131	Y-63	243	Y-703	262
UCRL-3185	141	UR-411	131	Y-87	247	Y-705	275
UCRL-3187	359	UR-414	131	Y-112	243	Y-734	339
UCRL-3190	134	UR-416	336	Y-149	262	Y-748	275
UCRL-3191	84	UR-417	249	Y-161	243	Y-762	332
UCRL-3195	339	UR-418	249	Y-164	274	Y-764	191
UCRL-3203	134	UR-421	250	Y-184	243	Y-817	191
UCRL-3208	84	UR-422	250	Y-226	197	Y-824	134
UCRL-3209	190	UR-423	250	Y-228	247	Y-825	332
UCRL-3210	136	UR-426	243	Y-242	274	Y-868	194
UCRL-3212	274	UR-427	336	Y-243	275	Y-958 (1953	
UCRL-3213	83	UR-428	250	Y-253	243	Suppl.)	85
UCRL-3215	136	UR-429	336	Y-286	243	Y-1052	134
UCRL-3218	274	UR-434	336	Y-287	244	Y-1087	83
						Y-1114	136



parts described below from LC, giving PB number of each part ordered.

Report no. 14 and 14a: Manual for use in the selection of stereoscopic range finder operators, by Henry A. Imus, Jun-Dec 1942. 66f diagsr. Mi \$3.90, enl pr \$12.30. PB 120794

This report presents a detailed manual of procedure for the selection of candidates to be trained as stereoscopic observers. The equipment and procedures described have been developed and used at Fort Monroe and Fort Eustace. In the practical application of procedures set forth in Report no. 14, certain changes were found to be advisable. These are in the supplementary report. Accompanied by supplement (Report no. 14a). OSRD 9346.

Report no. 15: Validation and standardization of tests used in the selection of stereoscopic rangefinder operators. Jul 1942. 68f graphs, tables. Mi \$3.90, enl pr \$12.30. PB 120797

Presents the findings of a study of tests which may be used for the selection of candidates for training as stereoscopic observers. It includes an analysis of some of the more important tests which did not show predictive value as well as those which were finally recommended for use by the Services. OSRD 9436.

Report no. 18: Training stereoscopic height finder observers. The relative effectiveness of the M1 height finder, the M2 trainer and the Eastman trainer. Jul 1942. 48f photos, diagsr, graphs, tables. Mi \$3.30, enl pr \$9.30. PB 120798

This report presents evidence that stereoscopic height finder observers can be trained effectively on instruments such as the M2 trainer or the Eastman trainer. OSRD 9432.

Human pilot, by R. G. E. Epple. Northrop Aircraft, Inc. Dept. of Mechanical Design. Servomechanisms Section. Aug 1954. 166p drawing, diagsr, graphs, tables. Order from OTS. \$4.25. PB 121073

This volume is intended to: (1) provide engineers who are responsible for the synthesis of flight control systems for piloted aircraft with a quantitative description of the characteristics of a human pilot viewed as a sensor and as an actuator; and (2) to present the approximate transfer functions which have been recently developed to describe human pilots engaged in simple tasks, and to present methods for simulating on an analog computer a pilot in a routine flying situation. Selected bibliography is appended. NAVAER AE-61-4 III.

PHOTOGRAPHIC AND OPTICAL GOODS

Part A. Forward angle scattering camera for the determination of particulate concentration of aerosols, by Victor K. La Mer and P. K. Lee. Part B. Investigation of particle size by differential settling, by Joseph Benedict and Guy G. Goyer. Columbia University. Central Aerosol Laboratories. Feb 1951. 39f photos, diagr, graphs, tables. Order from LC. Mi \$3, enl pr \$7.80. PB 122096

A forward angle scattering camera was constructed to photograph a confined aerosol stream of about 0.1 mm or smaller in thickness. This is described in Part A. Part B describes a new method of calculating particle size distribution of aerosols from settling data. Includes theory, limitations of method, modifications of apparatus, and experimental results. Progress report no. 5 for the period Dec 1, 1950-Feb 28, 1951 under Contract no. AF 19-(122)-164. Photos will not reproduce.

Ob odnom sposobe pulcheniia kratkovremennykh impul'sov sveta (Method of obtaining light impulses of short duration), by S. M. Raiskii and E. Ia. Pumper. Translated by David Kraus. Aug 1955. 8p diagr, graphs. Order from LC. Mi \$1.80, ph \$1.80. PB 119620

This article describes a simple mechanical apparatus that acts as an optical shutter for obtaining periodic groups of light impulses of short duration. The duration of the individual impulse may be as short as 10^{-7} sec. The time between two successive impulses is of that same order of magnitude. From Zhurnal tekhnicheskoi fiziki, Vol. 20, no. 7, pp. 822-24, 1950. Translated Oct 1952, revised Aug 1955, under Contract AF 19-(604)-1364.

Orientation of fixed camera to cover maximum length of straight line trajectory, by W. J. Berger. U. S. Air Force. Air Research and Development Command. Missile Test Center, Patrick Air Force Base, Fla. Aug 1955. 9p diagr. Order from LC. Mi \$1.80, ph \$1.80. PB 120308

This report develops formulae for the azimuth, elevation and roll angle-values such that a given fixed camera adjusted to these values will cover on its film-plate a maximum length of a given straight line trajectory measured from some specified point on the trajectory and onward along it. RCA reduction technical report no. 23. AF MTC TN 55-42.

Prospects for the use of impulse multigrid electron-optic tubes to record tracks of ionising particles in luminescent media, by G. A. Askar'yan. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 4p. Available for loan from AEC Depository Libraries. Photocopies at a fee.

PB 119956

Translated from Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki, Vol. 28, no. 5, pp. 626-627, 1955.

1. Tubes, Electron - Optical properties - Russia
2. Trajectories, Particle - Recording equipment - Russia
3. AERE Lib/Trans 588.

Some remarks on the Guinier-type X-ray focusing camera, by R. W. M. D'Eye. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Oct 1954. 16p photos, diags, table. Order from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. 63 cents plus mailing handling.

PB 120138

S. O. code no. 70-674-1-78.

1. X-rays - Diffraction - Analysis - Equipment - Gt. Brit.
2. X-rays - Cameras - Gt. Brit.
3. AERE C/R 1524.

PHYSICS

General

Asymptotic expansions, by A. Erdelyi. California Institute of Technology. Dept. of Mathematics, Pasadena, Calif. 1955. 112p diags. Order from LC. Mi \$6, ph \$18.30.

PB 120149

Chapter I of this report contains a brief introduction to the general theory of asymptotic expansions, and serves as the theoretical background for the main part of the report. In Chapter II, the most important methods for the asymptotic expansion of functions defined by definite integrals are developed. Double and multiple integrals are not included. The remaining two chapters are devoted to the asymptotic expansion of functions defined by ordinary linear and homogeneous differential equations of the second order. Technical report no. 3 under Contract no. Nonr-220(11).

Dynamic response in three dimensions of linear elastic structures to independent motions of multiple supports, by Ralph E. Blake and George J. O'Hara. U. S. Naval Research Laboratory. May 1956. 23p diagr. Order from OTS. 75 cents.

PB 121094

The equations of response of three-dimensional linear elastic structures, having rotational and

translational inertia, to dynamic loading by foundation motion, are derived by using only the mathematical methods which are familiar to most engineering graduates. The differential equations describing the response of the structure are seen to be similar to that of a simple oscillator subjected to similar foundation motions. Duhamel's integral is applied to determine the response to arbitrary motions in all directions of the multiple foundations. The case of steady-state vibrations due to continuous harmonic foundation motions in arbitrary directions for all the foundations as well as one foundation is investigated, and the equations of response derived. The general equation for stress at any point is shown, and an example of its use is followed through. NRL R 4739.

Experimental measurement of thermal conductivities, specific heats, and densities of metallic, transparent and protective materials. Battelle Memorial Institute, Columbus, Ohio. Contract AF 33(038)-2996. Project no. 1367, Task no. 61299. Order separate parts described below from OTS, giving PB number of each part ordered.

Part I, by C. F. Lucks, H. B. Thompson, A. R. Smith, F. P. Curry, H. W. Deem, G. F. Bing. Feb 1951. 136p drawings, graphs, tables (part fold). \$3.50.

PB 121289

Measurements have been made of the thermal conductivities of ten metals in the temperature range from about -160°C to about 950°C . Equipment has been assembled for measuring thermal conductivities of transparent solids, and preliminary measurements were made on one glass. An ice calorimeter and associated equipment has been assembled for measuring specific heats at high and low temperatures. The calorimeter has been calibrated electrically. Densities of ten metals, six glasses, and one plastic have been measured at 0°C and 50°C . Thermal-expansion measurements were made on the ten metals from -190°C to 1000°C , and from this, the densities in the same temperature range were calculated. A literature survey of methods and apparatus was carried out, and an extensive bibliography of the literature on thermal conductivity, thermal expansion, specific heat, and density was compiled. Appendix I. Bibliography on the thermal conductivity, specific heat, coefficient of thermal expansion, and density of certain materials. - Appendix II. Methods of calculating density and mean linear coefficient of thermal expansion. AF TR 6145, Part I.

Part II, by C. F. Lucks, G. F. Bing, J. Matolich, H. W. Deem and H. B. Thompson. Jul 1952. 39p diags, graphs, tables. \$1.

PB 121285

Measurements of the thermal conductivity of Plexiglas from -200° to 80°C . and Pyrex from 0° to 500°C . are reported. Specific-heat measurements from 0° to 850°C . have been made on K-Monel and Inconel. Density meas-

urements on seven transparent solids from -200°C. to their upper service temperature are reported. Room-temperature density measurements on three protective coatings have been made. AF TR 6145, Part II.

Part III, by C. F. Lucks, J. Matolich, J. A. Van Velzer. Mar 1954. 78p diags, graphs, tables. \$2. PB 121290

Measurements of the thermal conductivities of white (clear) plate glass, Solex 2808X plate glass, and Solex "S" plate glass from 150 to 450°C, and of clear fused silica (quartz) and Vycor from 150 to 800°C, are reported. AF TR 6145, Part III.

Flow on non-Newtonian fluids, correlation for the laminar, transition and turbulent flow regions. Technical report no. 1 for the period Nov 1953-Aug 1954 under Contract no. DA 36-034-ORD-1495, by A. B. Metzner and J. C. Reed, Delaware University, Newark, Del. 1954. 29p graphs (part fold.). Order from LC. M1 \$2.70, ph \$4.80. PB 119916

A clear physical understanding of the mechanics of non-Newtonian flow was felt to be a necessary pre-requisite to an orderly development of mixing and heat transfer theory. As a result of this fluid mechanics work, all available data on flow of non-Newtonians in pipes have been correlated on the conventional friction factor - Reynolds number plot for Newtonian fluids. This correlation, theoretically rigorous in the laminar flow region, has been tested with data on 16 different non-Newtonian materials covering the 2.1×10^5 range of Reynolds numbers from 6.0×10^{-5} to 1.3×10^5 . Dept. of the Army Project no.: 599-01-004. ORD Project no.: N22-001. OOR Project no.: 1074.

Fundamental studies of the adhesion of ice to solids, by Philip E. Berghausen, Robert J. Good, Gerard Kraus, Boris Podolsky and Walter Soller. Cincinnati University. Applied Science Research Laboratory, Cincinnati, Ohio. Feb 1955. 185p diags, graphs, tables. Order from OTS. \$4.75. PB 121047

A theory was developed by which, for the first time, the energy of adhesion between ice and a solid can be calculated directly from experimental data on heats of immersion and the integral heat of adsorption of water on the solids. The same theory also makes possible, for the first time, the calculation of the surface energy of solids, interfacial tensions and energies, and contact angles from data on the surface tensions and energies of the pure separate phases. A test of this theory using literature data on interfacial tensions and contact angles showed very good agreement between theory and experiment. A theory was developed by which the distribution of surface energies over a solid surface could be calculated from experimental data. Project no. 1111. AF WADC TR 55-44. Contract AF 33(616)-231.

General solution for one-dimensional nonsteady flow of a perfect gas, by W. H. Heybey. U. S. Naval Ordnance Laboratory, White Oak, Md. Sep 1951. 13p diagr. Order from LC. M1 \$2.40, ph \$3.30. PB 120869

A new general solution for one-dimensional nonsteady flow of a perfect gas is given involving integrals instead of differential quotients used exclusively heretofore. It is applied to two initial value problems. The formulas thus obtained are more convenient than those employed before in determining any particular solution. NAVORD 2210.

Linear programming, by Raoul J. Freeman. U. S. Aberdeen Proving Ground, Ballistic Research Laboratories, Aberdeen, Md. Oct 1955. 22p diagr. Order from LC. M1 \$2.70, ph \$4.80. PB 120237

The mathematical linear programming problem is described, and a "practical" explanation of the simplex method is provided. A numerical example is worked out to illustrate the technique. Other methods of solution are surveyed, and their relation to machine computation discussed. The practicability of putting such problems on Ordvac is taken up. A description of the transportation problem and a logical flow chart for its solution is presented. An extensive bibliography covering the literature of the field is appended. Dept. of the Army project no. 5B0306002. Ordnance research and development project no. TB3-0007. APG BRL R 955.

Monge-Ampere partial differential equation $rt-s^2+\lambda^2=0$, by M. H. Martin. U. S. Naval Ordnance Laboratory, White Oak, Md. May 1951. 25p. Order from LC. M1 \$2.70, ph \$4.80. PB 120870

1. Equations, Differential 2. Shock waves - Theory 3. NAVORD 2201.

Note on linear ordinary differential equations, by Stephen P. Diliberto. Institute for Advanced Study, Princeton, N. J. Jun 1955. 4p. Order from LC. M1 \$1.80, ph \$1.80. PB 119939

Project no. R-354-10-60.
1. Equations, Differential - Linear 2. AF OSR TN 55-171 3. Contract AF 18(600)-1109.

On the theory of a non steady radiation field I, by V. V. Sobolev. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply, Atomic Energy Research Establishment. 1955. 14p tables. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119300

Translated from *Astronomicheskii Zhurnal*, Vol. 29, no. 4, pp. 406-417, 1952.
1. Astrophysics - Theory - Russia 2. Cosmic radiation - Theory - Russia 3. AERE Lib/Trans 610.

On the variational principles of elasticity and plasticity, by K. Washizu. Massachusetts Institute of Technology. Aeroelastic and Structures Research Laboratory. Mar 1955. 152p diagrs. Order from LC. Mi \$7.50, ph \$24.30.

PB 119782

Discusses variational principles in the solution of problems in elasticity and plasticity, including minimum potential energy, curvilinear coordinates, thin shells, deformation, initial stresses or strains, flow, thermal stresses, eigenvalue problems, component structures. Contract N5 ori-07833, NR 064-259. MIT ASRL TR 25-18.

Optimal test length for maximum absolute prediction, by Paul Horst. Washington University, Seattle, Wash. Feb 1955. 19p tables. Order from LC. Mi \$2.40, ph \$3.30.

PB 119580

The report is divided into 3 parts: I. The problem, II. numerical example, and III mathematical derivation. Computation tables and formulas are given. Contract Nonr-477(08).

Perforated sheets as a porous material for distributed suction and injection, by Robert E. Dannenberg, Bruno J. Gambuccl, and James A. Weiberg. U. S. National Advisory Committee for Aeronautics. Apr 1956. 26p photos, graphs. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C.

PB 120408

Measurements were made of the resistance to air flow through a series of perforated metal sheets with open areas ranging from less than 1 percent up to 41 percent. The use of punch-perforated sheets as a porous material for boundary-layer-control applications by means of distributed suction is discussed. NACA TN 3669.

Shift and shape of spectral lines, by R. B. Breene, Jr. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Geophysics Research Directorate, Cambridge, Mass. Sep 1955. 366p diagrs, graphs, tables. Order from OTS. \$7.

PB 121241

The present work aims to gather together, organize, and present all major theoretical work which has been done on this problem through the year 1953. AF CRC TR 55-214. AF GRD P 41.

Solid-state model for detonations, by Ransom B. Parlin and J. Calvin Giddings. Utah. University. Institute for the Study of Rate Processes, Salt Lake City, Utah. Jan 1955. 22p graphs, table. Order from LC. Mi \$2.70, ph \$4.80.

PB 120146

Calculated and observed detonation velocities of picric acid, PETN, Tetryl, and RDX explosives.

Contract N7 onr-45103, Proj no. NR 051-192. UU ISRP TR 16.

Some aspects of three-dimensional boundary layer flows, by R. Sedney. U. S. Aberdeen Proving Ground. Ballistic Research Laboratories, Aberdeen, Md. Sep 1955. 20p diagrs. Order from LC. Mi \$2.40, ph \$3.30.

PB 120234

The equations for laminar boundary layer flow over a general surface in three-dimensions are analyzed in a normal coordinate system. The invariance properties of these equations are found using the concept of subtensors. The boundary layer equations are not tensor equations but subtensor equations. Conditions for the Cartesian form of the equations are given and a criterion for no secondary flow is found in terms of the geodesics of the body surface. The displacement effect of the boundary layer is also discussed. Dept. of the Army project no. 5B03-03-001. Ordnance research and development project no. TB3-0108. APG BRL R 962.

Stability in the numerical solution of initial value problems in partial differential equations, by R. P. Eddy. U. S. Naval Ordnance Laboratory, White Oak, Md. Oct 1949. 20f diagrs, table. Order from LC. Mi \$2.40, enl pr \$4.80.

PB 120545

This memorandum uses a new approach to derive simple criteria for determining whether a given procedure is stable. Although the present theory is based upon the theory of difference equations with constant coefficients, the results may be applied, with caution, to equations with variable coefficients provided the latter are approximately constant in a sufficiently small region. NOL M 10232.

Structure of magnetohydrodynamic shocks, by W. Marshall. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Jul 1955. 40p graphs, tables. Available for loan from AEC Depository Libraries. Photocopies at a fee.

PB 119973

1. Shock waves - Mathematical analysis - Gt. Brit.
2. Shock waves - Structure - Gt. Brit. 3. AERE T/R 1718.

Study of finite difference approximations to a fourth order parabolic differential equation, by S. D. Conte and W. C. Royster. U. S. Aberdeen Proving Ground. Ballistic Research Laboratories, Aberdeen, Md. Oct 1955. 20p. Order from LC. Mi \$2.40, ph \$3.30.

PB 120235

This report is divided into two parts. In Part I the problem of the vibrating rod hinged at both ends is considered. The differential equation is replaced by two finite difference equations, one explicit and one implicit. The explicit represen-

tation is shown to be stable for values of the mesh ratio $r = \Delta t (\Delta x)^2 \leq \frac{1}{2}$ while the implicit representation is shown to be stable for all values of the mesh ratio. Convergence of the solution of the finite difference equations to the solution of the differential equation is established in both cases. In Part II a computational procedure is set up for solving the implicit finite difference problem given in Part I. The numerical procedure described is applicable to the problem of the vibrating rod under any combination of boundary conditions. Dept. of the Army project no. 5B0306002. Ordnance research and development project no. TB3-0007. APG BRL R 959.

Study of the impact of a sphere on a semi-infinite slab for use in drop-tower analysis, by Alfred A. Loeb, U. S. Picatinny Arsenal. Samuel Feltman Ammunition Laboratories, Dover, N. J. Jul 1955. 45p diags, graphs, tables. Order from LC. M1 \$3.30, ph \$7.80. PB 119942

The object of this study was to develop a theoretical solution of the problems involved in the impact of a sphere on a horizontal surface, applicable to the description of events which occur in a drop tower impact to test the ability of ammunition and ammunition components to endure set-back forces, and to compare these theoretical findings with the results of actual drop tower tests, modifying them to agree with such test results. Ordnance project TA1-2707. Dept. of the Army project 505-01-003Z. Appendix A. Explanation of symbols. - Appendix B. Generalized impact theory. - Appendix C. Drop spring test. PA TR 2173.

Study of the numerical solution of partial differential equations, by George G. O'Brien, Morton A. Hyman, and Sidney Kaplan. U. S. Naval Ordnance Laboratory, White Oak, Md. Jan 1949. 31f graphs, tables. Order from LC. M1 \$3, enl pr \$7.80. PB 120544

1. Equations, Differential 2. Mathematical equations and solutions 3. NOL M 10433.

Tables of cumulative binomial probabilities. Change no. 2. U. S. Ordnance Corps. Apr 1956. 51p tables. Order from OTS. \$1.50. PB 111389s

Pages 578-626, as added by this change, give cumulative binomial probabilities for sample sizes $n=1(1)150$ and changes of occurrence in a single trial, $p = .001(.001).010$, for ready reference in binomial form or for various applications where the order of accuracy indicated in the table is desired in preference to the Poisson approximation to the binomial. Supplement to PB 111389. See PB 111389 for subject entries. ORD P 20-1, Change no. 2.

Technique for the analysis of time-varying sampled-data systems, by Bernard Friedland. Columbia University. Dept. of Electrical Engi-

neering. Electronics Research Laboratories. Sep 1955. 24p diags, graphs, table. Order from LC. M1 \$2.70, ph \$4.80. PB 120301

A method of analyzing time-varying sampled-data systems is developed in this paper. It is shown that the input-output relation for a component of such systems may be regarded as a matrix equation. The relations for combinations of elements are developed, from which the transmission matrix for an entire system can be found by the simple operations of matrix multiplication and solution of linear algebraic equations. A numerical example illustrating the technique is given. A method for improving the performance of a sampled-data feedback system by means of a time-varying amplifier is given as a further illustration of the technique. A numerical example is given. Technical report T-10/B under Contract AF 18(800)-677. CU-16-55-AF-677-EE. Project no. R-357-50-3. AF CSR TN 56-4. CUN ERL TR T-10/B.

Theoretical aspects of limit control, by Nicholas J. Rose. Stevens Institute of Technology. Experimental Towing Tank, Hoboken, N. J. Nov 1953. 67f diags, graphs. Order from LC. M1 \$3.90, enl pr \$12.30. PB 120803

This study is concerned with a minimum problem associated with a linear differential equation containing a discontinuous forcing term. The problem arises physically in the design of an automatic control system for optimum performance. E.T.T. project EA 1403. Contract Nonr-26302. S.L.T. ETT 459.

Theory of plastic plates, by W. Prager. Brown University. Division of Applied Mathematics, Providence, R. I. Jan 1955. 24p diags, graphs, tables. Order from OTS. 75 cents. PB 111943

While the bending of beams has been studied extensively, little has been done on plasticity of thin plates until the last few years. The present report is a convenient introduction to the study of the work presented in greater detail in a number of recent papers and reports, some of which are not readily accessible. The problems discussed in this paper concern circular plates under rotationally symmetric conditions of loading and support. GDAM A11-120/22. GDAM TR 120. Contract N7 onr-35801, T. O. I, NR 041-406.

Über die instabilität von methoden zur integration gewöhnlicher differentialgleichungen (On the instability of methods for the integration of ordinary differential equations), by Heinz Rufishhauser. Translated by Mary L. Mahler. Apr 1956. 15p tables. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120259

The author gives some examples and a criterion for stability of integration methods. This criterion is

then applied to some well-known integration formulas. Translated from Zeitschrift für Angewandte Mathematik und Physik, vol. 3, 1952, p. 65-74. NACA TM 1403.

Nuclear

Atomic energy, a jump towards a richer life.

Translated by J. Rundo. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment, 1955. 5p. Available for loan from AEC Depository Libraries. Photocopies at a fee.

PB 119288

Translated from Politikens Ugeblad for Danske i Ulandet no. 26, 26.6.55 to 2.7.55.

1. Atomic power - Research - Denmark 2. AERE Lib/Trans 601.

Determination of equivalent and molecular weight by potentiometric microtitration in non-aqueous solvents,

by Hans Brockmann and Ernst Meyer. Translated by F. Hudswell. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment, 1955. 14p drawing, graphs. Available for loan from AEC Depository Libraries. Photocopies at a fee.

PB 119309

Translated from Chemische Berichte, Vol. 86, no. 12, pp. 1514-1522, 1953.

1. Atomic power - Research - Germany 2. Molecular weights - Determination - Germany 3. Equivalent weights - Determination - Germany 4. AERE Lib/Trans 528.

Diffusion coefficients in copper under fast neutron irradiation,

by W. M. Lomer. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment, Dec 1954. 15p graphs, table. Order from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. 45 cents plus mailing handling.

PB 120129

S. O. code no. 91-3-1-81.

1. Atomic power - Research - Gt. Brit. 2. Copper - Diffusion - Gt. Brit. 3. AERE T/R 1540.

Diffusion of noble-gas fission products in uranium,

by K. E. Zimen and P. Schmeling. Translated by F. Hudswell. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment, 1955. 5p graphs, table. Available for loan from AEC Depository Libraries. Photocopies at a fee.

PB 119987

Translated from Zeitschrift für Elektrochemie, vol. 85, no. 8, pp. 599-601, 1954.

1. Atomic power - Research - Germany 2. Xenon - Diffusion - Germany 3. Uranium - Fission products - Germany 4. AERE Lib/Trans 584.

Final report covering the period 1 Mar 1946-31

Mar 1955 under Contract N6 ori-48, T. O. I.
Indiana. University. Dept. of Physics, Bloomington, Ind. Mar 1955. 30p. Order from LC. Mi \$2.70, ph \$4.80. PB 119918

The task order contemplates: a) the study of energy levels revealed by decay of naturally and artificially radioactive nuclei; b) the study of energy levels revealed by instantaneous reactions induced by cyclotron bombardment; c) the design, development, construction, and operation of nuclear spectrometers and other instruments pertinent to such studies; and d) theoretical considerations of nuclear structure. Reports resulting from this contract and published in various periodicals are listed, with tables of contents. Contract N6 ori-48, T. O. I.

Fine structure of the paramagnetic resonance spectrum of the Cr⁺⁺⁺ ion in chromium corundum,

by A. A. Manenkov and A. M. Prokhorov. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment, 1955. 3p. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119966

Translated from Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki, Vol. 28, no. 6, p. 762, 1955.
1. Atomic power - Research - Russia 2. Resonance, Paramagnetic - Russia 3. Chromium-corundum alloys - Crystal structure - Russia 4. AERE Lib/Trans 625.

Formation of π^0 mesons at hydrogen and deuterium by neutrons of energy 400 MeV,

by B. M. Pontekorvo and G. I. Selivanov. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment, 1955. 4p. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119286

Translated from Doklady Akademii Nauk S.S.S.R., Vol. 102, no. 3, pp. 495-7, 1955.

1. Atomic power - Research - Russia 2. Mesotrons - Formation - Russia 3. AERE Lib/Trans 599.

Formation of π^0 mesons by neutrons,

by B. M. Pontekorvo and G. I. Selivanov. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment, 1955. 7p diagr, graphs, tables. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119954

Translated from Doklady Akademii Nauk S.S.S.R., Vol. 102, no. 2, pp. 253-6, 1955.

1. Atomic power - Research - Russia 2. Mesotrons - Formation - Russia 3. AERE Lib/Trans 583.

Magnetic fields in turbulent plasmas, by P. W. Schilling and W. Lochte-Holtgreven. Translated by R. J. Richardson. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 13p photos, drawing, diags, graphs. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119958

Translated from Zeitschrift für Naturforschung, Vol. 9a, part 6, pp. 520-526, 1954.
1. Atomic power - Research - Germany 2. Plasma, Electron - Magnetic fields - Germany 3. AERE Lib/Trans 533.

On spontaneous fission of thorium, by A. V. Podgurskaya, V. I. Kalashnikova, G. A. Stolyarov, E. D. Vorob'ev, and G. N. Flerov. Translated by V. Beak. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 5p tables. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119304

Translated from Zhurnal Eksperimentalnoi i Teoreticheskoi Fiziki, Vol. 28, no. 4, pp. 503-505, 1955.
1. Atomic power - Research - Russia 2. Thorium - Fission, Spontaneous - Russia 3. AERE Lib/Trans 569.

One-group perturbation theory for a cylindrical reacting core, by J. Codd. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 11p. Order from: British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. 36 cents. PB 119985

Date of manuscript 23 Jun 1954. S. O. code no. 91-3-2-30.
1. Atomic power - Research - Gt. Brit. 2. Reactors, Neutron - Flux distribution - Gt. Brit. 3. Perturbation - Theory - Gt. Brit. 4. AERE RP/M 45.

Second isotope of lutetium and the magnetic moment and quadrupole moment of the nucleus of

¹⁷⁵Lu 71, by H. Gollnow. Translated by F. Hudswell. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 12p graphs, tables. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119305

Translated from Zeitschrift für Physik, Vol. 103, pp. 443-453, 1936.
1. Atomic power - Research - Germany 2. Isotopes - Nuclear properties - Germany 3. Lutetium - Isotopes - Germany 4. AERE Lib/Trans 570.

Stochastic method of accelerating particles, by E. L. Burshtein, V. I. Veksler and A. A. Kolomen'skii. Translated by J. B. Sykes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Oct 1955. 4p. Available for loan

from AEC Depository Libraries. Photocopies at a fee. PB 119302

Translated from Some Problems in the Theory of Cyclical Accelerators, U.S.S.R., Academy of Sciences, Moscow, 1955, pp. 3-6.
1. Atomic power - Research - Russia 2. Accelerators, Cyclical - Theory - Russia 3. Particles - Acceleration - Theory - Russia 4. AERE Lib/Trans 623.

Study of diffusion in the interior and along the boundaries of metal grains by the method of autoradiography, by S. Z. Bokshtein, S. T. Kishkin, L. M. Moroz, and T. I. Gudkova. Translated by V. Beak. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1955. 5p photos, graphs. Available for loan from AEC Depository Libraries. Photocopies at a fee. PB 119992

Translated from Doklady Akademii Nauk U.S.S.R., vol. 102, no. 1, pp. 73-75, 1955.
1. Atomic power - Research - Russia 2. Diffusion, Grain boundary - Russia 3. Autoradiography - Russia 4. AERE Lib/Trans 627.

Theory of the scattering of fast charged particles, by Gert Moliere, translated by F. Hudswell. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Request loan from AEC Depository Libraries (Photocopies at a fee), giving AERE series number for each part requested, or PB number for photocopies from LC.

I. Single scattering by the shielded Coulomb field. 1955. 23p diagr, graphs, table. PB 119959

Translated from Zeitschrift für Naturforschung, Vol. 2A, no. 3, pp. 133-145, 1947.
1. Atomic power - Research - Germany 2. Particles, Charged - Scattering - Theory - Germany 3. Coulomb functions - Germany 4. AERE Lib/Trans 594.

II. Repeated and multiple scattering. 1955. 34p graphs, tables. PB 119991

Translated from Zeitschrift für Naturforschung, vol. 3a, no. 2, pp. 78-97, 1948.
1. Atomic power - Research - Germany 2. Particles, Charged - Scattering - Theory - Germany 3. AERE Lib/Trans 626.

PHYSIOLOGY

Space requirements of the seated operator. Geometrical, kinematic, and mechanical aspects of the body with special reference to the limbs, by Wilfred Taylor Dempster. Michigan, University.

Engineering Research Institute, Ann Arbor, Mich. Jul 1955. 271p photos, drawings, diagrs, graphs, tables. Order from OTS. \$3.50.

PB 121053

The structure of the limb joints and the range and type of their motions were studied on cadaver material, with supplementary work on living subjects, in order to clarify geometric, kinematic and engineering aspects of the limb mechanism. Plans for the construction of manikin joints which showed normal ranges of limb movement were developed from this information. Specifications were also worked out for drafting board manikins which show correct limb ranges for seated postures. Subjects comparable to the model physique of Air Force flying personnel and highly selected small samples of muscular, thin, and rotund builds supplied information on the range of possible hand and foot movements which was consistent with the seated posture. Maximum dimensions of the work space for seated individuals were determined; a study of the kinematic factors involved permitted an evaluation of the potential utility of different regions within reach. Project no. 7214. AF WADC TR 55-159. Contract AF 18(600)-43.

PSYCHOLOGY

Experiments on leadership in small groups, by Richard Snyder, John R. P. French, Jr., and Arthur J. Hoehn. U. S. Air Force. Air Research and Development Command. Air Force Personnel and Training Research Center. Training Aids Research Laboratory, Chanute Air Force Base, Ill. Jan 1955. 52p diagrs, tables. Order from LC. M1 \$3.60, ph \$9.30. PB 120307

Two laboratory-type experiments were conducted. One of them, the group judgment experiment, concerned the influence of NCOs on airman judgments or opinions; the other, the card-sorting experiment, dealt with NCO influence on airman productivity. Thirty-six groups were studied, each group consisting of an NCO and three airmen serving under him. AF PTRC TN 55-1.

Reduction of sex differences in problem solving by improvement of attitude through group discussion, by Gloria L. Carey. Stanford University. Dept. of Psychology, Stanford, Calif. Mar 1955. 51p tables. Order from LC. M1 \$3.60, ph \$9.30. PB 120030

The main experiment was designed to answer questions as to whether an attempt to change attitude will be followed by a change in performance, and whether women will respond more favorably than men to an attempt to improve their attitudes. Two forms of an attitude scale were constructed by the Likert procedure. Technical reports and journal articles available from the

program of research on thinking are listed. Technical report no. 9 under Contract N6 onr-25125, NR 150-149.

Study of conditions affecting cooperation. Annual technical report no. 3 for the period Feb 16, 1954-Feb 15, 1955 under Contract no. Nonr 285-(10), by Morton Deutsch. New York University. Research Center for Human Relations. Mar 1955. 36p diagr. Order from LC. M1 \$3, ph \$6.30. PB 119924

The studies, in general, fall into two phases: Phase I studies dealt with a variety of factors which are related to the initiation of cooperation; Phase II studies are more specifically concerned with the relationship between trust and cooperation. For report no. 2 see PB 116346. See also PB 119157 (this may be report no. 1).

RUBBER AND RUBBER PRODUCTS

Evaluation of high temperature hydraulic seals, by Edward A. Webster. Douglas Aircraft Co., Inc., Santa Monica, Calif. Jan 1955. 107p photos, drawings (1 fold), graphs, tables (1 fold). Order from LC. M1 \$5.70, ph \$16.80. PB 120264

The investigation included determinations of temperature limitations of approved AN6227 O-rings and AN6246 leather back-up rings, comparative qualification tests of all currently available experimental high temperature O-ring materials, evaluations of various vendor and contractor-furnished experimental seal configurations designed for both standard and non-standard packing glands, and tests of back-up materials and configurations suitable for high temperature use. Additional comparative tests were also conducted on certain approved AN6227 and experimental high temperature materials to establish relative endurance characteristics at various temperatures. Project task no. 1371-13495. AF WADC TR 55-120. Contract AF 33(616)-236.

Ozone-cracking of synthetic and natural rubber sheet materials, by A. Baker and A. J. Woods. Gt. Brit. Royal Aircraft Establishment, Farnborough, England. Apr 1949. 10p photos, diagrs. Order from LC. M1 \$1.80, ph \$1.80. PB 120155

In a study of ozone-cracking of synthetic and natural rubber sheet materials, samples of neoprene GN, perbunan, hycar OR, and natural rubber were exposed to air when ozone concentration was of the order of 100 times that normally present in the atmospheres. It was found that the effect of plasticizer in promoting the cracking of stressed synthetic rubbers by ozone is significant, though not as great as the effect caused by the variations in the chemical nature of the rubbers. Neoprene

GN was more ozone resistant than the other rubbers tested. The extent of cracking depends on the time of exposure to ozone, as well as on its concentration. A proposed specification test method for assessing ozone resistance of rubbers is described. RAE TN Chem 1093.

Reinforcement of silicone rubber with carbon black, by Aldo J. deFrancesco. Connecticut Hard Rubber Co., New Haven, Conn. Feb 1956. 33p tables. Order from OTS. \$1. PB 121231

The silicone polymer, Linde W-96, when filled with various carbon blacks, was successfully cured to form a firm, well-reinforced rubber. Not all carbon blacks, however, are satisfactory. In general, an optimum loading of most acetylene and furnace blacks can be used. Channel blacks severely retarded the cure, and efforts were made to prevent this effect. Project no. 7340, Task no. 73405. Covers work from 1 Mar to 1 Jul 1955 under Contract AF 33(616)-2542. AF WADC TR 55-439.

STRUCTURAL ENGINEERING

Accuracy of the substitute-stringer approach for determining the bending frequencies of multi-stringer box beams, by William W. Davenport. U. S. National Advisory Committee for Aeronautics. Apr 1956. 28p diags, graphs. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120409

The accuracy of the substitute-stringer approach for including the effects of shear lag in the calculation of the transverse modes and frequencies of multistringers box beams is investigated. Box beams, the covers of which consist of normal-stress-carrying stringers on sheets which carry not only shear but also normal stress, are analyzed exactly. Frequencies of beams with various numbers of stringers, obtained by means of this exact analysis, serve to determine the possible accuracy of the frequencies obtained by the substitute-stringer approach. NACA TN 3636.

Permanent buckling of sheet-stringer panels at elevated temperatures, by Robert A. Needham. California. University. Dept. of Engineering, Los Angeles, Calif. Jul 1953. 37p graphs, table. Order from LC. Mi \$3, ph \$6.30. PB 120272

A method of predicting permanent buckling stresses of sheet-stringer panels at elevated temperatures is presented. A relation between the stiffener strain and the maximum combined strain at the center line of an axially loaded sheet-stringer panel is obtained. A method of obtaining elevated temperature stress-strain diagrams,

based on the Ramberg-Osgood approximation, is also presented. It is assumed here that the shape of the knee of the stress-strain diagram is not affected by temperature increases. AF WADC TR 53-209, Contract AF 33(616)-293.

TEXTILES AND TEXTILE PRODUCTS

Aerodynamic heating of parachute ribbons, by Louis C. Block. Lowell Technological Institute Research Foundation, Lowell, Mass. Nov 1955. 59p photos, drawings, graphs, tables. Order from OTS. \$1.50. PB 121150

A theoretical evaluation of the expected temperature rise of these ribbons in high velocity flight was carried out. Wind tunnel tests were subsequently performed on the basic ribbon and ribbons of modified design. The results showed that the experimental values of the heat transfer coefficient agreed very well with the theoretical values. Changes in ribbon design and ribbon material did not effect an improvement to the heat transfer characteristics of the basic sample. Project no. 7320. Covers work conducted from Mar 1952 to Mar 1954 under Contract AF 18(600)-136. AF WADC TR 54-572.

Development of wool-synthetic blended fabrics for summer flight garments, by George O. Langlais and Samuel L. Fuller. Lowell Technological Institute Research Foundation, Lowell, Mass. Jan 1956. 76p diags, graphs, tables. Order from OTS. \$2. PB 121153

A survey of worsted manufacturers was conducted to obtain commercially available blend fabrics that approximated the basic requirements. The results of tests performed on the fabrics obtained were considered in subsequent design and manufacture. Identically constructed fabrics composed of blends of nylon, dacron, orlon, and dynel (each blended at 15%, 30%, and 60%) with wool and an all-wool control were produced; these were tested and compared with respect to fabric properties. Particular emphasis on the flame-resistance characteristics, specifically centered on the degree of melting and "dripping" after ignition, indicated of major consequence in the establishment of this program, led to the selection of the final fabric, a 70% wool-30% dynel fabric. Project no. 7320, Task no. 73202. Covers work conducted from Sep 1954 to Mar 1955 under Contract AF 33(600)-25892. AF WADC TR 55-83.

Effect of fabric structure on the frictional fusion of parachute materials, by Vasilis Lavrakas. Lowell Technological Institute Research Foundation, Lowell, Mass. Aug 1955. 19p photo, diagr, tables. Order from OTS. 50 cents. PB 121142

The effect of fabric structure, yarn twist, calendaring, and fabric weight on the resistance to fusion of parachute cloth has been studied. A belt friction apparatus, used in lubrication investigations, has also been utilized in this study. The parameters of fabric structure, yarn twist, calendaring, and fabric weight have been found to be significant in the resistance of parachute cloth to friction. Project no. 7320, Task no. 73201. Covers work conducted from Mar 1954 to Mar 1955 under Contract AF 18(600)-136. AF WADC TR 54-570.

marking ink would increase or speed up the degradation of the materials. Project no. 7320. Covers work from Dec 1954 to Dec 1955. AF WADC TR 56-15.

TRANSPORTATION EQUIPMENT

Aeronautics

Aircraft

Effect of surface finishes on friction and fusion of parachute cloth and line, by Vasilis Lavrakas and Adolph Katz. Lowell Technological Institute Research Foundation, Lowell, Mass. Contract AF 18(600)-136. Project no. 7320, Task no. 73201. Order separate parts described below from OTS, giving PB number of each part ordered.

Part I. Dec 1955. 149p diagsr, photos, graphs, tables. \$3.75. PB 121186

An attempt to find lubricating agents which would minimize or prevent the fusion of nylon parachute materials caused by frictional heat was the main objective of this program. A friction apparatus, based on the belt friction principle, was developed to evaluate lubricating materials. Many lubricants were examined and ten were classed as highly effective in preventing fusion. In addition, nylon parachute line coated with these best lubricants was further subjected to breaking strength, fungus resistance, and aging tests. No one lubricant was determined to be superior in all respects. Covers work conducted from Mar 1952 to Mar 1955. AF WADC TR 54-323, Part 1.

Part II. Oct 1955. 53p photos, diagsr, graphs. \$1.50. PB 121254

Effect of speed on fusion and friction was investigated. High molecular weight fatty acids, alcohols, and monoesters were investigated. Molecular weight was found to be an important factor in the phenomenon of fusion and lubrication. Anionic, cationic, and nonionic lubricants were also studied. Covers work conducted from Jan 1952 to Dec 1954. AF WADC TR 54-323, Part 2.

Effects of gamma radiation on textile materials, by Joyce McGrath and R. H. Johnson. U. S. Air Force. Air Research and Development Command. Wright Air Development Center. Materials Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Feb 1956. 33p photo, diagr, graphs, tables. Order from OTS. \$1. PB 121206

The primary purpose of this investigation was to obtain data on the effect that exposure to high energy gamma radiation, for specific periods of time, would have on various parachute textile materials, also to determine if the use of parachute

Engineering study of air conditioning load requirements for aircraft compartments, by W. L. Torgeson, H. C. Johnson, and N. B. Wright, Jr. Research, Inc. Jun 1955. 177p drawings, diagsr, graphs, tables. Order from OTS. \$4.50.

PB 121139

This report is concerned with the development and presentation of methods for determining the thermal air conditioning requirements of aircraft compartments. The methods of analysis are given in a simplified form suitable for routine calculations, with graphical presentation of much of the information needed for computation of heating or cooling loads. Important design factors are discussed in detail. A procedure for estimating transient heating effects in high speed flight is included. Project no. 6146. AF WADC TR 55-254. Contract AF 33(616)-2261.

Measurement and analysis of wing and tail buffeting loads on a fighter airplane, by Wilber B. Huston and T. H. Skopinski. U. S. National Advisory Committee for Aeronautics. 1955. 29p photo, diagsr, graphs, tables. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C. 30 cents. PB 120123

Supersedes TN 3080 (PB 114129).

1. Airplanes, Fighter - Aerodynamics 2. Airplanes, Fighter - Loads - Measurement 3. Tail surfaces - Loads 4. Loads, Structural - Dynamic tests 5. Wings - Loading 6. NACA 1219 7. NACA TN 3080 Revised.

Study of the prediction of the position of a flying aircraft, by Eugene F. Grant. U. S. Air Materiel Command. Cambridge Field Station. Special Studies Laboratory. Mar 1949. 25f diagr, graph. Order from LC. MI \$2.70, enl pr \$6.30. PB 120789

This report considers the prediction of the future rectangular coordinate position from the present and past information of the coordinate position. The theory of prediction and filtering of the single stationary time series developed by Norbert

Wiener is used for this development. However, only the present and past of the x-coordinate is used in predicting the future x-coordinate and similarly for the y- and z-coordinate. AF CRL E 5042.

Instruments

Evaluation of the TACAN system, by Richard C. Borden, Thomas S. Wonnell, Robert B. Flint, Samuel L. Kades and John R. Hoffman. U. S. Civil Aeronautics Administration, Technical Development Center, Indianapolis, Ind. May 1956. 47p photo, diags, graphs, tables. Order from OTS. \$1.25. PB 121229

TACAN is a military short-range system of tactical air navigation, proposed as a replacement for VOR/DME. This evaluation revealed that both systems supply identical information, have similar siting errors, and that TACAN is not suitable for civilian use, is impractical for use in small aircraft, and that the propagation characteristics of its frequency band are not reliable for that service. CAA TDR 261.

Engines and Propellers

Design charts for axial-flow compressors having constant rotor work distribution over the blade span, by Robert E. Hunter. U. S. Air Force, Air Research and Development Command, Wright Air Development Center, Aeronautical Research Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Apr 1953. 32p fold graphs. Order from LC. Mi \$3, ph \$6.30. PB 120297

This technical report attempts to provide a means of shortening the compressor design procedure through the use of charts. To facilitate a more rapid procedure, the charts are restricted in application to constant rotor work axial-flow compressors. The design charts give the relationships between the mean radius velocity triangle and compressor performance and dimensions. Ranges are established for the variables to include all normal design problems and also to rule out almost immediately all impractical solutions. AF WADC TR 53-152.

Some effects of guide-vane turning and stators on the rotating stall characteristics of a high hub-tip ratio single-stage compressor, by Eleanor L. Costilow and Merle C. Huppert. U. S. National Advisory Committee for Aeronautics. Apr 1956. 52p photos, drawing, diags, graphs, tables. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120411

1. Compressors, Axial - Flow 2. Compressors - Stalling - Research 3. NACA TN 3711.

Aerodynamic heating and heat transfer for airfoils at Mach numbers of 2.74 through 5.7, by A. E. Abramson, W. L. Torgeson and J. A. Zdravil. Research, Inc. Apr 1955. 156p photos, drawings, diags, graphs, tables. Order from OTS. \$4. PB 121045

This report gives the results of a theoretical study and experimental determination of recovery factors and heat transfer coefficients for three basic airfoils over a Mach number range from 2.74 to 5.7. The three airfoils considered were the double wedge, biconvex, and modified ellipse. The heat transfer coefficients were determined for a constant surface temperature. Experimental recovery factors and heat transfer coefficients are presented in this report for each airfoil over the range of conditions given above. The application of the results to a design problem is illustrated by a sample calculation. AF WADC TR 55-252. Contract AF 33(616)-391. Project no. 1367.

Analysis of a spin and recovery from time histories of attitudes and velocities as determined for a dynamic model of a contemporary fighter airplane in the free-spinning tunnel, by Stanley H. Scher. U. S. National Advisory Committee for Aeronautics. Apr 1956. 54p photos, drawings, diags, graphs, tables. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120248

1. Airplanes - Spinning - Recovery 2. Airplanes - Spinning - Wind tunnel tests 3. NACA TN 3611.

Analysis of estimated and experimental transonic downwash characteristics as affected by plan form and thickness for wing and wing-fuselage configurations, by Joseph Weil, George S. Campbell and Margaret S. Diederich. U. S. National Advisory Committee for Aeronautics. Apr 1956. 92p photos, drawing, diags, graphs, tables. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120407

Supersedes RM L52I22.

1. Mach number - Effect 2. Wings - Downwash 3. NACA TN 3628.

Analysis of the ultimate strength and optimum proportions of multiweb wing structures, by B. Walter Rosen. U. S. National Advisory Committee for Aeronautics. Mar 1956. 34p drawings, graphs, tables. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120112

Originally a thesis submitted to Virginia Polytechnic Institute.

1. Beams, Structural - Bending 2. Webs - Stresses 3. Wings - Design 4. Wings - Stability 5. NACA TN 3633.

Annual report, 40th, 1954. Administrative report including Technical reports no. 1158 to 1209. U. S. National Advisory Committee for Aeronautics. 1956. 1216p photos, drawings, diags, graphs, tables. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C. \$8.50. PB 122118

1. Aeronautical research 2. Aeronautics - Yearbooks 3. NACA 1158-1209.

Annual report, 41st, 1955. Administrative report without technical reports. U. S. National Advisory Committee for Aeronautics. 1955. 74p. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C. 50 cents. PB 119914

1. Aeronautics - Yearbooks 2. Aeronautical research.

Calculations of the rate of thermal dissociation of air behind normal shock waves at Mach numbers of 10, 12, and 14, by George P. Wood. U. S. National Advisory Committee for Aeronautics. Apr 1956. 40p diags, tables. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120250

1. Mach number - Effect 2. Flow, Supersonic - Theory 3. Air - Thermal dissociation 4. NACA TN 3634.

Determination of lateral-stability derivatives and transfer-function coefficients from frequency-response data for lateral motions, by James J. Donegan, Samuel W. Robinson, Jr., and Ordway B. Gates, Jr. U. S. National Advisory Committee for Aeronautics. 1955. 19p graphs, tables. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C. 25 cents. PB 120127

Supersedes NACA TN 3083 (PB 114130).

1. Stability, Lateral - Theory 2. Equations of motion 3. NACA 1225 4. NACA TN 3083 Revised.

Effect of ground interference on the aerodynamic and flow characteristics of a 42° sweptback wing at Reynolds numbers up to 6.8×10^6 , by G. Chester Furlong and Thomas V. Bollech. U. S. National Advisory Committee for Aeronautics. 1955. 62p photos, drawings, diags, graphs, table. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C. 45 cents. PB 120122

Supersedes NACA RM L8G22 and TN 2487 (PB 105281).

1. Wings, Sweptback - Aerodynamics 2. Wings, Ground effect 3. NACA TN 487 Revised 4. NACA 1218.

Investigation of a multiple-source schlieren system for application to a perforated wall wind tunnel, by M. Pindzola and G. R. Mozer. U. S. Air Force. Air Research and Development Command, Arnold Engineering Development Center, Tullahoma, Tenn. Apr 1956. 25p photos, diags, tables. Order from OTS. 75 cents. PB 111910

Visibility equations are derived showing the influence of geometrical parameters on the schlieren photograph background pattern for first one and then two tunnel walls. A uniformly illuminated background pattern is shown to be easily attained with a single perforated wall, but not with two identically perforated walls. A method for obtaining a uniformly illuminated background pattern for the two-wall case by relocating the holes in one perforated tunnel wall is discussed. The use of an external source plate is shown to increase system sensitivity at no sacrifice in background pattern. The multiple-source schlieren system is also shown to be useful with transparent walls where the conventional system is unsatisfactory. AF AEDC-TR-56-1.

Method for the design of sweptback wings warped to produce specified flight characteristics at supersonic speeds, by Warren A. Tucker. U. S. National Advisory Committee for Aeronautics. 1955. 19p diags, graphs, table. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C. 20 cents. PB 120128

1. Wings, Sweptback - Design 2. Wings, Sweptback - Theory 3. Flow, Supersonic - Theory 4. Mach number - Effect 5. NACA 1226.

NOL hypersonic tunnel no. 4, results VII: Experimental investigation of turbulent boundary layers in hypersonic flow, by R. Kenneth Lobb, Eva M. Winkler and Jerome Persh. U. S. Naval Ordnance Laboratory, White Oak, Md. Mar 1955. 48p graphs, tables. Order from LC. Mi \$3.30, ph \$7.80. PB 120871

Naturally turbulent boundary layers on the wall of a wedge-type water-cooled nozzle in the NOL 12 x 12 cm hypersonic tunnel no. 4 have been investigated at Mach numbers of 5.0 to 8.2 with and without steady state heat transfer to the surface. The Reynolds number based on boundary layer momentum thickness was varied from 5,000 to 13,000. Measurements of pitot and static pressures, total and wall temperatures, and rates of heat transfer made it possible to compute velocity profiles, temperature profiles, and boundary layer parameters without resorting to any assumptions. NAVORD 3880.

Prediction of wing loads due to gusts including aeroelastic effects. Midwest Research Institute, Kansas City, Mo. Contract W-33-038-ac-14868. Order separate parts described below from LC, giving PB number of each part ordered.

Part 1: Formulation of the method, by H. Goland, Y. L. Luke and E. A. Kann, Jul 1947. 98p graphs, tables. M1 \$5.40, ph \$15.30. PB 120352

A method is formulated for predicting the wing load encountered by high performance aircraft when flying through gusts. Particular attention is given to the effect of aeroelastic characteristics of the wing on the gust loads, including the effects of the wing flutter mode. An analytical procedure is established, which can be used during the design stages to determine the airworthiness of a particular design for flight during gust weather. The mechanism of the response of an aircraft due to flight through gusts is explored in detail, with particular attention centered on the coupling effects between the various degrees of freedom. AF TR 5706.

Part II: Design procedure, by H. Goland and V. L. Luke. Jan 1949. 58p graphs, tables. M1 \$3.60, ph \$9.30. PB 120351

Conclusions of Part I are summarized and the procedure for carrying out practical gust load analysis is described. To illustrate the procedure, the case of an aircraft with a critical bending-torsion flutter mode is studied in detail. Sample calculations are given. AF TR 5751.

Preliminary study of some factors which affect the stall-flutter characteristics of thin wings, by A. Gerald Rainey. U. S. National Advisory Committee for Aeronautics, Mar 1956. 33p graphs. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120107

1. Wings - Aspect ratio 2. Wings - Stalling - Research 3. Wings - Flutter 4. Mach number - Effect 5. Reynolds number - Effect 6. NACA TN 3622.

Results of a flight investigation to determine the zero-lift drag characteristics of a 60° delta wing with NACA 65-006 airfoil section and various double-wedge sections at Mach numbers from 0.7 to 1.6, by Clement J. Welsh. U. S. National Advisory Committee for Aeronautics, Apr 1956. 13p photo, drawing, graphs. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120405

Supersedes RM L50F01.
1. Wings, Triangular - Drag 2. Mach number - Effect 3. NACA TN 3650.

Some effects of fuselage flexibility on longitudinal stability and control, by Bernard B. Klawans and Harold I. Johnson. U. S. National Advisory Committee for Aeronautics, Apr 1956. 42p diagrs,

graphs, table. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120246

1. Stability, Longitudinal - Effect of fuselage
2. NACA TN 3543.

Theoretical prediction of pressure distributions on nonlifting airfoils at high subsonic speeds, by John R. Spreiter and Alberta Alksne. U. S. National Advisory Committee for Aeronautics, 1955. 45p photos, diagrs, graphs. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C. 40 cents. PB 120121

Supersedes NACA TN 3096 (PB 113615).
1. Wing theory 2. Flow, Transonic - Theory 3. Airfoils, Circular-arc - Nonlifting - Pressure distribution 4. Velocity, Sonic - Theory 5. Flow, Mixed - Theory 6. NACA 1217 7. NACA TN 3096 Revised.

Theoretical study of the aerodynamics of slender cruciform-wing arrangements and their wakes, by John R. Spreiter and Alvin H. Sacks. U. S. National Advisory Committee for Aeronautics, Mar 1956. 68p photos, diagrs, graphs, tables. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 119852

1. Wings, Cruciform - Aerodynamics 2. NACA TN 3528.

Theoretical study of the tunnel-boundary lift interference due to slotted walls in the presence of the trailing-vortex system of a lifting model, by Clarence W. Matthews. U. S. National Advisory Committee for Aeronautics, 1955. 21p diagrs, graphs. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C. 25 cents. PB 120124

Supersedes NACA RM L53A26.
1. Wind tunnels - Interference 2. NACA 1221.

Wind-tunnel investigation of effects of fuselage cross-sectional shape, fuselage bend, and vertical-tail size on directional characteristics of non-overlap-type helicopter fuselage models without rotors, by James L. Williams. U. S. National Advisory Committee for Aeronautics, Mar 1956. 39p photos, drawings, graphs. Order from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 120114

1. Helicopters - Stability - Effect of fuselage
2. Helicopters - Stability - Effect of tail 3. Fuselages - Shape - Effects 4. Helicopters - Wind tunnel tests 4. NACA TN 3645.

Marine Transportation

Investigation of turbulence beneath a destroyer, by E. B. Stephenson and W. F. Curtis, U. S. Naval Research Laboratory, Dec 1937, 17p drawing, graphs, table. Order from LC. MI \$2.40, ph \$3.30. PB 120384

A pitot tube device designed to be attached in place of the projector in an underwater sound installation was used to measure the depth and intensity of the turbulences beneath the sound wells on the U. S. S. SEMMES, NRL S-1413.

Military standard: Mechanical vibrations of ship-board equipment, U. S. Bureau of Ships, Dec 1954, 15p graphs, tables. Order from LC. MI \$2.40, ph \$3.30. PB 120074

Supersedes MIL-T-17113 (Ships) (in part) 25 Jul 1952.

1. Ships - Machinery - Vibration - Specifications
2. MIL STD 167 (Ships).

Oceanographic vessels in the United States, U. S. Office of Naval Research, Geophysics Branch, Apr 1953, 179f photos. Order from LC. MI \$8.10, enl pr \$28.80. PB 120802

The report consists of photographs and a tabulation of the various characteristics and equipment of the ships employed in oceanographic research.

Production of pressure waves in water by nonexplosive means, by George Mackas, Joseph F. Vogl and Robert F. Mead, U. S. Naval Ordnance Laboratory, White Oak, Md. Apr 1953, 84p photos, drawings, diagrs, graphs, tables. Order from LC. MI \$4.80, ph \$13.80. PB 120807

The object is to design and construct a laboratory machine to produce the same shock waves and bubble pulses that depth charges produce in the ocean. The machine is to be used for countermine testing of small underwater equipment and ordnance components. An experimental model of the machine is described. The preliminary design of a larger machine, accommodating test specimens up to 12 inches diameter is described. NAVORD 2479.

Report on low visibility camouflage of submarines: Tests at sea, of Jun and Jul 1937, by E. O. Hulburt and Charles Bittinger, U. S. Naval Research Laboratory, Nov 1937, 15p photos. Order from LC. MI \$2.40, ph \$3.30. PB 120382

Photos will not reproduce.

1. Submarines - Camouflage
2. NRL H-1409.

MISCELLANEOUS

Administration of medical and pharmaceutical patents, by Archie M. Palmer, National Re-

search Council, Mar 1955, 72p. Order from Office of Patent Policy Survey, National Academy of Sciences - National Research Council, 2101 Constitution Ave., N. W., Washington 25, D. C. \$2. PB 120345

Interpretive analysis of the policies, practices, procedures and experiences of medical schools and colleges of pharmacy in the United States and Canada in administering medical and pharmaceutical patents; verbatim statements of formalized patent policies; descriptions of generally accepted practices. NRC 375.

Report of NRL progress, U. S. Naval Research Laboratory, Jun 1956, 48p. Order from OTS. \$1.25. PB 121280

For earlier reports see PB 111994-111995, 121029, 121095. Contents: Articles: Detector of radioactive airborne particles for the Nautilus, by J. I. Hoover, C. M. Gordon, C. F. Dohne, and R. C. Waddel. - Utilization of tactical information in air defense: Preliminary study, by D. F. Wilson. - Scattering and attenuation of microwave radiation through rain, by F. T. Haddock. - Scientific program: Problem notes: Astronomy and astrophysics: A radio frequency search for interstellar and atmospheric OH....Second prototype Navy Aerobee-Hi firing....Atmospheric radioactivity studies planned for the IGY....Sea trials of drifting buoy-type automatic weather stations. - Chemistry: Thin films of Teflon as lubricants and preservative coatings for metals....Electrolytic generation of oxygen without the accompanying generation of hydrogen....Empirical relationship between vibration and electro-negativity of the substituent atoms or radicals for a variety of compounds. - Electricity: Magnetic arbitrary waveform generator. - Mechanics: Onset of fast crack propagation in high-strength steel and aluminum alloys....A study of the birefringence of hot-stretched polymethyl methacrylate....Evaluation of medium-weight and lightweight high-impact shock machines. - Metallurgy and ceramics: The determination of hydrogen in steel....Effects of various atmospheres on the creep-rupture properties of several classes of high-temperature alloys....Effect of geometry on the properties of 195-T6 and 356-T6 aluminum alloy castings....The influence of low-melting metals on the second stage graphitization of malleable irons....Barium titanate raw material purity. - Nuclear and atomic physics: Techniques for using fissionable deposits in neutron measurements....Status of the NRL nuclear research reactor. - Radio: Low-noise 215-Mc to 225-Mc converter....Amplification of plasma waves by an electron beam....Electronic components and materials studies--the optical absorption spectra of natural and synthetic quartz crystals. - Solid-state physics: An abstract model for a ferromagnet....The ferromagnetic saturation and remanence of Beta-uranium hydride at low temperatures. - Sound: "Digiter" prints automatically the acoustic level of a sonar signal in decibels. - Published reports. - Papers by NRL staff members. - Patents.

SELECTED LIST OF ATOMIC ENERGY REPORTS OF INTEREST TO INDUSTRY

The following Atomic Energy reports are listed here because of their interest and usefulness to general industry.

Reports may be purchased in accordance with instructions on the inside front cover of the U. S. GOVERNMENT RESEARCH REPORTS. As PB numbers are not indicated, order by series and number. These reports may also be consulted at any AEC Depository Library. A list of these libraries may be obtained from the U. S. Department of Commerce, Office of Technical Services, Washington 25, D. C.

Reproduction in whole or part of any report listed herein is encouraged by the U. S. Atomic Energy Commission, subject to the approval of authors or originating sites. General inquiries from the industrial press about AEC-developed information should be directed to the Industrial Information Branch, Atomic Energy Commission, Washington 25, D. C.

Biology and Medicine

Study of atmospheric contamination in the Melt Plant building, by F. E. Adley, W. E. Gill, and R. H. Scott. Hanford Works, Richland, Washington. Apr 1952. Decl. Dec 1955. Contract W-31-109-eng-52. 94p. Order from OTS. 50 cents. HW-23352(Rev.)

Agricultural research program. Semi-annual progress report for July 1, 1955 to December 31, 1955. Univ. of Tenn., Knoxville, Tenn. May 1956. 129p. Order from OTS. 65 cents.

ORO-150

Chemistry and Chemical Engineering

Electrolytic reduction of uranyl and ferric sulfate solutions, by Wilfred Freyberger. Mineral Engineering Lab. Massachusetts Inst. of Tech., Watertown, Mass. May 1950. Decl. Dec 1955. Contract W-7405-eng-85. 11p. Order from OTS. 20 cents. AECD-4101

Electrolytic precipitation of uranium from Rand leach solutions, by Galen W. Clevenger. Mineral Engineering Lab. Massachusetts Inst. of Tech., Watertown, Mass. Feb 1951. Decl. Dec 1955. Contracts W-7405-eng-85, AT-1-30-gen-211, AT(49-1)-533. 20p. Order from OTS. 20 cents. AECD-4105

Alpha counting for the assay of uranium in ion exchange effluents, by Emilia M. Rubino. Mineral Engineering Lab. Massachusetts Inst. of Tech., Watertown, Mass. Feb 1951. Decl. Dec 1955. Contracts W-7405-eng-85, AT-30-1-gen-211. 17p. Order from OTS. 20 cents. AECD-4106

Removal of uranium from Rand leach liquors with anion exchange resins. Part V. Further studies on process X solutions, by Norman N. Schiff. Mineral Engineering Lab. Massachusetts Inst. of Tech., Watertown, Mass. Mar 1951. Decl. Dec 1955. Contract AT-30-1-gen-211. 10p. Order from OTS. 15 cents. AECD-4108

Systematic ion exchange studies, by George W. Lower. Mineral Engineering Lab. Massachusetts Inst. of Tech., Watertown, Mass. Feb 1951. Decl. Dec 1955. Contracts W-7405-eng-85, AT-1-30-gen-211, and AT(49-1)-533. 24p. Order from OTS. 25 cents. AECD-4113

Corrosion studies pertinent to bromine trifluoride processes, by J. G. Schnizlein, R. K. Steunenberg, and R. C. Vogel. Argonne National Laboratory. Apr 1956. Contract W-31-109-eng-38. 27p. Order from OTS. 35 cents. ANL-5557

Chemical process to recover uranium from phosphate rock, by E. F. Stephan, L. T. Hendrix, and Iver Igelsrud. Battelle Memorial Inst., Columbus, Ohio. Jan 1948. Decl. Mar 1956. Contract W-38-094-eng-27. 22p. Order from OTS. 20 cents. BMI-JDS-100

Recovery of uranium from shales, by A. E. Bearse, J. Chocholak, R. F. Devine, S. J. Kiehl, Jr., and D. D. Rabb. Battelle Memorial Inst., Columbus, Ohio. Jan 1948. Decl. Mar 1956. Contract AT-30-1-gen-202. 25p. Order from OTS. 25 cents. BMI-JDS-101

Chemical process to recover uranium from phosphate rock, by Iver Igelsrud, E. F. Stephan, John Chocholak, C. M. Schwartz, and A. E. Austin. Battelle Memorial Inst., Columbus, Ohio. Jun 1948. Decl. Mar 1956. Contract W-38-094-eng-27. 29p. Order from OTS. 25 cents. BMI-JDS-126

Organic precipitants and complexing agents for uranium, by E. J. Kahler, G. W. Kinzer, G. A. Lutz, R. H. Poirier, and A. E. Bearse. Battelle Memorial Inst., Columbus, Ohio. Jun 1948. Decl. Mar 1956. Contract AT-30-1-gen-202. 32p. Order from OTS. 25 cents. BMI-JDS-127

Recovery of uranium from shales, by A. E. Bearse, R. F. Devine, R. A. Ewing, J. F. Foster, and S. J. Kiehl, Jr. Battelle Memorial Inst., Columbus, Ohio. Jun 1948. Decl. Mar 1956. Contract

- AT-30-1-gen-202. 72p. Order from OTS.
45 cents. BMI-JDS-130
- Vanadium in steelmaking, present and future. Survey report, by Hugo E. Johnson. Battelle Memorial Inst., Columbus, Ohio. Aug 1948. Contract AT-30-1-gen-258. 57p. Order from OTS.
40 cents. BMI-JDS-136
- Organic precipitants and complexing agents for uranium, by A. E. Bearse, E. J. Kahler, G. W. Kinzer, G. A. Lutz, and R. H. Poirier. Battelle Memorial Inst., Columbus, Ohio. Oct 1948. Decl. Mar 1956. Contract AT-30-1-gen-202. 27p. Order from OTS. 25 cents. BMI-JDS-146
- Recovery of uranium from shales, by A. E. Bearse, R. A. Ewing, S. Calvert, C. G. Cichocki, R. F. Devine, S. J. Kiehl, Jr., F. W. Miles, and R. Q. Wilson. Battelle Memorial Inst., Columbus, Ohio. Dec 1948. Decl. Mar 1956. Contract AT-30-1-gen-202. 68p. Order from OTS. 40 cents.
BMI-JDS-156
- The recovery of uranium from carnotite ores. Final report, by A. C. Richardson, F. M. Stephens, Jr., D. D. Rabb, R. C. Merritt, and R. D. Kesler. Battelle Memorial Inst., Columbus, Ohio. Jun 1949. Contract AT-30-1-gen-258. 111p. Order from OTS. 60 cents.
BMI-JDS-195
- The radiation chemistry of homogeneous reactor systems, III. Homogeneous catalysis of the hydrogen-oxygen reaction, by H. F. McDuffie, E. L. Compere, H. H. Stone, L. F. Woo, and C. H. Secoy. Oak Ridge National Lab., Oak Ridge, Tenn. Jan 1954. Decl. Feb 1956. Contract W-7405-eng-26. 44p. Order from OTS.
30 cents. CF-54-1-122
- An all-over spot test, by V. I. Montenyohl. E. I. du Pont de Nemours & Co. Savannah River Lab. Mar 1956. Contract AT(07-2)-1. 8p. Order from OTS. 10 cents. DP-151
- Semi-annual summary research report in chemistry for July - December, 1955, by Ames Laboratory Staff. Ames Lab. Iowa State Coll. Mar 1956. Contract W-7405-eng-82. 60p. Order from OTS. 40 cents. ESC-706
- Static pressure due to sodium-water reactions in closed vessels, by W. S. Horton. Knolls Atomic Power Lab., Schenectady, N. Y. Mar 1952. Decl. Dec 1955. Contract W-31-109-eng-52. 16p. Order from OTS. 20 cents. KAPL-722
- The determination of free acid in solutions of aluminum and thorium and uranyl nitrates, by M. E. Jones, B. F. Rider, and H. C. Hendrickson. Knolls Atomic Power Lab., Schenectady, N. Y. Feb 1956. Contract W-31-109-eng-52. 20p. Order from OTS. 20 cents. KAPL-1497
- Purification of gram amounts of americium, by J. S. Coleman and others. Los Alamos Scientific Lab. Univ. of Calif., Los Alamos, N. Mex. Nov 1955. Contract W-7405-eng-36. 39p. Order from OTS. 30 cents. LA-1975
- The exchange reaction between substituted benzyl iodides and potassium iodide, VI. p-Bromobenzyl iodide, by Milton Kahn and J. L. Riebsomer. Los Alamos Scientific Lab. Univ. of New Mexico, Albuquerque, N. Mex. Mar 1956. 8p. Order from OTS. 15 cents. LA-2017UNM
- Attrition scrubbing of western carnotite and roscoelite ores, by Edmund G. Brown. Mineral Engineering Lab. Massachusetts Inst. of Tech., Watertown, Mass. Mar 1949. Decl. Mar 1956. Contract AT-30-1-gen-211. 43p. Order from OTS. 30 cents. MITG-212
- Radioassay of products from precipitated phosphatic materials, by Emilia M. Rubino. Mineral Engineering Lab. Massachusetts Inst. of Tech., Watertown, Mass. Sep 1949. Decl. Jan 1956. Contract AT-30-1-gen-211. 21p. Order from OTS. 25 cents. MITG-220
- Air oxidation of uranous solutions, by James H. Pannell. Mineral Engineering Lab. Massachusetts Inst. of Tech., Watertown, Mass. Dec 1950. Decl. Jan 1956. Contract AT-30-1-gen-211. 22p. Order from OTS. 20 cents. MITG-261
- The leaching of uranium from insoluble hydroxides by a carbonate treatment, by Eugene J. Michal. Mineral Engineering Lab. Massachusetts Inst. of Tech., Watertown, Mass. Sep 1948. Decl. Apr 1956. Contract W-7405-eng-85. 28p. Order from OTS. 25 cents. MITG-A51
- Precipitation of uranium by organic compounds, by Sara E. Bailey. Mineral Engineering Lab. Massachusetts Inst. of Tech., Watertown, Mass. Dec 1948. Decl. Apr 1956. Contract W-7405-eng-85. 28p. Order from OTS. 25 cents. MITG-A52
- Pyrochemical separations methods: I. The distribution of plutonium and long-lived fission products between molten irradiated uranium fuel.

- and fused inorganic fluorides, by Archie G. Buyers. North American Aviation, Inc., Downey, Calif. Mar 1955. Decl. Dec 1955. Contract AT-11-1-gen-8. 29p. Order from OTS. 25 cents. NAA-SR-1157
- A rapid and precise method for the determination of oxygen in certain gases: Modified Brady method, by Louis Silverman and Wanda Bradshaw. Atomics International. Division of North American Aviation, Inc., Canoga Park, Calif. May 1956. Contract AT-11-1-gen-8. 30p. Order from OTS. 25 cents. NAA-SR-1488
- Determination of uranium 235 by neutron activation, by J. E. Hudgens and R. C. Meyer. New Brunswick Lab. Apr 1956. 21p. Order from OTS. 25 cents. NBL-126
- Semiannual progress report for the period July 1955 through December 1955, by C. J. Rodden. New Brunswick Lab. May 1956. 26p. Order from OTS. 25 cents. NBL-127
- The electrolytic preparation of small quantities of alkali metals, by P. S. Baker, G. F. Wells, and W. R. Rathkamp. Oak Ridge National Lab., Oak Ridge, Tenn. Jan 1953. Decl. Nov 1955. Contract W-7405-eng-26. 15p. Order from OTS. 20 cents. ORNL-1468
- Recovery of uranium as a single product from the Florida leached zone, by C. F. Coleman. Oak Ridge National Lab., Oak Ridge, Tenn. Mar 1953. Decl. Mar 1956. Contract W-7405-eng-26. 131p. Order from OTS. 65 cents. ORNL-1500
- The optical properties of ten metal cupferrates, by W. S. Turnley. The Dow Chemical Co. Rocky Flats Plant, Denver, Colo. Jan 1955. Issued Feb 1956. Contract AT(29-1)-1106. 18p. Order from OTS. 20 cents. RFP-55
- Raw materials conference on solvent extraction, held at Winchester, Massachusetts, January 17-18, 1955, by Arthur M. Ross. Raw Materials Development Lab. National Lead Company, Inc., Winchester, Mass. Apr 1955. Decl. Dec 1955. 72p. Order from OTS. 40 cents. TID-7508
- The microdetermination of methyl groups attached to carbon, by Vazken H. Tashinian, Mary Jane Baker, and Charles W. Koch. Univ. of Calif. Rad. Lab., Berkeley, Calif. Feb 1956. Contract W-7405-eng-48. 30p. Order from OTS. 25 cents. UCRL-3310
- The radiolysis products from ethyl alcohol; effect of total energy input on the radiolysis products, by Amos S. Newton and W. R. McDonell. Univ. of Calif. Rad. Lab., Berkeley, Calif. Feb 1956. Contract W-7405-eng-48. 9p. Order from OTS. 15 cents. UCRL-3317
- Thioctic acid: Physics, Chemistry, and Biology, by Melvin Calvin. Univ. of Calif. Rad. Lab., Berkeley, Calif. Apr 1956. Contract W-7405-eng-48. 30p. Order from OTS. 25 cents. UCRL-3338
- Heats of formation of refractory silicides, by Leo Brewer and Oscar Krikorian. Univ. of Calif. Rad. Lab., Berkeley, Calif. Mar 1956. Contract W-7405-eng-48. 10p. Order from OTS. 15 cents. UCRL-3352
- Vacuum flow of gases through channels with circular, annular, and rectangular cross sections, (thesis), by Walter Dong. Univ. of Calif. Rad. Lab., Berkeley, Calif. Apr 1956. Contract W-7405-eng-48. 118p. Order from OTS. 60 cents. UCRL-3353
- Thermal decomposition of pyruvic acid and its esters leading to CO₂, by H. M. Frey. Univ. of Calif. Rad. Lab., Berkeley, Calif. Apr 1956. Contract W-7405-eng-48. 6p. Order from OTS. 10 cents. UCRL-3358

Engineering

- Thermal stress in the ISHR pressure vessel, by I. Spiewak. Oak Ridge National Lab., Oak Ridge, Tenn. Oct 1952. Decl. Dec 1955. Contract W-7405-eng-26. 10p. Order from OTS. 15 cents. CF-52-10-81
- Free convection in the reactor pool. (Revised), by N. F. Lansing. Oak Ridge National Lab., Oak Ridge, Tenn. Apr 1954. Contract W-7405-eng-26. 33p. Order from OTS. 30 cents. CF-54-4-170
- The rheology of thorium oxide slurries. Report no. 1, by P. R. Crowley and D. G. Thomas. Oak Ridge National Lab., Oak Ridge, Tenn. Apr 1955. Decl. Feb 1956. Contract W-7405-eng-26. 17p. Order from OTS. 20 cents. CF-55-4-182
- A parametric study of rate of power removal from homogeneous boiling reactors, by L. G. Alexander and S. Jaye. Oak Ridge National Lab., Oak Ridge, Tenn. Sep 1955. Contract W-7405-eng-26. 14p. Order from OTS. 20 cents. CF-55-9-172

HRP-CP: Heat removal from a proposed hydro-clone underflow pot geometry for a volume heat source, by P. A. Haas and J. K. Langsdon. Oak Ridge National Lab., Oak Ridge, Tenn. Oct 1955. Contract W-7405-eng-26. 17p. Order from OTS. 20 cents. CF-55-10-7

HRT space cooler heat load, by F. C. Zapp. Oak Ridge National Lab., Oak Ridge, Tenn. Oct 1955. Contract W-7405-eng-26. 7p. Order from OTS. 15 cents. CF-55-10-17

Stainless steel university reactor, by W. E. Kinney. Oak Ridge National Lab., Oak Ridge, Tenn. Oct 1954. Decl. Nov 1955. 8p. Order from OTS. 15 cents. CF-54-10-176

HRP-CP: Design of leak detection system for HRT chemical processing plant, by William L. Carter. Oak Ridge National Lab., Oak Ridge, Tenn. Dec 1955. Contract W-7405-eng-26. 13p. Order from OTS. 20 cents. CF-55-12-113

Semi-annual summary research report in engineering for July - December, 1955, by Ames Laboratory Staff. Ames Lab. Iowa State College. Feb 1956. Contract W-7405-eng-82. 22p. Order from OTS. 20 cents. ISC-710

Effect of irradiation on weldability of ASTM A212, grade B, by Wendell R. Hutchinson. Bettis Plant, Pittsburgh, Pa. Feb 1956. Contract AT-11-1-gen-14. 32p. Order from OTS. 25 cents. WAPD-153

Health and Safety

Twelve-month postexposure survey on Marshallese exposed to fallout radiation, by E. P. Cronkite, C. L. Dunham, David Griffin, S. D. McPherson, and Kent T. Woodward. Brookhaven National Lab. Aug 1955. 14p. Order from OTS. 15 cents. BNL-384(T-71)

Determination of plutonium in urine, by S. Marshall Sanders, Jr. E. I. du Pont de Nemours & Co. Savannah River Lab. Mar 1956. Contract AT(07-2)-1. 12p. Order from OTS. 15 cents. DP-146

A review of a polonium contamination problem, by Dixon Callihan and Don Ross. Oak Ridge National Lab., Oak Ridge, Tenn. Aug 1952. Decl. Mar 1956. Contract W-7405-eng-26. 15p. Order from OTS. 20 cents. ORNL-1381(Rev.)

Body composition from fluid spaces and density: Analysis of methods, by William E. Sirl. Univ.

of Calif. Rad. Lab., Berkeley, Calif. Mar 1956. Contract W-7405-eng-48. 33p. Order from OTS. 30 cents. UCRL-3349

The problem of synthetic lethals in drosophila melanogaster, by Phillip E. Hildreth. Univ. of Calif. Rad. Lab., Berkeley, Calif. Mar 1956. Contract W-7405-eng-48. 23p. Order from OTS. 20 cents. UCRL-3350

California cattle thyroid activity associated with fallout: 1955, by Margaret R. White and Ernest L. Dobson. Univ. of Calif. Rad. Lab., Berkeley, Calif. Mar 1956. Contract W-7405-eng-48. 14p. Order from OTS. 20 cents. UCRL-3355

Medical and health physics quarterly report January, February, March 1956. Univ. of Calif. Rad. Lab., Berkeley, Calif. Apr 1956. Contract W-7405-eng-48. 18p. Order from OTS. 20 cents. UCRL-3386

Long-term sequelae of massive doses of iodine-131. I. Histopathological findings, by C. Willet Asling, Muriel E. Johnston, Patricia W. Durbin, and Joseph G. Hamilton. Univ. of Calif. Rad. Lab., Berkeley, Calif. Apr 1956. Contract W-7405-eng-48. 16p. Order from OTS. 20 cents. UCRL-3398

Instrumentation

Low geometry attachment for methane flow proportional alpha counter, by M. J. Rose. Monsanto Chemical Co., Dayton, Ohio. Oct 1947. Decl. Nov 1955. 17p. Order from OTS. 20 cents. AECD-4058

The development of a thermal-neutron-flux measuring instrument, by Charles K. Smith, C. Vernon Weaver, Joel W. Chastain, and Sherwood L. Fawcett. Battelle Memorial Institute, Columbus, Ohio. Apr 1956. Contract W-7405-eng-92. 15p. Order from OTS. 20 cents. BMI-1083

A wire-activation technique for reactor-flux-profile measurements, by Alton E. Klickman, George W. Cunningham, Joel W. Chastain, Donald L. Keller, and Sherwood L. Fawcett. Battelle Memorial Institute, Columbus, Ohio. Apr 1956. Contract W-7405-eng-92. 20p. Order from OTS. 25 cents. BMI-1086

A two-group reactor card program for a small digital computer, by John Lamarsh and Stuart S. Rideout. Brookhaven National Lab. May 1956. 30p. Order from OTS. 25 cents. BNL-378(T-69)

Gamma-ray neutron dosimetry of the biology neutron irradiation facility, by J. S. Handloser and N. Delibas. Brookhaven National Lab. Nov 1955. 16p. Order from OTS. 15 cents.
BNL-386(T-72)

An explosion-resistant ion chamber for the measurement of tritium, by F. D. Ryder. E. I. du Pont de Nemours & Co. Savannah River Lab. Mar 1956. Contract AT(07-2)-1. 12p. Order from OTS. 15 cents.
DP-150

Radiation probes for alpha monitoring, by R. C. Smith. Oak Ridge Gaseous Diffusion Plant. Union Carbide Nuclear Co., Oak Ridge, Tenn. Jun 1956. Contract W-7405-eng-26. 77p. Order from OTS. 45 cents.
K-1286

Scintillation gamma alarm, by H. L. Miller. The Dow Chemical Co. Rocky Flats Plant, Denver, Colo. May 1955. Contract AT(29-1)-1106. 24p. Order from OTS. 25 cents.
RFP-61

Use of the wire loop in locating the orbital surface of a cyclotron field, by Glen R. Lambertson. Univ. of Calif. Rad. Lab., Berkeley, Calif. Mar 1956. Contract W-7405-eng-48. 9p. Order from OTS. 15 cents.
UCRL-3366

Metallurgy and Ceramics

Deep hole drilling of hot-pressed beryllium metal, by J. E. Cunningham. Oak Ridge National Lab., Oak Ridge, Tenn. Apr 1950. Decl. Nov 1955. Contract W-7405-eng-26. 4p. Order from OTS. 10 cents.
AECD-3722

Welding of thick plates of Bureau of Mines zirconium, by D. C. Martin, R. D. Williams, and C. B. Voldrich. Battelle Memorial Inst., Columbus, Ohio. Jul 1950. Decl. Nov 1955. Contract W-7405-eng-92. 42p. Order from OTS. 30 cents.
AECD-3863

The production of high-purity beryllium carbide, by J. G. Theodore, W. W. Beaver, A. Dolance, and A. J. Stonehouse. Brush Beryllium Co., Cleveland, Ohio. Oct 1952. Decl. Dec 1955. Contract AT(30-1)-541. 20p. Order from OTS. 20 cents.
AECD-4144

Notched-bar impact testing of uranium, by S. J. Paprocki and H. A. Saller. Battelle Memorial Inst., Columbus, Ohio. Jun 1952. Decl. Nov 1955. Contract W-7405-eng-92. 18p. Order from OTS. 20 cents.
BMI-753

Phase relations in the uranium-zirconium-oxygen systems involving zirconium and uranium dioxide, by Henry A. Saller, Frank A. Rough, Joseph M. Fackelmann, Arthur A. Bauer, J. Robert Doig. Battelle Memorial Inst., Columbus, Ohio. Jul 1955. Decl. Apr 1956. Contract W-7405-eng-92. 27p. Order from OTS. 25 cents.
BMI-1023

Effect of sodium-potassium alloy on various materials at elevated temperatures, by LeRoy R. Kelman. Argonne National Lab., Lemont, Ill. Dec 1946. Decl. Dec 1955. Contract W-31-109-eng-38. 26p. Order from OTS. 25 cents.
CT-3726

Thermal electromotive force of uranium, titanium, and zirconium, by L. L. Wyman and J. F. Bradley. Knolls Atomic Power Lab., Schenectady, N. Y. Dec 1952. Decl. Nov 1955. Contract W-31-109-eng-52. 20p. Order from OTS. 20 cents.
KAPL-852

X-ray measurement of annealed samples of damage graphite, by D. R. Chipman and B. E. Warren. Knolls Atomic Power Lab., Schenectady, N. Y. Jan 1956. Contract W-31-109-eng-52. Sub-contract AT(30-3)-49. 16p. Order from OTS. 20 cents.
KAPL-1493

Low temperature dilatometry of uranium, by Henry L. Laquer and Adam F. Schuch. Los Alamos Scientific Lab., Los Alamos, N. Mex. Jan 1952. Decl. Apr 1956. Contract W-7405-eng-36. 14p. Order from OTS. 15 cents.
LAMS-1358

Some empirical-theoretical considerations of uranium nitride in zirconium, by Bernard Kopelman. Sylvania Electric Products, Inc., Bayside, N. Y. Dec 1949. Decl. Mar 1956. Contract AT-30-1-gen-366. 17p. Order from OTS. 20 cents.
SEP-32

Dilatometric studies of zirconium and zirconium-tin alloys between 25° and 1100°C, by R. W. Balluffi, R. Resnick, and A. J. Timper. Metallurgical Lab. Sylvania Electric Products, Inc., Bayside, N. Y. Jun 1952. Decl. Nov 1955. Contract AT-1-30-gen-366. 12p. Order from OTS. 15 cents.
SEP-90

Investigation of the powder metallurgy of thorium. Part I, by W. G. Lidman and T. Weissman. Atomic Energy Division, Sylvania Electric Products, Inc., Bayside, N. Y. Dec 1953. Decl. Jan 1956. 25p. Order from OTS. 25 cents.
SEP-138

Evaluation of Horizons, Inc. Th metal powder.
Progress report no. 1 for February 18, 1954--
March 4, 1954, by R. B. Wagner. Atomic Energy
Division, Sylvania Electric Products, Inc.,
Bayside, N. Y. Mar 1954. Decl. Jan 1956. Con-
tract AT-30-1-gen-366. 11p. Order from OTS.
15 cents. TID-5274

Mechanical properties evaluation of zircaloy-3, by
F. Forscher. Bettis Plant, Pittsburgh, Pa. Mar
1956. Contract AT-11-1-gen-14. 44p. Order
from OTS. 35 cents. WAPD-143

Physics

Xenon-135 generation in the materials testing re-
actor, by D. R. deBoisblanc and W. E. Nyer.
Atomic Power Division. Phillips Petroleum Co.,
Idaho Falls, Idaho. May 1953. Decl. Aug 1955.
Contract AT(10-1)-205. 22p. Order from OTS.
20 cents. AECD-3699

Army package power reactor. Description and
supplement. Alco Products, Inc., Schenectady,
N. Y. Oct 1955. Decl. Nov 1955. 132p. Order
from OTS. 65 cents. AECD-3731

Suggestion for an experimental power reactor. An
impregnated graphite, nitrogen-cooled reactor
and gas turbine, using materials and equipment
available now, by Farrington Daniels. Argonne
National Lab., Lemont, Ill. Apr 1950. Decl.
Dec 1955. Contract W-31-109-eng-38. 28p.
Order from OTS. 25 cents. AECD-4095

Preliminary economic report on the application of
atomic power to merchant ships. Part I. Mixed
dry cargo ships, by W. J. Burns, Jr. Newport
News Shipbuilding and Dry Dock Co., Newport
News, Va. Apr 1956. 60p. Order from OTS.
40 cents. AECU-3166(Pt. I)

Preliminary economic report on the application of
atomic power to merchant ships. Part II. Oil
tanker ships, by W. J. Burns, Jr. Newport News
Shipbuilding and Dry Dock Co., Newport News,
Va. Apr 1956. 63p. Order from OTS. 40 cents.
AECU-3166(Pt. II)

A package power reactor for remote locations, by
A. L. Boch. Oak Ridge National Lab., Oak Ridge,
Tenn. 1955. 33p. Order from OTS. 25 cents.
AECU-3170

Design of a computer - oracle, by J. C. Chu.
Argonne National Lab., Lemont, Ill. Sep 1954.
Contract W-31-109-eng-38. 129p. Order from
OTS. 65 cents. ANL-5368

Physics Division summary report August, 1954
through February, 1955, by Louis A. Turner.
Argonne National Lab., Lemont, Ill. May 1956.
Contract W-31-109-eng-38. 188p. Order from
OTS. \$1. ANL-5420

Work function, ionization potential, and emissivity
of uranium, by E. G. Rauh. Argonne National
Lab., Lemont, Ill. May 1956. Contract W-31-
109-eng-38. 21p. Order from OTS. 30 cents.
ANL-5534

Analytical solution of the P₃ approximation to trans-
port theory in two cylindrical regions. Program
I, by Robert R. McCready. Aircraft Nuclear
Propulsion Dept. Atomic Products Div. General
Electric, Cincinnati, Ohio. Mar 1956. Contracts
AF-33(038)-21102 and AT(11-1)-171. 18p. Or-
der from OTS. 15 cents. APEX-248

Temperature coefficients of reactivity of reactors,
by Jack Chernick. Brookhaven National Lab.,
Upton, N. Y. Jan 1953. Decl. Dec 1955. Con-
tract AT-30-2-gen-16. 25p. Order from OTS.
25 cents. BNL-1344

Thermodynamic study of ammonia-water heat
power cycles, by James D. Maloney, Jr. and Roy
C. Robertson. Oak Ridge National Lab., Oak
Ridge, Tenn. Aug 1953. Contract W-7405-eng-
26. 58p. Order from OTS. 40 cents.
CF-53-8-43

The capture of polarized neutrons by polarized
Sm¹⁴⁹ nuclei, by L. D. Roberts, S. Bernstein,
J. W. T. Dabbs, and C. P. Stanford. Oak Ridge
National Lab., Oak Ridge, Tenn. Jan 1954. Con-
tract W-7405-eng-26. 23p. Order from OTS.
25 cents. CF-54-1-25

Notes on reactor analysis. Part I. Elementary
survey, by D. K. Holmes and R. V. Meghreblian.
Oak Ridge National Lab., Oak Ridge, Tenn. Aug
1955. Contract W-7405-eng-26. 99p. Order
from OTS. 50 cents. CF-54-7-88(Pt. I)

Heat removal systems for the HRT pressure
vessel, by R. E. Aven. Oak Ridge National Lab.,
Oak Ridge, Tenn. Mar 1955. Decl. Feb 1956.
Contract W-7405-eng-26. 33p. Order from OTS.
30 cents. CF-55-3-119

Irradiation of germanium by fast monoenergetic
neutrons, by J. W. Moyer, W. A. Smith, Jr., and
O. L. Cunningham. Knolls Atomic Power Lab.,
Schenectady, N. Y. May 1956. Contract W-31-
109-eng-52. 30p. Order from OTS. 30 cents.
KAPL-1455

- A measurement of ETA and other fission parameters for U-233, PU-239, and PU-241, relative to U-235, at sub-cadmium neutron energies, by D. E. McMillan, M. E. Jones, J. B. Sampson, E. R. Gaertner, and T. M. Snyder. Knolls Atomic Power Lab., Schenectady, N. Y. Dec 1955. Contract W-31-109-eng-52. 82p. Order from OTS. 50 cents. KAPL-1464
- Interaction of black control rods, by J. C. Stewart and J. H. Smith. Knolls Atomic Power Lab., Schenectady, N. Y. Jan 1956. Contract W-31-109-eng-52. 13p. Order from OTS. 15 cents. KAPL-1471
- The calculation of Maxwellian averaged cross sections for resonance absorbers, by J. H. Smith. Knolls Atomic Power Lab., Schenectady, N. Y. Mar 1956. Contract W-31-109-eng-52. 21p. Order from OTS. 25 cents. KAPL-1522
- The average fission cross section of U²³³, U²³⁴, and U²³⁶ in the fast reactor neutron spectrum, by E. Jurney. Los Alamos Scientific Lab., Los Alamos, N. Mex. May 1951. Decl. Apr 1956. Contract W-7405-eng-36. 5p. Order from OTS. 15 cents. LA-1250
- The crystal structure of gamma plutonium, by W. H. Zachariasen. Los Alamos Scientific Lab., Los Alamos, N. Mex. Sep 1951. Decl. Mar 1956. Contract W-7405-eng-36. 11p. Order from OTS. 15 cents. LA-1325
- Taylor instability appendices to report LA-1862, by Garrett Birkhoff. Los Alamos Scientific Lab. Univ. of Calif., Los Alamos, N. Mex. Sep 1955. Contract W-7405-eng-36. 89p. Order from OTS. 50 cents. LA-1927
- Calibration of a mock fission neutron source by indium resonance mapping of the standard graphite pile, by C. J. McDole, E. R. Graves, and R. W. Davis. Los Alamos Scientific Lab. Univ. of Calif., Los Alamos, N. Mex. Dec 1955. Contract W-7405-eng-36. 13p. Order from OTS. 20 cents. LA-1982
- The spectrum of polonium-beryllium neutron sources, by R. J. Breen, M. R. Hertz, and D. U. Wright, Jr. Mound Lab. Monsanto Chemical Co., Miamisburg, Ohio. Jun 1955. Contract AT-33-1-gen-53. 47p. Order from OTS. 30 cents. MLM-1054
- Influence of shield configuration of cargo capacity of nuclear powered ships, by O. H. Klepper. Newport News Shipbuilding and Dry Dock Co., Newport News, Va. Jan 1956. 55p. Order from OTS. 35 cents. NNSD-NSPS-1008
- Determination of shield requirements for a 4-inch square straight hole through the ORNL shields, by R. L. Clark, J. D. Flynn, and C. E. Clifford. Oak Ridge National Lab., Oak Ridge, Tenn. Nov 1949. Decl. Jan 1956. Contract W-7405-eng-26. 15p. Order from OTS. 20 cents. ORNL-401
- An atmospheric diffusion nomogram with extended parameter ranges, by Frank Gifford. U. S. Weather Bureau, Oak Ridge, Tenn. Research and Development Div. Oak Ridge Operations Office, Oak Ridge, Tenn. Feb 1956. 4p. Order from OTS. 10 cents. ORO-149
- Spiral beam accelerator model results, by Stirling A. Colgate and A. J. Schwemin. Radiation Lab. Univ. of Calif., Berkeley, Calif. Jul 1953. Decl. Mar 1956. Contract W-7405-eng-48. 27p. Order from OTS. 25 cents. UCRL-2297
- Scattering measurements with polarized protons between 141 and 314 Mev, by Karl Strauch. Univ. of Calif. Rad. Lab., Berkeley, Calif. Nov 1955. Contract W-7405-eng-48. 10p. Order from OTS. 15 cents. UCRL-3211
- A summary of high-energy nucleon-nucleon cross section data, by Wilmot N. Hess. Univ. of Calif. Rad. Lab. Livermore Site, Livermore, Calif. Jan 1956. Contract W-7405-eng-48. 74p. Order from OTS. 45 cents. UCRL-4639
- Temperature coefficients of scintillating systems, by William P. Ball, Rex Booth, and Malcolm MacGregor. Univ. of Calif. Rad. Lab. Livermore Site, Livermore, Calif. Mar 1956. Contract W-7405-eng-48. 10p. Order from OTS. 10 cents. UCRL-4666

Reactors

Reactor design and feasibility problem. Part II. A low cost experimental neutron chain reactor, by Fred H. Abernathy and others. Oak Ridge National Lab., Oak Ridge, Tenn. Aug 1952. 267p. Order from OTS. \$1.25. AECD-3557

Some problems in the safety of fast reactors, by R. O. Brittan. Argonne National Lab., Lemont, Ill. n.d. 67p. Order from OTS. 65 cents. ANL-5577

The kinetic behavior of water boiler type reactors, by Marlin E. Remley, John W. Flora, David L. Hetrick, and Leo P. Inglis. Atomics International. Division of North American Aviation, Inc., Canoga Park, Calif. Apr 1956. Contract AT-11-1-gen-8. 32p. Order from OTS. 25 cents. NAA-SR-1618

Operating procedure for the bulk shielding facility,
by F. C. Malenschein and K. M. Henry. Oak
Ridge National Lab., Oak Ridge, Tenn. n.d.
Contract W-7405-eng-26. Third edition. 15p.
Order from OTS. 15 cents. ORNL-2018

Miscellaneous

Report announcement bulletin. Unclassified reports
for civilian applications. Technical Information
Extension, Oak Ridge, Tenn. Apr 1956. 12p. Or-
der from OTS. Free. TID-1907

Report announcement bulletin. Unclassified re-
ports for civilian applications. Technical Infor-
mation Extension, Oak Ridge, Tenn. May 1956.
20p. Order from OTS. Free. TID-1908

Report announcement bulletin. Unclassified re-
ports for civilian applications. Technical Infor-
mation Extension, Oak Ridge, Tenn. May 1956.
21p. Order from OTS. Free. TID-1909

Cumulated numerical list of available unclassified
U. S. Atomic Energy Commission reports.
Technical Information Service Extension, Oak
Ridge, Tenn. Apr 1956. 250p. Order from OTS.
\$1.25. TID-4000 (2nd Edition)

The pressurized water reactor forum held Decem-
ber 2, 1955, at Mellon Institute, Pittsburgh.
Technical Information Service. Atomic Energy
Commission, Washington 25, D. C. Feb 1956.
74p. Order from OTS. 45 cents. TID-8010

The fire properties of metallic uranium. A mono-
graph, by R. E. Smith. Technical Information
Service. Atomic Energy Commission, Washing-
ton, D. C. Apr 1956. 15p. Order from OTS.
20 cents. TID-8011

U. S. DEPARTMENT OF COMMERCE

Field Offices

ALBUQUERQUE, N. MEX.
Rm. 321, Post Office Bldg.

ATLANTA 23, GA.
Room 340
Peachtree and Seventh St. Bldg.

BOSTON 9, MASS.
Room 1416
U. S. Post Office & Courthouse

BUFFALO 3, N. Y.
504 Federal Bldg.
117 Ellicott Street

CHARLESTON 4, S. C.
Area 2 Sergeant Jasper Bldg.
West End Broad Street

CHEYENNE, WYO.
307 Federal Office Bldg.

CHICAGO 6, ILL.
226 West Jackson Blvd.

CINCINNATI 2, OHIO
442 U. S. Post Office & Court-
house

CLEVELAND 14, OHIO
1100 Chester Avenue

DALLAS 22, TEX.
1114 Commerce Street

DENVER 2, COLO.
142 New Custom House

DETROIT 26, MICH.
438 Federal Bldg.

HOUSTON 2, TEX.
430 Lamar Avenue

JACKSONVILLE 1, FLA.
425 Federal Bldg.

KANSAS CITY 6, MO.
Federal Office Bldg.

LOS ANGELES 15, CALIF.
Room 450
Western Pacific Bldg.
1031 South Broadway

MEMPHIS 3, TENN.
212 Falls Bldg.
22 North Front St.

MIAMI 32, FLA.
316 U. S. Post Office Bldg.
300 NE. First Avenue

MINNEAPOLIS 1, MINN.
319 Metropolitan Bldg.
2d Avenue South & 3d Street

NEW ORLEANS 12, LA.
333 St. Charles Avenue

NEW YORK 17, N. Y.
4th Floor, 110 E. 45th St.

PHILADELPHIA 7, PA.
Jefferson Bldg.
1015 Chestnut Street

PHOENIX, ARIZ.
137 North Second Avenue

PITTSBURGH 22, PA.
817 Fulton Bldg.
107 Sixth St.

PORTLAND 4, OREG.
217 Old U. S. Courthouse

RENO, NEV.
1479 Wells Avenue

RICHMOND 19, VA.
1103 East Main Street

ST. LOUIS 1, MO.
910 New Federal Bldg.

SALT LAKE CITY 1, UTAH
Room 105
222 S. W. Temple St.

SAN FRANCISCO 11, CALIF.
419 Customhouse
555 Battery St.

SAVANNAH, GA.
235 U. S. Courthouse & Post
Office Bldg.

SEATTLE 4, WASH.
809 Federal Office Bldg.
909 First Avenue

INDEXES TO USGRR

This issue contains the index to Volume 25 of *U. S. Government Research Reports*.

Volume 25, No. 1 (Jan 20, 1956) contains the index to Volume 24; the index to Volume 23 is in Volume 24, No. 1 (July 15, 1955).

Indexes previous to Volume 23 were published separately. These are available from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., at \$1 a copy, except for Volume 5 and Volume 8 which are \$2.

BIBLIOGRAPHIES OF FOREIGN LITERATURE

Scientific and technical material from East European and Russian publications received by the Library of Congress and cooperating libraries are listed in three bibliographies published monthly.

East European Accessions List. Order from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., \$7 a year domestic, \$1.50 additional for foreign mailing.

Monthly List of Russian Accessions. Order from Superintendent of Documents, \$9 a year domestic, \$2 additional for foreign mailing.

Bibliography of Translations from Russian Scientific and Technical Literature. Order from Card Division, Library of Congress, Washington 25, D. C., \$3 a year.