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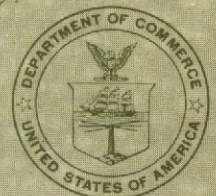
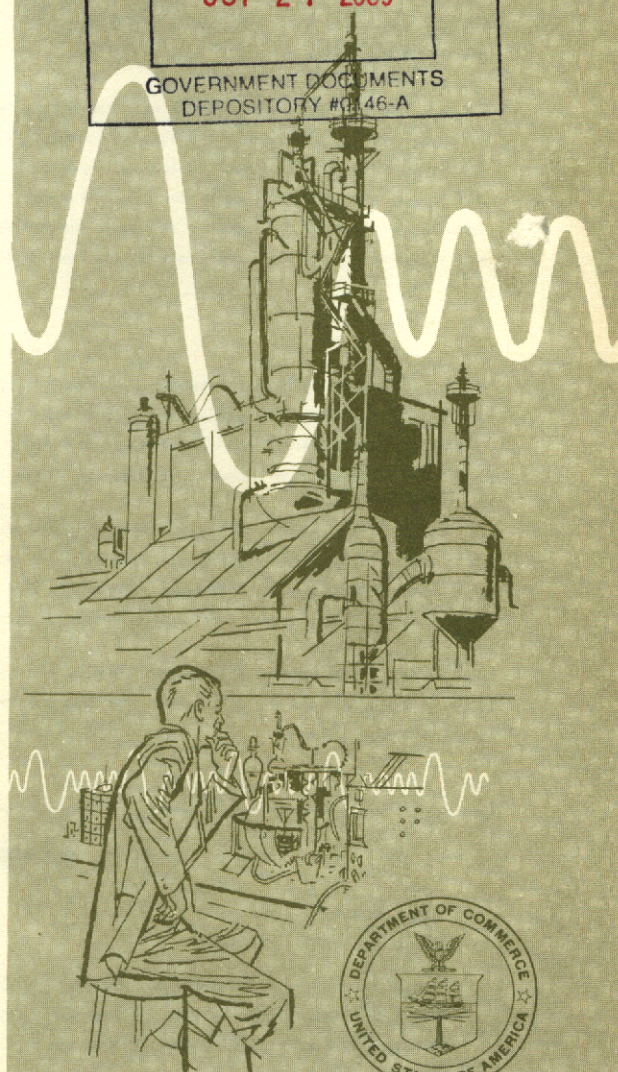
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U. S. DEPARTMENT OF COMMERCE
Sinclair Weeks, Secretary

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CHEMICALS AND ALLIED PRODUCTS

Plastics and Plasticizers

Development of silicone or fluorocarbon interlayer materials for laminated glass and laminated plastic. Dow Corning Corp., Midland, Mich. Under Contract AF 33(600)-23081, by J. W. Cretzmeyer, J. W. Erwin, K. E. Polmanteer. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Progress report no. 1. May 1953. 15p photos, table Microfilm \$2.00, Photocopy \$2.75.

PB 115565

The desired properties are: (1) thermal stability up to 500°F for glass laminates and up to 400°F for polymethyl- α -chloroacrylate laminates; (2) tensile strength, elongation, and haze and light transmissions in accordance with Federal Specification LP-406; and (3) projectile impact strength and shattering characteristics at -20°, 0°, 70°F, and slightly below the breakdown temperature. Interlayer materials are noted by an alphabetical system. The type of interlayer, formation conditions, heat-treatments, thickness, and special remarks are tabulated.

Progress report no. 2. Jun 1953. 11p tables Microfilm \$2.00, Photocopy \$2.75. PB 115566

Efforts were directed to improving the thermal stability of types B, C, and E materials. Preliminary investigations of interlayer thicknesses indicated that the shatter-resistant properties of a 1/8-in. interlayer are as good as those of a 1/4-in. interlayer.

Progress report no. 3. Jul 1953. 11p tables Microfilm \$2.00, Photocopy \$2.75. PB 115567

Types A, C, D and E materials were reinvestigated in an effort to improve their thermal properties. New data were obtained on type B material. Additions to the polymers were made on a small mill to insure an even distribution. Formulation changes were made in type A material to raise the thermal limit above 200°C. Stabilizing ingredients were added to type C material to decrease bubbling. Two laminates of type D material were prepared.

Paints, Varnishes and Lacquers

Aircraft material specification: Flexible paint.

Revised. Gt. Brit. Ministry of Supply. Apr 1954. 2p drawing, table Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.15. PB 115576

Supersedes MS DTD MS 557.

1. Paints - Specifications - Gt. Brit. 2. MS DTD MS 557A.

Aircraft material specification: High gloss finishing scheme. Revised. Gt. Brit. Ministry of Supply.

Apr 1954. 6p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.30. PB 100270r

Supersedes MS DTD MS 772 (PB 100270).

1. MS DTD MS 772A.

Aircraft material specification: Stoving enamel.

Revised. Gt. Brit. Ministry of Supply. Apr 1954. 3p table Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.30. PB 92656r

Supersedes MS DTD MS 56C (PB 92656).

1. MS DTD MS 56D Revised.

Aircraft material specification: Thinners for synthetic paint. Gt. Brit. Ministry of Supply. Apr

1954. 1p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.15. PB 115575

1. Paints, Synthetic - Thinners - Specifications - Gt. Brit. 2. MS DTD MS 96.

Study of light finishes for office walls and furnishings.
U. S. General Services Administration. Public Buildings Service. Engineering and Research Branch. Buildings Management Division. Jun 1954. 33p photos, diagrs, graph, tables Available free from General Services Administration, Public Buildings Service, Washington 25, D. C. PB 115731

1. Paints - Research 2. Lighting, Industrial 3. Office furniture.

ELECTRICAL MACHINERY

Electronics

Addition theorems for spherical waves, by Bernard Friedman and Joy Russek. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Jun 1952. 21p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115650

Contract no. AF 19(122)-42.

1. Waves, Electromagnetic - Scattering - Theory
2. Spheres - Reflective effects 3. NYU RR EM-44.

Bibliography of propagation and scattering of electromagnetic waves, compiled by Thelma Braverman and Jerome Lurye. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Sep 1948. 55p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115628

Contract no. W28-099-ac-172.

1. Waves, Electromagnetic - Propagation - Bibliography
2. Waves, Electromagnetic - Scattering - Bibliography
3. NYU RR 172-9.

Characteristics of ridge waveguide. Space charge effects in reflex klystrons, by E. W. Adams and V. B. Westburg. Stanford University. Electronics Research Laboratory, Stanford, Calif. May 1949. 16p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 110058

This technical memorandum describes results of a study made on the rectangular coordinate Kron network board on the properties of ridge waveguide. The feasibility of representing waveguides of various cross-sectional shapes on the network and determining cutoff frequency and characteristic impedance has been demonstrated. Contract N6-Onr-251, Task order no. 7 (NR-078-360). SU ERL TM 102-103.

Diffraction of an arbitrary pulse by a wedge, by Irvin Kay. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Apr 1952. 27p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115649

An investigation is made of the characteristic boundary value problem which occurs in connection with the problem of an arbitrarily shaped electromagnetic pulse wave incident on a perfectly conducting, cylindrical wedge with either the electric vector or the magnetic vector polarized parallel to the generators of the wedge. A solution is obtained in the form of a Fourier series whose coefficients are determined by the application of a special transform to the boundary data. Contract no. AF-19(122)-42. Appendix III is Diffraction of a shock or an electromagnetic pulse by a right-angled wedge, by Joseph B. Keller. NYU RR EM-43.

Diffraction of electromagnetic waves by a plane wire grating, II, by William Sollfrey and Jerry Shmoys. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Feb 1952. 13p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115647

Variational expressions for the scattering matrix of a wire grating are evaluated for the case of circularly cylindrical wires. The single scattering approximation is used as a trial field. Contract no AF 19(122)-42. NYU RR EM-41.

Diffraction of pulses by conducting wedges and cones, by William Sollfrey. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Jul 1952. 17p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115651

The diffraction of a plane pulse by a conducting wedge or cone is obtained by first finding the solution due to an incident plane wave and then integrating over the propagation constant of this wave. The integrals which appear may all be evaluated. For the wedge the solution agrees with that previously obtained by Keller and Blank. For the cone, the solution is given as an infinite series in the diffraction region. Outside this region the series solution may be summed to give the expected discontinuous solution. Contract no. AF 19(122)-42. NYU RR EM-45.

Electromagnetic scattering matrices of stratified anisotropic media, by Jerome Robert Lurye. New York University. Washington Square College of Arts and Science. Mathematics Research Group. May 1951. 49p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 115624

Contract AF-19(122)-42.

1. Waves, Electromagnetic - Scattering - Theory
2. Equations, Integral
3. Reciprocity - Theory
4. Schwinger theory
5. NYU RR EM-31.

Final report. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Under Contract no. W28-099-ac-172, by Morris Kline. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving FE number of each part ordered.

No. 19, 1 Jul 1946-31 Sep 1948. Sep 1948. 27p diags Microfilm \$2.25, Photocopy \$4.00.
PB 115635

1. Waves, Electromagnetic - Propagation - Theory
2. Waves, Electromagnetic - Scattering - Theory.

Supplement (no. 20). Dec 1948. 24p diags Microfilm \$2.25, Photocopy \$4.00. PB 115635s

Infinite matrices associated with diffraction by an aperture, by Wilhelm Magnus. New York University. Washington Square College of Arts and Science. Mathematics Research Group. May 1951. 22p table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115623

Contract AF 19(122)-42.

1. Waves, Electromagnetic - Diffraction - Theory
2. Matrix theory
3. NYU RR EM-32.

Ionosphere propagation research. Technical report no. 2 under Contract no. AF 19(604)-712 for period Oct 1, 1953 to Apr 1, 1954, by L. C. Edwards. Raytheon Manufacturing Co., Waltham, Mass. May 1954. 77p photos, diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.75, Photocopy \$10.25. PB 115740

The general purpose of the Ionospheric Propagation Research program is a study and investigation of oblique incidence ionospheric radio transmission to improve the employment of ground-to-air communications. More specifically, this research is intended to determine, evaluate, record and compare received field strength with backscatter. For Report no. 1 see PB 113979. AAF CRC TN 54-178.

Linear ordinary differential operators of the second order, by Ralph S. Phillips. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Apr 1952. 25p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115648

Contract no. AF 19(122)-42.

1. Perturbation - Theory
2. Operators (Mathematics)
3. Electromagnetic theory
4. Mathematical equations and solutions
5. NYU RR EM-42.

Low frequency propagation studied. Quarterly technical report no. 4 under Contract AF 19(604)-795, for the period Mar 15, 1954-Jun 15, 1954, by Robert A. Helliwell. Stanford University. Radio Propagation Laboratory, Stanford, Calif. Jun 1954. 50p photos, diags, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 115745

For Reports 1-3 see PB 113101, 113328, 114485.

1. Whistlers (Radio signals) - Detection
2. Whistlers (Radio signals) - Measuring equipment
3. Winds, Ionospheric - Measuring equipment
4. Radio waves - Propagation - Isonosphere
5. Radio waves - Polarization
6. Low frequencies - Research
7. AAF CRC TN 54-195.

Maxwell's equations in spherically symmetric media, by Rudolf K. Luneberg. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Jul 1948. 22p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115636

Contract no. W28-099-ac-172.

1. Maxwell's field equations
2. Waves, Electromagnetic - Propagation - Theory
3. Fields, Electromagnetic - Theory
4. NYU RR 172-8.

Mechanical resonant scanner, by D. B. Nicholson, R. Sher, C. Schultz. Massachusetts Institute of Technology. Radiation Laboratory. Mar 1946. 22p photos, drawing, diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115605

The philosophy of the technique of rapid scanning is discussed in this report along with observations made on the mockup and prototype scanners. Contract OEMsr-262. MIT Rad Lab 782.

Microwave research. Duke University. Dept. of Physics, Durham, N. C. Under Contract no. W19-122-ac-35, by Walter Gordy. Order separate parts described below from Library of Congress, Publication Project, Washington 25, D. C., giving PB number of each part ordered.

Quarterly progress report, May 1, 1949-Aug 1, 1949. Aug 1949. 30p photos, diagr, tables Microfilm \$2.25, Photocopy \$4.00. PB 115618

Includes Special reports 1-3. No. 1: Oxygen, a preliminary report on the fine structure of the microwave absorption spectrum, by James H. Burkhalter, Roy S. Anderson, William V. Smith and Walter Gordy. - No. 2: Microwave investigations of chloroform, by William V. Smith and Robert R. Unterberger. - No. 3: Microwave spectrum and molecular constants of hydrogen cyanide, by James W. Simmons, Wallace E. Anderson, and Walter Gordy.
1. Radio waves - Research- 2. Oxygen - Spectrographic analysis
- 3. Chloroform - Spectro-

graphic analysis 4. Hydrocyanic acid - Molecular constants 5. Hydrocyanic acid - Spectrographic analysis 6. Spectrometers - Design.

Final report. Feb 1952. 12p Microfilm \$2.00, Photocopy \$2.75. PB 115617

1. Radio waves - Research.

Multiple scattering of radiation. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Under Contract no. AF19(122)-42, by Victor Twersky. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Part I: Arbitrary configuration of parallel cylinders, planar configurations, two cylinders. Jul 1951. 71p diags Microfilm \$3.75, Photocopy \$10.25. PB 115643

1. Wave guides, Cylindrical - Theory 2. Waves, Electromagnetic - Scattering - Theory 3. NYU RR EM-34.

Part II: The grating. Dec 1951. 56p diags, graphs Microfilm \$3.00, Photocopy \$7.75. PB 115645

1. Waves, Electromagnetic - Scattering - Theory 2. Gratings, Diffraction - Theory 3. NYU RR EM-39.

Note on the dynamic characteristics of servo-tab systems of control, by D. Adamson and D. J. Lyons. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Apr 1948. 12p diags, graphs, table Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.90. PB 115540

Cover date is 1954. S. O. code no. 23-2853.

1. Motion - Velocity - Gt. Brit. 2. Airplanes - Balance - Controls - Gt. Brit. 3. Controls, Servo - Design - Gt. Brit. 4. Servomechanisms - Design - Gt. Brit. 5. ARC RM 2853.

On the scattering effect of a rough plane surface, by Wilhelm Magnus. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Jan 1952. 17p diags Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115646

Contract no. AF 19(122)-42.

1. Waves, Electromagnetic - Scattering - Theory 2. NYU RR EM-40.

Progress report no. 11, 1 Jul 1951 to 30 Sep 1951, under Contract no. AF-19(122)-42, by Lester Kraus. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Sep 1951. 23p diags Available from Library of

Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115631

1. Waves, Electromagnetic - Propagation - Theory 2. Waves, Electromagnetic - Reflection - Theory 3. Waves, Electromagnetic - Reflective index.

Propagation of electromagnetic waves from an arbitrary source through inhomogeneous stratified atmospheres, by Rudolf K. Luneberg. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Jan 1948. 57p diags Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115634

Contract no. W28-099-ac-172.

1. Waves, Electromagnetic - Propagation - Theory 2. Maxwell's field equations 3. NYU RR 172-6.

Propagation of plane electromagnetic waves past a shoreline, by J. Bazer and S. N. Karp. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Jul 1952. 68p diags, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.25, Photocopy \$9.00. PB 115630

Contract no. AF-19(122)-42.

1. Waves, Electromagnetic - Propagation 2. Oceans - Electromagnetic fields 3. NYU RR EM-46.

Quarterly progress report no. 18 for the period from 1 Apr 1948 to 30 Jun 1948 under Contract no. W28-099-ac-172, by H. R. Cooley. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Jun 1948. 14p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115641

1. Waves, Electromagnetic - Refractive index 2. Waves, Electromagnetic - Reflection - Theory.

Reflection and transmission of electromagnetic waves by a spherical shell, by Herbert Bishop Keller and Joseph Bishop Keller. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Jan 1948. 14p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115629

Contract no. W28-099-ac-172.

1. Waves, Electromagnetic - Transmission 2. Waves, Electromagnetic - Reflection 3. NYU RR 172-7.

Reflection and transmission of electromagnetic waves by thin curved shells, by Joseph Bishop Keller. New York University. Washington Square College of Arts and Science. Mathematics Re-

search Group. Feb 1948. 54p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115633

In this paper the general problem of scattering of an arbitrary incident electromagnetic field by a conducting or non-conducting obstacle is investigated. The physical properties of this solution are examined in detail. Contract no. W28-099-ac-172. NYU RR 172-5.

Research on electromagnetic reflections from surfaces of complex shape, by Ralph D. Kodis. Jun 1954. 11p diagr, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115547

Report no. 4. Contract no. AF 19(604)-786.
1. Waves, Electromagnetic - Scattering - Theory
2. Optics, Geometrical - Theory 3. AAF CRC TN 54-172.

Scattering of a plane electromagnetic wave by an infinite stack of conducting plates, by H. Gruenberg and R. A. Hurd. National Research Council of Canada. Radio and Electrical Engineering Division. Apr 1954. 16p diagr Available from National Research Council of Canada, Ottawa, Canada. \$.25. PB 115229

Using a method based on the calculus of residues, a rigorous solution has been obtained to the scattering problem of a plane wave incident on an infinite stack of perfectly conducting, semi-infinite, parallel plates. The polarization of the incident field is assumed to be such that the only component of the magnetic field is parallel to the edges of the plates. NRCC ERA-268. NRCC 3338.

Generators, Motors, Transmission

Case study data on productivity and factor performance: 3-pole circuit breakers, circuit interrupters, and safety switches. U. S. Bureau of Labor Statistics. Jul 1954. 88p photos, drawings, graph, tables Available from U. S. Bureau of Labor Statistics, Washington 25, D. C. PB 115405

Prepared for the Foreign Operations Administration, Industrial and Technical Assistance Division.
1. Circuits, Electric - Breakers - Manufacture
2. Switches, Safety - Manufacture 3. Interrupters, Electric - Manufacture 4. BLS R 67.

Design procedure for very wide band radio-frequency transformers, by C. W. McLeish. National Research Council of Canada. Radio and Electrical Engineering Division. May 1954. 14p photo, diagr, graphs Available from National Research Council of Canada, Ottawa, Canada. \$.25. PB 115230

1. Transformers, Radio frequency - Wide band - Design - Canada 3. Transformers, Radio frequency -

Wide band - Core materials - Canada 3. NRCC ERA-272 4. NRCC 3317.

Electronic cursor for AN/APS-15, by W. F. Goodell, Jr. Massachusetts Institute of Technology. Radiation Laboratory. Jan 1945. 12p diagr Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 106688

The report describes an attachment to provide a movable azimuth mark which appears as a bright trace on the indicator tube face of AN/APS-15. The mark is obtained by momentarily replacing the azimuth sweep selsyn on the spinner with a similar stationary selsyn. The attachment weighs 8-1/2 pounds, and is installed by interrupting three cables, adding two wires to the indicator, and adding a relay and associated wiring to the control unit. Contract OEMsr-262. MIT Rad Lab M-175.

Intermodulation distortion in mixers, by Charles F. Hobbs. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Electronics Research Directorate. Communications Laboratory, Cambridge, Mass. May 1954. 33p diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$5.25. PB 115589

A method of computing the approximate root mean square amplitude of the interference resulting from a large number of input signals equal in amplitude to the desired signal has been developed. Tables have been computed which facilitate calculations. AAF CRC TR 54-9.

New ring counter for junction transistors and vacuum tubes, by A. William Carlson. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Electronics Research Directorate. Communications Laboratory, Cambridge, Mass. Jun 1954. 22p photos, diagr Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115588

A description is made of a new type of ring counter in which a fixed pattern of 'on' and 'off' stages is wired into the ring and the count indicated by the position of the pattern. The resulting counter requires one vacuum tube or transistor per count with counts as high as 10 being practical. Vacuum tube and transistor rings of this type are discussed. AAF CRC TN 54-100.

Studies and investigations of a 100 watt CW X-band klystron, by G. A. Espersen and R. A. LaPlante. Philips Laboratories, Inc., Irvington-on-Hudson, N. Y. Mar 1954. 61p drawings, diagr, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.25, Photocopy \$9.00. PB 115585

The design and operating characteristics of PKX-2

klystron are discussed generally, and the actual performance data for 6 tubes are given. The measuring system is described and its operation is explained theoretically. Contract AF 19(604)-454, Final report. Case 3480.

Miscellaneous

Application of Prony's point-matching method to time-domain network synthesis, by A. D. Moore. Stanford University. Electronics Research Laboratory, Stanford, Calif. Dec 1951. 66p diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.25, Photocopy \$9.00. PB 115739

The problem of approximating prescribed functions in the time domain using exponentials is examined, with particular reference to the Prony point-matching technique. The reasons for the complexity of the problem are discussed in relation to the comparable case of frequency-domain approximations. The expressions relating approximation errors in the two domains are stated. Contract Onr-251-(7F), Consolidated task no. 7 (NR-078-360). SU ERL TR 42.

Bibliography on high frequency and dielectric induction heating. Supplement, Sep 1946-Jul 1949, Northwestern University. Library, Evanston, Ill. Jan 1950. 46p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 112327s

Effect of a circular ground plane on antenna radiation, by Alfred Leitner in collaboration with R. D. Spence of Michigan State College. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Apr 1950. 37p diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$5.25. PB 115622

The field of a quarter-wave dipole antenna above a circular conducting disk of zero thickness and radius a - a finite groundplane - is calculated theoretically by use of the wave functions of the oblate spheroid. The current on the groundplane, the radiation resistance and the radiation pattern of the system for groundplanes of various radii are computed. With these results the distortion of antenna radiation by groundplanes is studied. NYU RR EM-19.

Electromagnetic field of a dipole over a dielectric slab on a finitely conducting ground plane, by Jerome Lurye. New York University. Institute of Mathematical Sciences. Division of Electromagnetic Research. Jul 1954. 51p diags Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115558

1. Waves, Electromagnetic - Propagation - Theory
2. Antennas, Dipole - Radiation - Theory
3. Magnetic fields - Mathematical analysis
4. NYU RR EM-65
5. AAF CRC TN 54-194.

Method of protecting a VHF Yagi antenna from severe icing, by F. V. Cairns and J. R. Dawson. National Research Council of Canada. Radio and Electrical Engineering Division. Jul 1954. 11p photos, diags Available from National Research Council of Canada, Ottawa, Canada. \$.25. PB 115702

1. Antennas, Yagi - Icing - Protection - Canada
2. NRCC ERA 276 3. NRCC 3382.

Microwave noise study. Final report, Feb 1, 1953-Feb 1, 1954 under Contract AF 19(604)-636, by Winston M. Gottschalk and David Middleton. Raytheon Manufacturing Co. Research Division, Waltham, Mass. Feb 1954. 14p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115664

- For 2d-4th reports see PB 112376, 113560, 114493.
1. Noise - Measurement
 2. Noise - Mathematical analysis
 3. Vacuum tubes, Magnetron - Noise
 4. Oscillators - Noise.

Propagation of dipole radiation through plane parallel layers, by Jerome Lurye. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Nov 1947. 52p diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115621

This paper is concerned with the problem of finding the strength of the electromagnetic field at any distance from a dipole source under certain special conditions, of which the principal one is that the transmitting medium is divided into horizontal layers above a plane earth. Contract no. W28-099-ac-172. NYU RR 172-4.

Properties of large slot antennas, by A. E. Ratkevich. California. University. Division of Electrical Engineering. Electronics Research Laboratory, Berkeley, Calif. Dec 1953. 45p photo, diags, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$1.25. PB 111523

An attempt is made to correlate the distribution in the neighborhood of the aperture determined by means of a probe with the aperture field configuration obtained from synthesis of the far zone patterns. Report no. 22 on Contract N7onr-29529. UC IER ser. 60, Issue no. 104.

Quarterly progress report no. 17 for the period from 1 Jan 1948 to 31 Mar 1948 under Contract no. W 28-099-ac-172, by H. R. Cooley. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Mar 1948. 10p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115627

1. Antennas, Dipole - Radiation - Theory
2. Waves,

Electromagnetic - Propagation 3. Waves, Electromagnetic - Reflection 4. Waves, Electromagnetic - Refractive index.

Report on the microwave antenna conference, July 19-24, 1943, by L. C. Van Atta and G. G. Harvey. Massachusetts Institute of Technology. Radiation Laboratory. Aug 1943. 91p drawings, diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$4.50, Photocopy \$12.75. PB 115601

1. Antennas, Microwave 2. Radio beacons 3. Bombing 4. Radar - Scanning 5. MIT Rad Lab 414.

Study of surface wave transmission lines. Final report, Jun 1, 1951 to May 31, 1954 under Contract no. DA36-039-sc-5585, by Elmer H. Scheibe. Wisconsin. University. Dept. of Electrical Engineering, Madison, Wis. Jun 1954. 155p photos, diags, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$6.25, Photocopy \$20.25. PB 115761

This final report describes the engineering research study made on surface wave transmission lines. The investigation carried out covered two broad divisions. One concerned characteristics of the launching and receiving horns used with the surface wave line and the other concerned the surface wave line itself, independent of the terminal equipment. Dept. of the Army project no. 3-99-12-022. Signal Corps project no. 15-132 B-O.

Tabulation of CRT screen properties, by A. B. White. Massachusetts Institute of Technology. Radiation Laboratory. May 1945. 23p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 109438

The information assembled in this report is primarily derived from measurements on the light output and from operational tests. A brief explanation of screen tests is given, followed by separate sheets of tabulated information on the individual screens similar in form to tube handbook sheets. Principal RMA screen types are described, together with representative developmental screens. Contract OEMsr-262. MIT Rad Lab S-48.

UHF filtering networks. Third report of technical progress under Contract no. AF 19(604)-962, by Douglas E. Mode. Lehigh University. Electrical Engineering Dept., Bethlehem, Pa. Aug 1954. 26p diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115549

1. Networks, Electrical - Ultra high frequency
2. Detectors, Radio frequency - Design 3. AAF CRC TN 54-188.

Use and derivation of a Z,Θ chart, by John Reed. Massachusetts Institute of Technology. Radiation

Laboratory. May 1943. 7p diags Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 109559

This paper explains the use of a Z,Θ chart to determine the reflections from transformer and dielectric structures in waveguide and coax. A short derivation of the P. H. Smith circle diagram is included. Contract OEMsr-262. MIT Rad Lab T-14.

HIGHWAYS AND BRIDGES

Night visibility. Presented at the thirty-third annual meeting, January 12-15, 1954. Highway Research Board. 1954. 79p photos, diags, graphs, tables Available from Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. \$1.05. PB 115403

Contents: Substitute for road tests of automobile headlights, by Geoffrey Grime. - Sign placement to reduce dirt accumulation, by Edward P. Davis and J. T. Fitzpatrick. - Effect of planting in median strip on night-visibility distances, by Edmund R. Ricker and Val J. Roper. - Reflection characteristics of pavement surfaces, by A. W. Christie. - Wet-weather reflection. - Evaluating disabling effects of approaching automobile headlights, by Glenn A. Fry. - Visual detection at low luminance through optical filters, by H. Richard Blackwell. - Effect of wave-length contrasts on discrimination thresholds under mesopic vision, by James A. Stone and A. R. Lauer. - Signal lighting for the movement of traffic in fog, by F. C. Breckenridge. - Effective use of reflectorized materials on railroad boxcars, by Harold I. Stalder and A. R. Lauer. HRB Bul 89. NRC 323.

Vertical sand drains. Presented at the thirty-third annual meeting, January 12-15, 1954. Highway Research Board. 1954. 44p photos, drawing, diagr, graphs, tables Available from Highway Research Board, 2101 Constitution Ave., N. W., Washington 25, D. C. \$.60. PB 115701

Contents: Checking up on vertical sand drains, by William S. Housel. - Hawaii's experience with vertical sand drains, by K. B. Hirashima.
1. Soils - Drainage 2. Soil mechanics 3. Soils - Compaction 4. HRB BUL 90 5. NRC 326.

INSTRUMENTS

Airborne coronagraph for rocket installation. Progress report no. 2, Jul 1, 1948 to Oct 1, 1948, under Contract no. W 19-122-ac-9, by W. B. Pietenpol. Colorado. University. Dept. of Physics. Sep 1948. 162p photos, drawings, diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$6.50, Photocopy \$21.50. PB 115620

1. Coronagraphs - Design
2. Rockets, Upper air - Equipment
3. Rockets, Upper air - Control systems
4. Servomechanisms - Design.

Analysis of optical raindrop spectrometers, by John C. Johnson. Tufts College. Dept. of Physics. Research Laboratory of Physical Electronics, Medford, Mass. Jul 1954. 42p drawings, diags, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 115737

A theoretical analysis is presented of the factors entering into the design of an optical device for measuring raindrops. The analysis indicates that a camera can be constructed that will record all raindrops larger than 0.5 mm in diameter in a volume of 0.5 cubic meter of air. The time required for sampling is 50 seconds. Both industrial television and photographic film are considered as detectors. Scientific report no. 2. Contract no. AF 19(604)-550.

C. A. L. versatile strip-chart reader, by Niels Y. Andersen. Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y. Aug 1954. 10p photos, diagr Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115483

This report describes the outstanding features and provides a brief description of its construction and operation. CAL 64.

Comparison of Geiger-counter and photographic techniques for single-crystal X-ray studies, by A. B. Wing and I. S. Birks. U. S. Naval Research Laboratory. Sep 1954. 33p photo, diags, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$5.25. PB 115661

Single-crystal, x-ray intensity data were obtained on ammonium dihydrogen phosphate (ADP) by standard photographic techniques and also with the two-circle, Geiger-counter spectrometer. Statistical treatment of the intensity data indicated that the standard deviations of Geiger-counter data averaged about 10% as compared with 17% for photographic data. Complete three-dimensional F^2 data are tabulated for use in determining the atomic coordinates in ADP.

Description of the Iowa State College equipment used in the Great Plains field test and a descriptive analysis of some of the data obtained, by Robert M. Stewart, Jr. Iowa State College. Dept. of Physics, Ames, Iowa. Jun 1954. 90p photos, diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$4.00, Photocopy \$11.50. PB 115508

An analysis with respect to performance and accuracy is discussed and the relative advantages and weaknesses of the system are set forth. The latter part of the paper presents the experimental techniques used to gather the data and the results of the analysis

- of some of the data are given. Scientific report no. 4. Contract no. AF 19(122)-440.

Final report on Contract W28-099-ac-279 (Interim engineering report no. 8) for period ending Jun 30, 1949, by A. E. Caswell. Oregon. University. Dept. of Physics, Eugene, Ore. 1949. 17p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115674

Contents: I. Statement of the problem and research under above contract. - II. Report on scintillation counters installed in B-29 flown in vicinity of Inyokern and San Diego, California, on March 25, 1949, by Philip A. Goldberg, Lyman A. Webb and Phyllis Hanson. - III. Scintillation counter pulse amplitude distributions from monoenergetic electrons, by Ronald S. Pau. - IV. Statement of the solution and/or findings. - V. Bibliography. 1. Atmosphere, Upper - Analysis 2. Detectors, Scintillation 3. Rockets, Upper air - Equipment.

Improved conductance measuring circuit, by E. O. Weaver and W. A. McCool. U. S. Naval Research Laboratory. Jun 1947. 31p photo, diags, graphs, table Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$1.00. PB 111527

An improved circuit for measuring small radio-frequency conductances has the sensitivity and accuracy of precision impedance bridges and the simplicity of the Q-meter. A high degree of resolution is attained with a detector employing a sensitive electronic null indicator. With the direct substitution of the unknown conductance in the equivalent conductance of a calibrated diode circuit, measurements can be made accurately and quickly. A device, known as the Conductance Meter, incorporating the improved circuit and operating at one megacycle has been designed and constructed. NRL R 3133.

Instrument for investigation of non-linear effects of the ionosphere, by Ward C. Low. Boston University. Upper Atmosphere Research Laboratory. Oct 1954. 40p photos, diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$5.25. PB 115736

The design and construction of two CW rocket transmitters is described. A review and extension of applicable cross-modulation theory is given, including suggestions for detailed analysis methods of experimental data. Final report under Contract AF 19(604)-757.

Meter for continuous indication of dissolved air in water, by H. M. Fitzpatrick and M. F. Harkleroad. U. S. David W. Taylor Model Basin. Oct 1954. 20p photo, drawings, diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115797

An instrument is described which continuously meas-

ures the concentration of dissolved gases in liquids. The operation of the instrument is based on the establishment of equilibrium between the continuously flowing liquid sample and a gas space of constant volume. The equilibrium pressure in the gas space indicates the concentration of dissolved gases. Experimental confirmation of the validity of the method is presented for air dissolved in water. The design of a practical instrument and criteria for its improvement are given.

Progress report no. 1, Apr 1, 1948 to Jul 1, 1948, under Contract No. W 19-122-ac-9, by W. B. Pietsenpol. Colorado. University. Dept. of Physics. Instrument and Research Laboratory, Boulder, Colo. Jun 1948. 20p diagr Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115619

Summary technical report on the logical system design of the DYSEAC. U. S. National Bureau of Standards. Electronics Division. Electronic Computers Laboratory. Order separate parts described below from Director, National Bureau of Standards, Washington 25, D. C.

Vol. I, by A. I. Leiner, W. A. Notz, J. L. Smith, A. Weinberger, and W. H. Bridge. May 1954. 412p diagrs, tables. PB 115666

1. Computers, Electronic - Design 2. Computers, Electronic - Components 3. DYSEAC (Electronic computer) 4. NBS 3459, Vol. I.

Vol. III, by A. L. Leiner, W. A. Notz, J. L. Smith, A. Weinberger, and W. H. Bridge. May 1954. 141p fold diagrs. PB 115668

1. Computers, Electronic - Design 2. Computers, Electronic - Components 3. DYSEAC (Electronic computer) 4. NBS 3459, Vol. III.

Swash plate exciter, model TF-103. Final engineering report under Contract AF 33(600)-8735, by H. S. Campbell. Eastern Rotorcraft Corp., Doylestown, Pa. Jun 1953. 36p photos, diagrs, graphs (1 fold), tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$5.25. PB 115568

Report no. T-118. Project order no. C-3-010.
1. TF-103 (Exciter) 2. Exciters - Design.

Swash plate exciter. Instructions, Eastern Rotorcraft model TF-103, by H. S. Campbell. Eastern Rotorcraft Corp., Doylestown, Pa. Jun 1953. 10p graphs (1 fold) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115569

Contract no. AF 33(600)-8735. Report no. T-119.
1. TF-103 (Exciter) 2. Exciters - Operation.

MEDICAL RESEARCH AND PRACTICE

Biochemistry of tissue trauma: VIII. Tissue nucleotide changes induced by acute local cold, heat, and crush injury, by Harry G. Albaum and Lawrence J. Milch. U. S. Air Force. School of Aviation Medicine, Randolph Field, Tex. Sep 1954. 6p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115724

Results suggest that therapeutic measures aimed at maintaining the adenosine triphosphate level and the systems which generate it must be carried out as soon as possible following injury. Contract no. 18-(600)-453. AAF SAM Proj 21-1601-0017, Report no. 8.

Biological and medical aspects of ionizing radiation: Adenosine triphosphatase and 5-nucleotidase activity of hematopoietic tissues of irradiated animals, by Kenneth P. DuBois and Donald F. Fettersen. U. S. Air Force. School of Aviation Medicine, Randolph Field, Tex. May 1954. 8p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115734

Tissues exhibit an increase ability to hydrolyze adenosine triphosphate and 5-adenylic acid. This increase in enzyme activity was detectable as early as 3 hours after x-ray and reached a maximum within 72 hours. The alteration in enzyme activity was reversible with the rate of reversal depending upon the dose of x-ray. Contract no. AF 33(038)-27353. AAF SAM Proj 21-3501-0005, Report no. 13.

BCG vaccination in silicosis, by Arthur J. Vorwald, Morris Dworski, Edward C. J. Urban, Thomas Durkan, Philip C. Pratt, Anthony B. Delahant. Trudeau School of Tuberculosis. Saranac Laboratory, Saranac Lake, N. Y. Dec 1953. 48p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 115755

Pertains to experimental studies concerning the course of infection with attenuated BCG strains of tubercle bacilli in tissue under influence of free crystalline silica. Contract N7onr-307, Task II, NR 131-211, NR 105-002.

Control of Drosophila egg laying and offspring production by refrigeration, by C. H. Steinmetz and Wayne E. Lamke. U. S. Air Force. Air Research and Development Command. Holloman Air Development Center. Aero Medical Field Laboratory, Holloman Air Force Base, New Mexico. Sep 1954. 9p tables Available from Library of Congress, Publication Board Project, Washing-

ton 25, D. C. Microfilm \$1.50, Photocopy \$1.50.
PB 115735

1. Drosophila - Refrigeration 2. Cosmic radiation -
Physiological effects 3. AAF HADC TR 54-17.

Effect of goitrogen withdrawal on the pituitary-
thyroid system of the guinea pig, by S. A. D'Angelo,
C. E. Stevens, K. E. Paschkis, A. Cantarow, F.
William Sunderman, and G. Friedler. U. S. Air
Force. School of Aviation Medicine, Randolph
Field, Tex. May 1954. 11p photos, graphs, tables
Available from Library of Congress, Publication
Board Project, Washington 25, D. C. Microfilm
\$2.00, Photocopy \$2.75. PB 115720

The results indicate that PTU may alter mechanisms
in the thyroid which involve release as well as for-
mation of its hormone. Contract no. AF 18(600)-122.
AAF SAM Proj 21-1201-0013, Report no. 8.

Effect of refractive error on acuity through binoculars,
by Jo Ann Smith Kinney and Cornelia H. Pratt. U. S.
Navy. Medical Research Laboratory. Apr 1954.
16p drawing, graph, tables Available from Office of
Technical Services, U. S. Dept. of Commerce,
Washington 25, D. C. \$.50. PB 111524

A study was made of visual acuity through binoculars,
and of the extent to which refractive errors can be
corrected by adjusting the eyepieces of standard bin-
oculars. The acuity of individuals with varying types
of refractive error was measured by a liminal meth-
od using various dioptric settings in the binoculars,
and was shown to be best at the setting indicated by
the results of refractions. NAV MRL 245. NMRI
Proj NM 003.

Effects of aeromedical evacuation on various clinical
conditions: Inflight symptoms of cardiopulmonary
patients, by Benjamin A. Strickland, Jr., and Vin-
cent M. Downey. U. S. Air Force. School of Avia-
tion Medicine, Randolph Field, Tex. May 1954. 11p
tables Available from Library of Congress, Pub-
lication Board Project, Washington 25, D. C.
Microfilm \$2.00, Photocopy \$2.75. PB 115719

An analysis was made of the symptomatic reactions
occurring during 1,777 air-evacuation patient-flights
of individuals with cardiac and pulmonary disorders.
Symptoms occurred in 1 percent of patients listed
under "cardiac diseases", among those with "pul-
monary disorders, nontubercular," 2.4 percent had
symptoms related to the respiratory system; and
among patients listed under "pulmonary tuberculosis
and its complications," 2.7 percent showed mild or
moderate symptoms related to their disorder. AAF
SAM Proj 21-40-002, Report no. 3.

Further study of Alaskan schistosomes, by Reinard
Harkema, with technical assistance of Sturgis
McKeever. U. S. Air Force. Arctic Aeromedical
I laboratory, Ladd Air Force Base, Alaska. Sep
1954. 13p drawing Available from Library of
Congress, Publication Board Project, Washington
25, D. C. Microfilm \$2.00, Photocopy \$2.75.
PB 115723

Contract no. AF 18(600)-187.

1. Schistosomiasis - Therapy - Alaska 2. Diseases,
Parasitic - Control - Alaska 3. Infections, Parasitic
- Control - Alaska 4. North Carolina. State
College. Div. of Biological Sciences, Zoology,
Raleigh, N. C. 5. AAF AAL Proj 22-1401-0005,
Report no. 2.

Mechanical ventilation analogue, by J. O. Elam,
E. S. Brown, and J. D. Elder. U. S. Air Force.
School of Aviation Medicine, Randolph Field, Tex.
May 1954. 10p drawing, diagrs, graphs, tables
Available from Library of Congress, Publication
Board Project, Washington 25, D. C. Microfilm
\$1.50, Photocopy \$1.50. PB 115718

A mechanical system is described which serves as
an analogue for duplicating certain characteristics
of pulmonary ventilation. It incorporates adjustable
and independent control of rate, tidal volume, resi-
dual volume, dead space, CO₂ output, and air flow
pattern. Simultaneous data on flow and CO₂ output
obtained on the analogue are analyzed to establish
the validity for several applications. Contract no.
AF 18(600)-108. AAF SAM Proj unnumbered report.

Protection from depletion of supply in the Bureau of
Medicine and Surgery, by J. Jay Wolf and Joseph
B. Kruskal, Jr. George Washington University,
Washington, D. C. n.d. 9p graphs Available from
Library of Congress, Publication Board Project,
Washington 25, D. C. Microfilm \$1.50, Photocopy
\$1.50. PB 115742

Contract N7onr 419, Task order 4.

1. Consumption (Economics) - Theory 2. Medical
supplies 3. Inventories - Control 4. U. S. Bureau
of Medicine and Surgery - Supplies.

Some metabolic aspects of host-parasite interaction
using the albino mouse and Salmonella typhimur-
ium, by L. Joe Berry and Roland B. Mitchell. U.S.
Air Force. School of Aviation Medicine, Randolph
Field, Tex. May 1954. 16p graph, tables Avail-
able from Library of Congress, Publication Board
Project, Washington 25, D. C. Microfilm \$2.00,
Photocopy \$2.75. PB 115722

The number of bacteria per ml. of blood in mice in-
fected intraperitoneally with Salmonella typhimur-
ium was followed with time in groups of animals in-
jected at intervals post-infection with malonate,
fluoroacetate, succinate, citrate or, for control
mice, normal saline. The largest number of bac-
teria appeared in mice given malonate (3 million
per ml.) and the same animals had the shortest
survival time, 14.8 hours. Citrate was least effec-
tive but even these mice died 40 hours earlier than
control mice. Contract no. 18(600)-551. AAF SAM
Proj 21-1401-0004, Report no. 4.

Sterilization of oxygen masks with ethylene oxide,
by John D. Fulton and Roland B. Mitchell. U. S.
Air Force. School of Aviation Medicine, Randolph
Field, Tex. Jul 1954. 6p tables Available from
Library of Congress, Publication Board Project,

Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115733

U. S. Dept. of Commerce, Washington 25, D. C. \$1.25. PB 111531

Techniques for the sterilization of oxygen masks with ethylene oxide gas have been developed and evaluated. Under the experimental conditions employed, it was found that A-14 type oxygen masks could be sterilized by exposure to an atmosphere containing 1,500 mg. of ethylene oxide per liter, but only 16 hours' exposure to an atmosphere of 1,000 mg. of ethylene oxide were required to sterilize A-13 type masks. The residual ethylene oxide in the mask could be removed by aeration for a 24-hour period. Masks so treated were found to be nontoxic to test subjects. AAF SAM Proj Unnumbered report.

In this investigation, the major part of the effort was devoted to making and testing a special apparatus for determining the hot ductility of weld metals. The apparatus was designed so that the test specimen could be tested in tension after the center section had been cooled directly from the molten state to a pre-determined temperature. Special equipment was designed and constructed to measure the load required to fracture the specimen and to measure the elongation. Techniques were developed to measure the temperature at the center section. Some studies were made with weld-metal cracking test specimens to develop a specimen that could be used in conjunction with the hot-ductility studies. Techniques were also developed for using the electron microscope in the study of grain boundaries of weld metals. Second report under Contract AF 33(038)-12619. For first report see FB 111285. Summarizes work done from Aug 12, 1951 to Aug 12, 1952. AAF WADC TR 52-322. Part 1.

Survey of invertebrate disease vectors in Alaska, by Gordon D. Gill. U. S. Air Force. Arctic Aero-medical Laboratory, Ladd Air Force Base, Alaska. Oct 1954. 57p map, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115721

1. Disease carriers - Alaska 2. Insect control - Alaska 3. AAF AAL Proj 22-1401-0004, Report no. 2.

METALS AND METAL PRODUCTS

Chromium electroplating, by Arthur A. Burr, Donald G. Rogers, Robert E. Moore, Peter Lillys, and Alfred Taboada. Rensselaer Polytechnic Institute. Dept. of Metallurgical Engineering, Troy, N. Y. Sep 1951. 164p photos, diags, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$5.00. PB 111514

Aircraft material specification: Magnesium-zinc-cerium-zirconium alloy ingots and castings (as cast). (Zinc 4.0, rare earth metals 1.2, zirconium 0.7). Gt. Brit. Ministry of Supply. May 1954. 2p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.15. PB 115531

This investigation was an attempt to apply the fundamental concepts of thermodynamics and chemical reaction rate theory to the deposition process for chromium metal with a two-fold purpose in mind, namely (a) Improvement of plate quality (b) Improvement of deposition efficiency. The main portion of this report is devoted to the theory and experiments involved in this major objective. A few investigations which were incidental and supplementary in nature are included in the Appendix. Report of work begun Sep 1, 1947 under Contract no. W-30-115-ORD-4363 and terminated Sep 1, 1951 under Contract no. DA-30-115-ORD-2. O. O. project no. TR 3-3003-B.

Appendix: Method of determination of "available" zirconium.

1. Cerium-magnesium-zinc-zirconium alloys - Specifications - Gt. Brit. 2. Ingots, Cerium-magnesium-zinc-zirconium alloys - Specifications - Gt. Brit. 3. Castings, Cerium-magnesium-zinc-zirconium alloys - Specifications - Gt. Brit. 4. Zirconium - Determination - Gt. Brit. 5. Castings, Zinc alloy - Specifications - Gt. Brit. 6. MS DTD MS 738.

Electrodeposition of titanium and zirconium, by Robert M. Creamer, David H. Chambers, Charles E. White. U. S. Bureau of Mines. Dec 1953. 27p tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$.75. PB 111525

Aqueous, non-aqueous, and fused electrolytes have been investigated in an attempt to electrodeposit titanium and zirconium. Notes on some of the chemical aspects of the investigation are included. Contract no. AF 33(038)50-1085. AAF WADC TR 53-317.

Aircraft process specification: Chromate passivation of zinc surfaces. Gt. Brit. Ministry of Supply. Jun 1954. 2p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.15. PB 115533

1. Zinc - Coatings, Corrosion resistant - Gt. Brit. 2. Zinc - Coatings, Chromium - Gt. Brit. 3. MS DTD MS 923A.

Evaluation of germanium tin ingots from lots OU 136 and U 425 Eagle Pitcher Co. germanium dioxide. Interim report #2 under Contract OEMsr-1408, during the period Oct 15 through Dec 15,

Causes of cracking in high-strength weld metals, by A. J. Williams, A. J. Jacobs, P. J. Rieppel, C. B. Voldrich. Battelle Memorial Institute, Columbus, Ohio. Nov 1952. 50p photos, drawings, graphs, tables Available from Office of Technical Services,

1944, by H. C. Theuerer and J. H. Scaff. Western Electric Co. Dec 1944. 9p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115743

For report 1, 3-4 and final reports see PB 30799, 58241, 102620, 85501.

1. Rectifiers, Germanium
2. Germanium oxides - Electrical properties
3. Germanium - Electrical properties
4. Germanium - Etching, Electrolytic
5. Germanium alloys - Electrical properties
6. NDRC Div 14, Report 399
7. OSRD 2742.

Experimental investigation of notch-size effects on rotating-beam fatigue behavior of 75S-T6 aluminum alloy, by W. S. Hyler, R. A. Lewis and H. J. Grover. U. S. National Advisory Committee for Aeronautics. Nov 1954. 47p photo, diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115713

Unnotched and notched specimens with five different minimum-section diameters were tested. For each size a semicircular groove was tested and for the largest diameter specimen a V-notch was also tested. A method of surface preparation was selected that would produce comparable surface finishes in different-sized notched and unnotched specimens. NACA TN 3291.

Fundamentals of brazing. Final report under Contract no. DA-11-022-ORD-957, Jun 23, 1952 to Jun 23, 1953, by N. Bredzs and W. Rostoker. Armour Research Foundation, Chicago, Ill. Dec 1953. 114p photos, drawings, diagrs, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$3.50. PB 111509

For the fundamental investigation of the factors determining the tensile strength of the brazed joints, a reproducible method of brazing of tensile test bars by means of induction heating has been developed. Using this method a series of tensile strength-joint thickness curves has been obtained. The results are discussed. The second part of this report deals with an investigation of the mechanism of the wettability of the steel surfaces by molten filler metals. In an appendix to this report, the results of the chemical analysis of 39 commercial fluxes are summarized and discussed. Ordnance project no. TB1-0004. ARF project no. B039-6. Appendix: Results of chemical analyses of some commercial fluxes. ARF Proj B039-6, Final report.

Out-of-state purchases of primary and fabricated metal products by Texas organizations, 1953, by James R. Bradley. Texas. Engineering Experiment Station, College Station, Tex. Sep 1954. 15p photos, maps, tables Available from Texas Engineering Experiment Station, College Station, Texas. PB 115764

1. Metal industries - Statistics
2. Markets - Texas
3. TU EES RR 48.

Study of hard coating for aluminum alloys, by F. J. Gillig. Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y. Oct 1953. 23p graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$75. PB 111320s

The corrosion resistance in three environments was evaluated up to 11 months. The abrasion resistance showed another small decrease with the five-month additional exposure to atmospheric and high humidity conditions. Two treatments that were given the coatings on 61S and 75S alloys appear to alleviate the drastic reduction in fatigue strength brought about by the coatings. Oil was found to have a detrimental effect on the resistance to an erosion type of wear. Contract AF 18(600)-98. AAF WADC TR 53-151, supplement 1.

Thermenol, a non-strategic aluminum-iron base alloy for high temperature service, by J. F. Nachman and W. J. Buehler. U. S. Naval Ordnance Laboratory, White Oak, Md. Jun 1954. 18p photos, drawings, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$50. PB 111530

A detailed presentation is given of the melting, casting, and hot and cold-rolling techniques used in producing the Thermenol-type alloys in sheet form. Particular emphasis is placed upon the importance of obtaining a fine equiaxed grain size in the cast slab. The effects of some common impurities are discussed, with emphasis on the desirability of obtaining reasonably low carbon and oxygen content. Stress-to-rupture properties at elevated temperatures of the Thermenol alloy containing nominally 3% molybdenum are presented. Other physical and magnetic properties of Thermenol are presented and potential applications utilizing these properties are discussed. NAVORD 3700.

Universal spectrographic method for the analysis of iron and steel, by S. Weisberger, F. Pristera, W. Fredericks, H. Hyman, A. Castelli. U. S. Picatinny Arsenal, Dover, N. J. Jan 1954. 72p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.75, Photocopy \$10.25. PB 115587

Ordnance project no. WD-5277-53 (Part A) Item no. 18.
1. Iron - Spectrographic analysis
2. Steel - Spectrographic analysis
3. Spectrographic analysis - Methods
4. PATR 1989.

METEOROLOGY AND CLIMATOLOGY

Atmospheric oscillations. New York University. College of Engineering. Dept. of Meteorology and Oceanography. Under Contract AF 19(122)-49, by B. Haurwitz. Project 122. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Report no. 1, 15 Apr 1949-14 Jun 1949. Jun 1949. 13p Microfilm \$2.00, Photocopy \$2.75.

PB 115642

For final report see PB 114604.

1. Oscillations, Atmospheric 2. Solar radiation - Effect on temperature 3. Atmosphere - Turbulence.

Report no. 2, 15 Jun 1949-14 Sep 1949. Sep 1949. 12p Microfilm \$2.00, Photocopy \$2.75.

PB 115678

1. Oscillations, Atmospheric 2. Atmosphere - Thermodynamics - Theory 3. Atmosphere - Turbulence - Theory.

Progress report no. 122-03, covering period from Sep 16, 1949 to Dec 15, 1949. Dec 1949. 12p table Microfilm \$2.00, Photocopy \$2.75. PB 115679

1. Oscillations, Atmospheric 2. Atmosphere - Thermodynamics - Theory 3. Atmosphere - Pressure - Harmonic analysis.

Progress report 122-04, covering period from 16 Dec 1949 to 14 Apr 1950. Apr 1950. 40p diags, table Microfilm \$2.50, Photocopy \$5.25.

PB 115680

1. Oscillations, Atmospheric 2. Atmosphere - Thermodynamics - Theory 3. Atmosphere - Pressure - Harmonic analysis.

Progress report no. 122-09, covering period from 15 Apr 1951 to 14 Jul 1951. Jul 1951. 49p graphs, tables Microfilm \$2.75, Photocopy \$6.50.

PB 115681

1. Oscillations, Atmospheric 2. Atmosphere - Pressure - Harmonic analysis.

Progress report no. 122-10, covering period from 15 Jul 1951 to 14 Oct 1951. Oct 1951. 22p diags Microfilm \$2.25, Photocopy \$4.00. PB 115682

Appendix: Bibliography on atmospheric tides, by Wan-Cheng Chiu.

1. Oscillations, Atmospheric 2. Atmosphere - Pressure - Harmonic analysis 3. Oscillations, Lunar - Bibliography.

Progress report no. 122-11, covering period from 15 Oct 1951 to 14 Jan 1952. Jan 1952. 11p. Microfilm \$2.00, Photocopy \$2.75. PB 115429

1. Oscillations, Atmospheric 2. Atmosphere - Pressure - Harmonic analysis 3. Atmosphere - Thermodynamics - Theory.

Daylight luminescence and infrared absorption. Denver. University, Denver, Colo. Under Contract no. W-19-122-ac-16, by Byron E. Cohn. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Quarterly report no. 2. Oct 1948. 52p drawings, diags Microfilm \$3.00, Photocopy \$7.75.

PB 115612

1. Cameras, Spectroscopic - Design 2. Cameras, Recording - Design 3. Atmosphere, Upper - Spectrographic analysis 4. Sky - Brightness - Measurement.

Quarterly report no. 5. Jul 1949. 70p photos, drawings, diags, tables Microfilm \$3.25, Photocopy \$9.00. PB 115613

1. Balloons, Meteorological - Flight tests 2. Monochromators - Design 3. Spectrographs, Ultraviolet - Design 4. Atmosphere, Upper - Spectrographic analysis.

Quarterly report no. 6. Oct 1949. 63p photos, drawing, diags Microfilm \$3.25, Photocopy \$9.00. PB 115614

1. Spectrographs, Ultraviolet - Design 2. Spectrographs, Infrared - Design 3. Balloons, Meteorological - Tracking 4. Balloons, Meteorological - Flight tests 5. Vibration - Testing equipment.

Quarterly report no. 8. Mar 1950. 107p photos, diags, graphs (part fold) Microfilm \$4.75, Photocopy \$14.00. PB 115615

1. Spectrographs, Ultraviolet - Design 2. Infrared - Research 3. Rockets, Upper air - Equipment 4. Timers, Control.

Quarterly report no. 9. Jun 1950. 72p photos, drawing, diags Microfilm \$3.75, Photocopy \$10.25. PB 115675

1. Atmosphere, Upper - Radioactivity 2. Rockets Upper air - Equipment 3. Detectors, Infrared - Design 4. Detectors, Photoelectric - Design 5. Spectrographs, Ultraviolet - Design 6. Infrared absorption.

Quarterly report no. 14. Oct 1951. 47p photos, drawings (1 fold), diag, table Microfilm \$2.75, Photocopy \$6.50. PB 115676

1. Rockets, Upper air - Equipment 2. Spectrographs, Infrared - Design 3. Spectrographs, Ultraviolet - Design 4. Cameras, Spectroscopic - Design 5. Atmosphere, Upper - Water vapor content.

Final report. 1952. 80p photos, graphs, table Microfilm \$3.75, Photocopy \$10.25. PB 115677

1. Rockets, Upper air - Equipment 2. Solar radiation - Measurement 3. Solar radiation - Measuring equipment 4. Atmosphere, Upper - Water vapor content 5. Spectrographs, Infrared - Design 6. Spectrographs, Ultraviolet - Design 7. Luminescence - Measurement.

Determination of atmospheric winds and temperatures in the 30- to 60-kilometer region by acoustic means. Quarterly progress report no. 3 covering the period 1 Dec 1950 to 28 Feb 1951 under Contract no. AF 19(122)-252, by John M. Richardson and V. C. Huffsmith. Denver. University. Institute of Industrial Research, Denver, Colo. Apr

1951. 79p photos, diagrs, graphs, tables (1 fold)
Available from Library of Congress, Publication
Board Project, Washington 25, D. C. Microfilm
\$3.75, Photocopy \$10.25. PB 115616

1. Atmosphere, Upper - Turbulence - Measurement
2. Atmosphere, Upper - Temperature - Measurement
3. Acoustic measurements
4. Recorders, Automatic
- Design
5. Winds, Ionospheric - Measurement.

Determination of neutron maximum at high altitudes,
by William O. Davis. New York University. College
of Engineering. Research Division. Mar 1950. 55p
photos, diagrs, tables Available from Library of
Congress, Publication Board Project, Washington
25, D. C. Microfilm \$3.00, Photocopy \$7.75.
PB 115625

Contract no. AF 28(099)-10. Technical report 118.5
covering period from Nov 15, 1948 to Mar 15, 1950.
Project no. 118.

1. Neutrons - Density
2. Neutrons - Detection
3. Radiation counters - Design
4. Atmosphere,
Upper - Ionization.

Dynamic aspects of the general circulation and the
stability of zonal flow, by Hsiao-lan Kuo. Mass-
achusetts Institute of Technology. Dept. of Mete-
orology. Sep 1950. 159p diagrs, map, graphs, tables
Available from Library of Congress, Publication
Board Project, Washington 25, D. C. Microfilm
\$6.25, Photocopy \$20.25. PB 115611

Report no. 4, General circulation project, Contract
no. AF 19-122-153. Contains the following reprints:
On the stability of two-dimensional parallel flows.
Part I: General theory, by C. C. Lin. (Reprinted
from Quarterly of Applied Mathematics, Vol. III, no.
2, July 1945, p. 117-142). - On the stability of two-
dimensional parallel flows. Part II: Stability in an
inviscid fluid, by C. C. Lin (Reprinted from Quarterly
of Applied Mathematics, Vol. III, no. 3, Oct 1945, p.
218-234). - On the stability of two-dimensional paral-
lel flows. Part III: Stability in a viscous fluid, by
C. C. Lin (Reprinted from Quarterly of Applied Math-
ematics, Vol. III, no. 4, Jan 1946, p. 279-301). - On
the asymptotic solution of the differential equation of
small disturbances in a laminar flow, by Wolfgang
Wasow (Reprinted from Proceedings of the National
Academy of Sciences, Vol. 33, no. 8, p. 232-234, Aug
1947). - Dynamic instability of two-dimensional non-
divergent flow in a barotropic atmosphere, by Hsiao-
lan Kuo (Reprinted from Journal of Meteorology, Vol.
6, no. 2, Apr 1949, p. 105-122). - Motion of atmos-
pheric vortices and the general circulation, by Hsiao-
lan Kuo (Reprinted from Journal of Meteorology, Vol.
7, no. 4, Aug 1950, p. 247-258).

1. Atmosphere - Angular momentum
2. Atmosphere -
Circulation
3. Atmosphere - Turbulence - Meteoro-
logical aspects
4. Atmosphere - Stability - Mathema-
tical analysis
5. Flow, Laminar - Theory
6. Flow,
Viscous - Theory
7. Cyclones - Dynamics
8. Vortex
motion - Theory.

Example of tropical cyclogenesis, symmetrical with
respect to the equator, by Gordon A. Dean. Califor-
nia. University. Institute of Geophysics. Oahu Re-

search Center, Oahu, Hawaiian Islands. Apr 1954.
183p maps (part fold), tables Available from
Library of Congress, Publication Board Project,
Washington 25, D. C. Microfilm \$7.00, Photo-
copy \$24.00. PB 115572

Scientific report no. 3 under Contract no. AF 19-
(604)-546.

1. Cyclones, Tropical - Development
2. Cyclones,
Tropical - Forecasting.

Experimental studies of small scale turbulence.
New York University. College of Engineering. Re-
search Division. Under Contract no. AF 19(122)-
261. Order separate parts described below from
Library of Congress, Publication Board Project,
Washington 25, D. C., giving PB number of each
part ordered.

Progress report 142-03, 1 Dec 1950 to 28 Feb
1951, by James E. Miller, A. K. Blackadar,
Bernard Shorr, and David Slade. Feb 1951. 37p
diagr Microfilm \$2.50, Photocopy \$5.25.
PB 115638

In this, the third progress report of the small
scale turbulence project, further studies of
technique are presented in part one, errors re-
sulting from the falling of the particles are dis-
cussed in part two, some extensions of the
theory of the simple turbulence model are de-
scribed in part three, and an application of the
general stress formula to the simple model is
developed in part four.

Progress report 142-05, 1 June to 31 Aug 1951,
by James E. Miller, A. K. Blackadar, Gerald D.
Berndt, Hassan A. Shirazi. Aug 1951. 27p graphs
table Microfilm \$2.25, Photocopy \$4.00.
PB 115639

In Part One the turbulence model is generalized
and the effect of the condition of mass continuity
is examined for two cases. In Part Two the re-
liability of mean wind vectors computed for Set
IV is examined in some detail.

Progress report 142-06, 1 Sep to 30 Nov 1951,
by A. K. Blackadar, James E. Miller, Wan-cheng
Chiu, Theodore R. Frontenac. Nov 1951. 44p
diagrs, tables Microfilm \$2.75, Photocopy
\$6.50. PB 115640

This report is a complete summary of the ana-
lysis of one experiment called "Set IV." In
Part One the primary results, such as the field
of mean motion, stress, etc., are summarized.
In Part Two these results are compared to cer-
tain theories of turbulence. In Part Three there
is offered a physical explanation of the vortex
observed in the field of mean motion.

Extreme ultra-violet research. Scientific report no.
I, 1 Mar 1953-1 Mar 1954, by John P. Curtis,
William A. Rense, Barbara Todd. Colorado. Uni-
versity. Dept. of Physics, Boulder, Colo. Mar
1954. 63p photos, drawings, diagrs, graphs, tables
Available from Library of Congress, Publication

Board Project, Washington 25, D. C. Microfilm \$3.25, Photocopy \$9.00. PB 115463

Publication Board Project, Washington 25, D. C. Microfilm \$5.25, Photocopy \$16.50. PB 115595

Contract AF 19(604)-631.

1. Ultraviolet radiation - Research
2. Ultraviolet radiation - Sources
3. Spectroscopy, Ultraviolet
4. Iodine - Spectrographic analysis.

Final report, part 2, under Contract no. AF 19(122)-153; General circulation project.

1. Winds - Measurements
2. Atmosphere - Angular momentum
3. Atmosphere - Circulation.

Fog modification by cold-water seeding, by Vernon G. Plank. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Geophysics Research Directorate, Cambridge, Mass. Aug 1954. 28p diags, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$.75. PB 111560

1. Clouds - Seeding
2. Fog - Heat transfer
3. Fog - Mass transfer
4. Fog - Visibility
5. Drops, Liquid - Coalescence - Theory
6. AAF GRD P 31
7. AAF CRC TR 54-201.

High altitude balloon trajectory study. New York University. College of Engineering. Research Division. Under Contract AF 19(122)-45. Project no. 121. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Progress report 121.01, covering period from Mar 1, 1949 to Jun 15, 1949, by James R. Smith. Jun 1949. 18p photos, drawings, diags, graphs, maps, table Microfilm \$2.00, Photocopy \$2.75. PB 115704

1. Trajectories, Balloon
2. Balloons, Meteorological - Flight tests
3. Balloons, Meteorological - Control systems.

Progress report 121.02, covering period from Jun 16, 1949 to Sep 15, 1949, by James R. Smith. Sep 1949. 27p diagr, graphs, maps, table Microfilm \$2.25, Photocopy \$4.00. PB 115705

1. Trajectories, Balloon
2. Balloons, Meteorological - Flight tests
3. Balloons, Meteorological - Control systems.

Forecasting upper-level winds. Part 1: Forecasting by vorticity techniques. U. S. Air Force. Air Weather Service, Andrews Air Force Base, Washington, D. C. Jun 1954. 53p maps, diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115662

1. Atmosphere, Upper - Turbulence
2. Vortex motion - Theory
3. Winds - Forecasting
4. AAF AWS M 105-50/1.

Progress report 121.03, covering period from Sep 16, 1949 to Dec 15, 1949, by James R. Smith. Dec 1949. 7p Microfilm \$1.50, Photocopy \$1.50. PB 115706

1. Trajectories, Balloon
2. Balloons, Meteorological - Bibliography.

Further studies on the relation between upper level flow and surface meteorological processes, by Joseph J. George, R. J. Shafer, R. M. Whiting, P. W. Funke, R. D. Roche, H. B. Visscher. Eastern Air Lines, Inc. Meteorology Dept., Municipal Airport, Atlanta, Ga. Jun 1954. 141p maps, diags, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$6.00, Photocopy \$19.00. PB 115509

Progress report 121.04, covering period from Dec 15, 1949 to Mar 15, 1950, by James R. Smith. Mar 1950. 20p maps, graphs Microfilm \$2.00, Photocopy \$2.75. PB 115707

Includes Calculations of geostrophic deviations by means of observations of balloon trajectories, by Gardner Emmons.

1. Trajectories, Balloon
2. Balloons, Meteorological - Flight tests
3. Balloons, Meteorological - Control systems
4. Winds, Geostrophic.

Scientific report no. 2 under Contract no. AF 19(122)-468. For 1st report see PB 111268. For final report see PB 115094.

1. Cyclones - Forecasting
2. Meteorological forecasting
3. Atmosphere, Upper - Research.

Technical report 121.05, covering period from Mar 15, 1949 to Jun 15, 1950, by William D. Murray and James R. Smith. Jul 1950. 160p photos, diags, maps (part fold), graphs, table Microfilm \$6.25, Photocopy \$20.25. PB 115637

Includes Special papers: No. 1. Calculations of geostrophic deviations by means of balloon trajectories, by Gardner Emmons. - No. 2. Preliminary investigation into the possibility of forecasting constant altitude balloon trajectories, by S. M. Greenfield, B. D. Gildenberg, and W. J. Brown. - No. 3. Comparison of geostrophic winds with constant altitude balloon trajectories,

Geomagnetism and the emission-line corona, 1950-53, by Barbara Bell and Harold Glazer. Harvard University. Harvard College Observatory. Solar Dept. Jul 1954. 74p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.75, Photocopy \$10.25. PB 115596

Contract AF 19(604)-146.

1. Geomagnetism
2. Corona discharges - Measurement
3. HU HCO SR 17.

Hemispheric wind conditions during the year 1950, by Hans S. Buch. Massachusetts Institute of Technology. Dept. of Meteorology. May 1954. 130p maps, graph, tables Available from Library of Congress,

by William D. Murray.

1. Trajectories, Balloon 2. Balloons, Meteorological - Flight tests 3. Winds, Geostrophic.

Insolation of the atmosphere. Rhode Island State College. Upper Atmosphere Research Laboratory, Kingston, R. I. Under Contract no. AF 19(122)-249. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Progress report no. 2, covering period Sep 25, 1950 to Dec 25, 1950, by Arthur L. Quirk. Dec 1950. 9p Microfilm \$1.50, Photocopy \$1.50.

PB 115607

1. Solar radiation - Measuring equipment
2. Rockets, Upper air - Equipment 3. Rockets, Upper air - Control systems.

Report no. 4, by John G. Albright. Jan 1949. 42p photos, diags, graphs Microfilm \$2.75, Photocopy \$6.50.

PB 115606

1. Solar radiation - Measuring equipment
2. Atmosphere, Upper - Research 3. Bolometers - Components - Design 4. Coils, Detector - Materials 5. Truflex B1 (Trade name).

Report no. 8, by Arthur L. Quirk. Jan 1950. 33p photo, diags, graphs Microfilm \$2.50, Photocopy \$5.25.

PB 115608

1. Solar radiation - Measuring equipment
2. Atmosphere, Upper - Research 3. Thermistors - Design 4. Radiation, Black body.

Report no. 9, by Arthur L. Quirk. Apr 1940. 30p photos, diags, graphs, tables Microfilm \$2.25, Photocopy \$4.00.

PB 115609

1. Solar radiation - Measuring equipment
2. Atmosphere, Upper - Research 3. Aerobee (Rocket) 4. Rockets, Upper air - Equipment.

Final report no. 10, by Arthur L. Quirk. Jun 1950. 90p photos, diags, graphs, tables Microfilm \$4.00, Photocopy \$11.50.

PB 115610

Research continued under Contract no. AF 19-(122)-249.

1. Solar radiation - Measuring equipment
2. Atmosphere, Upper - Research 3. Aerobee (Rocket) 4. Pyrheliometers - Design 5. Thermistors - Design 6. Bolometers - Design 7. Rockets, Upper air - Equipment.

Interim engineering report. Oregon. University. Dept. of Physics, Eugene, Ore. Under Contract W29-099-ac-279, by A. E. Caswell. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

No. 1, for period ending Aug 31, 1947. Aug 1947. 2p Microfilm \$1.50, Photocopy \$1.50.

PB 115652

1. Atmosphere, Upper - Research 2. Atmosphere, Upper - Radioactivity.

No. 2, for period ending Nov 30, 1947. Nov 1947. 8p Microfilm \$1.50, Photocopy \$1.50.

PB 115653

Includes Report on design and construction of a Wilson cloud chamber for studies of the radioactivity of the upper atmosphere, by E. G. Ebbighausen, and Report on the use of scintillation counters to be installed in high altitude rockets for the purpose of measuring the radioactivity of the upper atmosphere, by P. A. Goldberg.

1. Cloud chambers - Design 2. Detectors, Scintillation - Design 3. Atmosphere, Upper - Radioactivity 4. Alpha rays - Measuring equipment.

No. 3, for period ending Feb 29, 1948. Feb 1948. 15p Microfilm \$2.00, Photocopy \$2.75.

PB 115654

Includes Progress report on the adaptation and development of scintillation counters to be installed in V-2 rockets for determining the radioactive content of the upper atmosphere, by Philip A. Goldberg, and Progress report on the construction of a Wilson cloud chamber with a magnetic field to be sent aloft in a V-2 rocket for the investigation of the upper atmosphere, by E. G. Ebbighausen. - Suggestions and questions about I. R. spectroscopy in rocket program, by Fred W. Paul.

1. Cloud chambers - Design 2. Detectors, Scintillation - Design 3. Atmosphere, Upper - Radioactivity 4. Spectroscopy, Infrared.

No. 4, for period ending May 31, 1948. May 1948. 24p photos Microfilm \$2.25, Photocopy \$4.00.

PB 115655

1. Atmosphere, Upper - Radioactivity 2. Rockets, Upper air - Equipment 3. Detectors, Scintillation - Design 4. Phosphors - Tests 5. Cloud chambers - Design 6. Telemetering, Rocket - Equipment.

No. 5, for period ending Aug 31, 1948. Aug 1948. 15p photos, diags Microfilm \$2.00, Photocopy \$2.75.

PB 115656

1. Atmosphere, Upper - Radioactivity 2. Detectors, Scintillation - Design 3. Rockets, Upper air - Equipment.

No. 6, for period ending Nov 30, 1948. Nov 1948. 5p Microfilm \$1.50, Photocopy \$1.50.

PB 115657

1. Detectors, Scintillation 2. Phosphors - Preparation 3. Atmosphere, Upper - Radioactivity.

No. 7, for period ending Feb 28, 1949. Mar 1949. 28p photos, diags Microfilm \$2.25, Photocopy \$4.00.

PB 115658

1. Detectors, Scintillation - Design 2. Phosphors - Preparation 3. Furnaces - Design 4. Atmosphere, Upper - Radioactivity.

basic assumptions upon which the table is constructed are defined. AAF CRD SG 53. AAF CRC TR 54-25.

Investigations of turbulent temperature fluctuations in the lower atmosphere, by A. Richard Kassander, Jr., Robert M. Stewart, Jr., James E. McDonald, Barrett Doyle. Iowa State College. Physics Dept., Ames, Ia. Jul 1954. 11p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115501

On the vertical distribution of atmospheric ozone, by Victor H. Regener. New Mexico. University. Dept. of Physics, Albuquerque, N. Mex. Jul 1954. 59p diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115499

Contract no. AF 19(122)-440, Final report.
1. Atmosphere - Temperature - Measurement.

Contract no. AF 19(122)-381. Scientific report no. 2.
1. Atmosphere, Upper - Ozone - Measurement.

Juneau ice field research project, Alaska. American Geographical Society. Dept. of Exploration and Field Research, New York, N. Y. Order separate parts described below from American Geographical Society, Dept. of Exploration and Field Research, Broadway at 156th Street, New York 32, N. Y.

Ozonesonde development. Progress report 140.04 covering period from Feb 15, 1951 to May 15, 1951, under Contract AF 19(122)-238, by William D. Murray. New York University. College of Engineering. Research Division. Jun 1951. 30p photos, drawings, diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115632

1950 summer field season, by Maynard M. Miller. Sep 1954. 203p drawings, graphs, (part fold), maps, tables PB 115700

For 1st-3d reports see PB 113351-113353.
1. Ozonesondes - Design 2. Atmosphere, Upper - Ozone - Measurement 3. Solar radiation - Measurement 4. Spectroscopes, Photomultiplier - Design.

J.I.R.P. Report no. 7.
1. Glaciers - Research - Alaska 2. Ice - Properties - Alaska 3. Meteorological research - Alaska.

1951 winter season, by Maynard M. Miller. Dec 1953. 86p maps, graphs, tables PB 115752

Seasonal trends of temperature, density, and pressure in the stratosphere obtained with the searchlight-probing technique, by L. Elterman. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Geophysics Research Directorate. Atmospheric Physics Laboratory, Cambridge, Mass. Jul 1954. 81p photos, diagrs, graphs (1 fold), tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$2.25. PB 111551

J.I.R.P. Report no. 8.
1. Glaciers - Research - Alaska 2. Ice - Properties - Alaska 3. Meteorological research - Alaska.

Progress report, 1953, under Contract N9onr-83001, by Lawrence E. Nielsen. Dec 1953. 65p map, diagr, tables PB 115753

1. Glaciers - Research - Alaska 2. Meteorological research - Alaska.

1. Light - Scattering - Measurement 2. Stratosphere - Density - Measurement 3. Stratosphere - Pressure - Measurement 4. Stratosphere - Temperature - Measurement 5. Searchlights - Use in atmospheric measurements 6. Seasonal trends of temperature in the stratosphere 7. AAF GRD P 29 8. AAF CRC TR 54-19.

Method of correcting tabulated rawinsonde wind speeds for curvature of the earth, by R. Levifon. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Geophysics Research Directorate. Atmospheric Devices Laboratory, Cambridge, Mass. Jun 1954. 17p graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115473

Sierra wave project. Final report under Contract no. AF 19(122)-283, by Jørgen Holmboe and Harold Klieforth. California. University. Dept. of Meteorology, Los Angeles, Calif. Jul 1954. 72p photos, maps, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.75, Photocopy \$10.25. PB 115570

A method of correcting wind speeds as obtained by rawinsonde observations for the effect of the earth's curvature is presented. The method employs the use of a table and is applicable to tabulated data (wind speed and height) as measured by standard procedures. The only requirements are that the average wind, from the surface to a height, be computed and the rate of ascension be known. The manner of using the table is discussed and examples shown. The

For other reports on this contract see PB 113242-113246, 113252-113253, 113255.
1. Atmosphere - Turbulence - Meteorological aspects 2. Atmosphere - Angular momentum - Effect of mountains.

Sky noise measurements. Quarterly report no. 11, Apr 1, 1954-Jun 30, 1954, under Contract no. AF 19(604)-41, by W. M. Protheroe. Ohio State University Research Foundation, Columbus, Ohio. Aug 1954. 16p graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115553

The over-all emphasis of this investigation remains on the study of stellar scintillation through the medium of magnetic tape recording of photoelectric observations. Preliminary results of the study of the effect of aperture size and zenith distance upon the measured scintillation are given. A summary of the paper entitled "Determination of Shadow Band Structure from Scintillation" presented at the Spring meeting of the American Astronomical Society is presented in the Appendix of this report. For report no. 9 see PB 114492. ARF Proj 480, Report no. 11. AAF CRC TN 54-174.

Study of the atmospheric heat balance, by Julius London. New York University. College of Engineering. Research Division. May 1951. 22p diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115626

Contract AF 19(122)-165. Progress report no. 131.06, covering period from 1 Feb to 1 May 1951. Project no. 131.

1. Atmosphere - Heat transference 2. Atmosphere, Upper - Temperature - Measurement 3. Atmosphere - Radioactivity.

MINERALS AND MINERAL PRODUCTS

Aircraft material specification: 9 1/4 oz. glass fabric, satin weave. Gt. Brit. Ministry of Supply. Jun 1954. 2p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.15. PB 115534

1. Fabrics, Glass - Specifications - Gt. Brit. 2. MS DTS MS 5501.

Study of moisture-content determinations on selected soils. U. S. Waterway Experiment Station, Vicksburg, Miss. Sep 1954. 11p graph, table Available from U. S. Waterways Experiment Station, Vicksburg, Miss. PB 115732

This report describes the tests performed and the results of the investigation, together with a suggested laboratory procedure for determining reliable moisture-content values on those soils that give erratic values in the standard laboratory moisture-content test. WES MP 4-73.

ORDNANCE AND ACCESSORIES

Ordnance: Government-owned inventions available for license. U. S. Government Patents Board. Oct 1954.

64p Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$2.00. PB 111469

1. Ordnance - Patents - Bibliography 2. Patents - Bibliography 3. GPB PA 6.

PACKING AND PACKAGING

Cover, protective, individual, E14R4, by Norman Reich. U. S. Chemical Corps. Chemical and Radiological Laboratories, Army Chemical Center, Md. Jul 1954. 42p photos, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 115430

Project 4-80-04-008. Final engineering test no. 100. 1. E14R4 (Protective cover) 2. Chemical warfare agents - Protection 3. Covers, Protective - Tests 4. CC CRL R 382.

Low temperature test methods and standards for containers, a symposium sponsored by the Quartermaster Food and Container Institute for the Armed Forces, Palmer House, Chicago, Dec 10, 1953, edited by Earl C. Myers and Norbert J. Leinen. National Research Council. Advisory Board on Quartermaster Research and Development. Committee on Packing, Packaging and Preservation. Sep 1954. 133p photos, diagrs, graphs, tables Available from Quartermaster Food and Container Institute for the Armed Forces, 1819 W. Pershing Road, Chicago 9, Ill. PB 115762

Surveys of progress on military packaging problems, series 1: Research in packaging engineering, no. 1. Contents: I. Military implications: Impact of global concepts of military planning, by William D. Jackson. - Importance of low-temperature performance in military packaging, by Donald K. Tressler. - Packaging aspects of modern combat, by Rohland A. Isker. - II. Facilities for low-temperature research: Observed facilities for low-temperature research and test of military material, by P. W. Espenshade. - Design and construction of Quartermaster climatic research chambers at Natick, Mass., by Leslie F. Zsuffa. - III. Effect of low temperatures on containers: Strength of wood at low temperatures, by Kenneth H. Boller. - Water vapor permeability of sheet materials, by L. E. Simerl. - Background of use of multiwall bags by the Armed Forces, by Finch Stowell. - Testing multiwall bags at low temperatures, by Robert T. Seith. - IV. Effect of low temperature on container components: Toughness and gas transfer characteristics of plastic films at low temperatures, by A. J. Freeman, M. M. Renfrew, and L. W. Sheridan. - Low temperature degradation of flexible barrier materials, by Howard M. Weiner.

PHOTOGRAPHIC AND OPTICAL GOODS

Investigation of particle size by differential settling.
Progress report no. 7 covering period May 31, 1951 through Aug 31, 1951 under Contract AF 19(122)-164, by Joseph T. Benedict. Columbia University. Colloid Research Laboratories. Aug 1951. 13p photo, drawing, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75.
PB 115729

Includes Forward scattering aerosol camera, by P. K. Lee.

1. Particles - Size - Measurement
2. Aerosols - Particle size - Measurement
3. Cameras, Aerosol - Design.

PHYSICS

General

Acoustic measurements in an echoic tank, by H. M. Fitzpatrick and T. E. Conway. U. S. David W. Taylor Model Basin. Aug 1950. 19p photos, drawing, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75.
PB 115479

Experiments are performed in hydrodynamic facilities whose reflecting walls greatly modify the intensity levels at the measuring hydrophone. The measurement of the rate of decay of reverberations in tanks forming such acoustical cavities should afford a quantitative evaluation of the effect of reverberations upon observed levels and allow the required absolute measurements to be made. NS 713-049. DWTMB C-339.

Earth's magnetism and magnetohydrodynamics. Utah. University. Dept. of Physics, Salt Lake City, Utah. Under Contract Nonr 1288(00). Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Technical report no. 6: Theory of the solar magnetic field, by Eugene N. Parker. Aug 1954. 36p diags Microfilm \$2.50, Photocopy \$5.25.
PB 115748

1. Magnetic fields - Sun
2. Magnetism, Solar.

Technical report no. 9: Formation of sunspots from the solar toroidal field, by Eugene N. Parker. Sep 1954. 42p diags Microfilm \$2.75, Photocopy \$6.50.
PB 115749

1. Sunspots - Formation
2. Magnetic fields - Sun.

Technical report no. 10: Hydromagnetic effects of upswelling near a boundary, by W. L. Bade. Sep 1954. 29p Microfilm \$2.25, Photocopy \$4.00. PB 115750

Appendix A: Solution of Laplace's equation in a semi-infinite region.
1. Hydromagnetic theory
2. Laplace functions
3. Magnetic fields - Diffusion - Theory.

Equations, tables, and charts for compressible flow. U. S. National Advisory Committee for Aeronautics. 1953. 73p diags, graphs, tables Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. \$.55. PB 115573

This report presents a compilation of equations, tables, and charts useful in the analysis of high-speed flow of a compressible fluid. The equations provide relations for continuous one-dimensional flow, normal and oblique shock waves, and Prandtl-Meyer expansions for both perfect and imperfect gases. NACA 1135. NACA TN 1428, revised.

Molecular light scattering from gases. Final report, period 1 Jan 1951-31 Dec 1953, under Contract AF 19(122)-400, by Frank T. Gucker, Jr. and Sadhan Basu. Indiana. University. Dept. of Chemistry, Bloomington, Ind. Aug 1954. 33p drawings, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$5.25.
PB 115505

1. Light - Scattering - Theory
2. Light - Scattering - Measurements
3. Light - Scattering - Angular distribution
4. Light - Scattering - Measuring equipment
5. Rayleigh's theory.

Non-uniform rotation of the earth and geomagnetic drift, by W. M. Elsasser and H. Takeuchi. Utah. University. Dept. of Physics, Salt Lake City, Utah. Sep 1954. 17p diags Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75.
PB 115751

The transmission of mechanical forces of the magnetic field through the top layers of the core and into the mantle is analyzed. It is shown that moderate fluctuations of the toroidal field near the boundary of the core are adequate to produce the observed variations in the earth's rate of rotation. A simple model of the boundary layer of the core is worked out and it is shown that the angular velocity, on going down from the boundary of the core, must first decrease and then increase again, in agreement with the observations on the westerly drift and with the dynamo theory. Technical report no. 11 under Contract Nonr 1288(00): Earth's magnetism and magnetohydrodynamics.

Paper-pencil laboratory tests and their relationship to various achievement measures in physics, by Haym Kruglak. Minnesota. University. Dept. of Physics. Dec 1953. 32p diagr, tables Avail-

able from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$5.25. PB 115754

The characteristics of the tests were investigated and relationships with other achievement measures were explored. The investigation lends support to the hypothesis that paper-pencil laboratory tests contain elements other than those evaluated by performance tests and the conventional measures of achievement in elementary physics. Contract N8onr-66213, Project NR 153-148. Technical report no. 7.

Parallel reflection of light by plane mirrors, by Joseph B. Keller. New York University. Washington Square College of Arts and Science. Mathematics Research Group. Oct 1951. 7p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115644

All configurations of two or three mirrors meeting at a point and having the property that any ray incident on them is reflected back parallel to its original direction, are determined. The results include the well-known cases of two and three mutually orthogonal mirrors, as well as other cases, apparently new. It is also shown that there are no configurations of more than three mirrors meeting at a point, which have this property. Contract no. AF 19(122)-42. NYU RR EM-36.

Plastic deformations of a free ring under concentrated dynamic loading, by R. H. Owens and P. S. Symonds. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. Jan 1954. 32p diags, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$5.25. PB 114574

The problem considered in this paper is to determine the deformations of the ring when the force magnitudes are such that plastic strains large compared with elastic strains occur. By neglecting elastic strains to the final deformations of the ring are obtained. The analysis is developed for force pulses of arbitrary shape, but numerical results are obtained only in the special case of a rectangular force pulse. A criterion is stated for conditions when this type of analysis can be expected to provide satisfactory results. Advance copy. Contract N7onr-35810, NR-360-003. GDAM B11-21. GDAM TR 21.

Progress report. Purdue University. Dept. of Physics, Lafayette, Ind. Under Contract no. W-36-039-sc-32020. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Jun 1-Aug 31, 1946, by K. Lark-Horovitz, V. Johnson, S. Benzer, R. Bray, R. E. Davis, W. W. Scanlon. Aug 1946. 27p graphs Microfilm \$2.25, Photocopy \$4.00. PB 115758

1. Conductors, Semi - Photoconductivity 2. Power,

Thermoelectric - Measurement 3. Germanium-selenium alloys - X-ray inspection 4. Rectifiers, Germanium - Photoconductivity 5. Contacts, Electric - Materials.

Mar 1, 1947-Jun 1, 1947, by K. Lark-Horovitz, V. A. Johnson, S. Benzer, R. Bray, R. E. Davis, L. G. Dowell, W. W. Scanlon, Jay W. Thornhill, Henry G. Gilbarg. Jun 1947. 50p diags, graphs, tables Microfilm \$2.75, Photocopy \$6.50. PB 115759

1. Conductors, Semi - Resistivity 2. Tellurium - Resistivity 3. Selenium - Resistivity 4. Hall effect 5. Oscillations - Theory.

Nov 1, 1947-Jan 31, 1948, by K. Lark-Horovitz, V. A. Johnson, S. Benzer, V. E. Bottom, R. Bray, J. W. Cleland, R. E. Davis, W. W. Scanlon, J. W. Thornhill. Jan 1948. 79p diags, graphs, tables Microfilm \$3.75, Photocopy \$10.25. PB 115760

1. Conductors, Semi - Theory 2. Conductors, Semi - Electrical properties 3. Conductors, Semi - Irradiation 4. Ettingshausen effect 5. Hall effect 6. Germanium - Irradiation 7. Tellurium - Thermal properties 8. Contacts, Germanium - Photoconductivity.

Steady-state vibration of two-spring mechanical system, by F. B. Hildebrand. Massachusetts Institute of Technology. Radiation Laboratory. Apr 1945. 23p diagr, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 109415

The steady-state displacements in a symmetrical mechanical system, consisting of two masses attached by springs to each other and to a movable base, are presented analytically and graphically in the simple case in which the base vibrates uniformly without rotation or lateral translation. Contract OEMSr-262. MIT Rad Lab S-49.

Theorem in theory of finite elastic deformations, by R. S. Rivlin and C. Topaloglu. Brown University. Graduate Division of Applied Mathematics, Providence, R. I. Jan 1954. 15p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 114807

In the present paper, a proof of the theorem is given which is valid also for anisotropic materials. Furthermore, the theorem is extended to provide a method for calculating the displacements produced in a body of elastic material by a specified force system, according to nth order elasticity theory. Contract N7onr-35801, T. O. 1, NR-041-032. GDAM TR 105. GDAM A11-105/15.

Wärmeübergang bei freier strömung am wagrechten zylinder in zwelatomigen gasen (Heat transfer by free convection from horizontal cylinders in diatomic gases), by R. Hermann. Translated by

S. Reiss. Nov 1954. 73p photos, graphs, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115694

It is found that the total heat transfer and the boundary-layer development at the upper stagnation point and at the upper edge, respectively, of a horizontal cylinder are equivalent to the respective quantities for a vertical plate which transfers heat on both sides and is 1.31 times the cylinder diameter. A review and discussion of previous investigations of free-convection heat transfer from horizontal cylinders is included. Translated from VDI Forschungsheft no. 379, 1936, p. 1-24. Thesis - Technische Hochschule, Aachen, Ger. NACA TM 1366.

Nuclear

Absorption of 21 cm. radiation by interstellar hydrogen, I, by John P. Hagen, A. Edward Lilley, and Edward F. McClain. U. S. Naval Research Laboratory. Oct 1954. 29p photos, diags, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115746

Discrete absorption has been observed in the continuous microwave noise spectra of certain radio stars. The absorption is produced by the F=1 hyperfine transition in interstellar hydrogen and occurs at a wavelength of approximately 21 centimeters. The methods developed in this paper for the Cassiopeia source are now being applied to the known 21 cm discrete sources. NRL R 4448.

Beta ray ionization from the ground, by V. F. Hess, W. D. Parkinson, and H. A. Miranda. Fordham University. Dept. of Physics. Dec 1953. 56p drawing, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115559

This report describes the method employed for measuring beta ray ionization in the field with portable ionization chambers. A comparison is made between beta and gamma ray ionization. Scientific report no. 4. Contract no. AF 19(122)-409.

Natural radiocarbon 14 measurement and application. Final report under Contract no. AF 19(122)-214, by J. Laurence Kulp. Columbia University. Lamont Geological Observatory, Palisades, N. Y. Apr 1954. 21p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115331

For reports no. 1-3, 6, 8, 9/11, 13/14 see PB 112431-112435, 109130, 112476.

1. Radiocarbon - Measurement 2. Age - Determination 3. Sea water - Radiocarbon content.

Perturbation calculation of the elastic scattering of electrons by hydrogen atoms, by Sidney Borowitz.

New York University. Institute of Mathematical Sciences. Division of Electromagnetic Research. Jun 1954. 22p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115495

A perturbation calculation has been carried out for the scattering of electrons by hydrogen atoms, using as the perturbation only the interaction between the two electrons, and retaining in the result only terms of the highest power in the incident energy of the electron. The results are then compared with more conventional first-order perturbation calculations for this problem. Contract AF 19(122)-463. NYU RR CX-16.

Research in the measurement of beta and gamma radiation in the atmosphere with special reference to investigation of soft X-rays with scintillation counters. Oregon. University. Dept. of Physics, Eugene, Ore. Under Contract no. AF 19(122)-80, by A. E. Caswell. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Report no. 2, Sep 16 to Dec 15, 1949. Dec 1949. 26p photos, drawing, diags, tables Microfilm \$2.25, Photocopy \$4.00. PB 115659

Sec. 2 prepared by Lyman A. Webb, sections 3-5 prepared by Ronald S. Paul.
1. X-rays - Detection 2. X-rays - Power supply 3. Phosphors - Preparation 4. Furnaces, Crystal - Design 5. Detectors, Scintillation 6. X-ray tubes - Design.

Report no. 3, Dec 16, 1949 to Mar 15, 1950. Mar 1950. 21p graphs Microfilm \$2.25, Photocopy \$4.00. PB 115660

1. X-rays - Detection 2. X-ray tubes - Design 3. Phosphors - Preparation 4. Furnaces, Crystal - Performance 5. Detectors, Scintillation.

Report no. 4, Mar 16 to May 31, 1950. Jun 1950. 26p diags, graphs Microfilm \$2.25, Photocopy \$4.00. PB 115672

1. X-rays - Detection 2. X-rays - Power supply 3. Detectors, Scintillation 4. Phosphors - Preparation 5. Phosphors - Tests 6. Phosphors, Cadmium tungstate.

Report no. 5 (Final report), Jun 1 to Aug 31, 1950. Sep 1950. 8p diags, graph Microfilm \$1.50, Photocopy \$1.50. PB 115673

1. X-rays - Detection 2. X-rays - Power supply 3. Detectors, Scintillation 4. Phosphors, Cadmium tungstate 5. Phosphors, Calcium tungstate.

Statistical significance of very low counting rates, by E. A. C. Crouch. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. Jul 1954. 8p diags, graphs, tables Available from

British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$40. PB 115671

HD. 1281. S. O. code no. 70-674-1-72.

1. Alpha rays - Counts - Gt. Brit. 2. Poisson's ratio - Gt. Brit. 3. Urine - Alpha ray absorption - Gt. Brit. 4. AERE C/R 1458 5. Atomic power - Research.

PRINTING, PUBLISHING

Frequency index of words appearing in four Navy publications, by Lloyd S. Standlee, Nicholas A. Fattu, Donavon Auble. Indiana. University. Institute of Educational Research. Personnel Analysis Division. Jan 1954. 163p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$6.50, Photocopy \$21.50. PB 115773

PA 3018.3.1.

1. Words - Counting 2. Words - Lists 3. NAVPERS TB 54-2.

PSYCHOLOGY

Behavior test apparatus employing shock motivation with monkeys, by William Melching, Sylvan J. Kaplan, and Robert Vogt. U. S. Air Force. School of Aviation Medicine, Randolph Field, Tex. Apr 1954. 11p photos Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115725

Three pieces of apparatus were constructed and studied for suitability in post-radiation study. All employ escape-from-shock as the principle of operation. Each instrument affords opportunity for study of both sensory and intellectual functions in monkeys. AAF SAM Proj 21-3501-0003, Report no. 5.

Conspicuity of flashing light signals: Effects of variation among frequency, duration, and contrast of the signals, by Siegfried J. Gerathewohl. U. S. Air Force. School of Aviation Medicine, Randolph Field, Tex. Jun 1954. 8p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115443

Experiments were made on the conspicuity of flashing light signals using a multiple complex reaction test. Signal conspicuity was measured in terms of reaction time. Highly significant interactions were found between frequency and contrast. The signal of 3 flashes per second was found to be the most effective one under the conditions tested so far. AAF SAM Proj 21-1205-0012, Report no. 1.

Information of sounds and phonetic diagrams of one- and two-syllable words, by John W. Black. U. S. Naval School of Aviation Medicine, Naval Air Sta-

tion, Pensacola, Fla. May 1954. 19p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115726

Phonetic transcriptions of common one- and two-syllable words were studied to determine the relative frequency of speech sounds in the words and the relative frequency of occurrence of phonetic diagrams. Among words of a particular length in syllables, the words with the fewer sounds contained the most information (H) per sound and per diagram. An enumeration of frequent phonetic diagrams is included. NMRI Proj NM 001 064.01, Report no. 22.

Psychodynamics of small groups, by Raymond B. Cattell and Glen F. Stice. Illinois. University. Laboratory of Personality Assessment and Group Behavior. 1952? 209p diagsr, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$7.75, Photocopy \$26.50. PB 115665

Final report under Contract N8onr-79600, Project NR 172-369.

1. Group behavior 2. Leadership 3. Psychological research.

Recognition of intelligibility test materials in context and in isolation, by John J. O'Neill. U. S. Naval School of Aviation Medicine, Naval Air Station, Pensacola, Fla. Jun 1954. 10p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115727

The sentences were part of a standard sentence intelligibility test, and the words were taken out of the context of these same sentences. These materials were presented at five speech-to-noise ratios: -12 db, -6 db, 0 db, +6 db, and +12 db. Comparisons were made of the recognition of words in context and in isolation. NMRI Proj NM 001 064.01, Report no. 23.

Two-digit number transmission by voluntary stuttering, by Henry M. Moser, John J. Dreher and Sol Adler. Ohio State University Research Foundation, Columbus, Ohio. Sep 1954. 10p graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115494

Contract AF 18(600)-316.

1. Numerals - Intelligibility 2. Articulation 3. Speech - Intelligibility 4. ARF Proj 519, Report no. 12 5. AAF CRC TR 54-82.

Vocal responses before microphones, by Gilbert C. Tolhurst and John W. Black. U. S. Naval School of Aviation Medicine, Naval Air Station, Pensacola, Fla. Jul 1954. 4p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115728

The speakers altered their sound pressure level in keeping with the 8-foot and 4-foot experimental separation distances between themselves and the listener or microphone. The effect of the presence of a microphone on vocal sound pressure level was not measurable on standard intelligibility tests in quiet. NMRI Proj NM 001 064.01, Report no. 24.

RUBBER AND RUBBER PRODUCTS

Ermittlung der elastischen konstanten von flugzeugreifen (Determination of the elastic constants of airplane tires), by Herr Boeckh. Translated by Mary L. Mahler. Nov 1954. 39p diags, graphs, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115716

Measurements were made of the distortion of four German aircraft tires, from about 22 to 28 inches in diameter, at several vertical loadings. For each vertical loading measurements were made of the tire distortion under several lateral, tangential and torsional loadings. Translation from Focke-Wulf Flugzeugbau GmbH, Bremen/Werkstoff-Versuchsabteilung, Versuchs-nr. 13.3703. NACA TM 1378.

High energy radiation of polymers, a literature review, by Stanley L. Eisler. U. S. Arsenal, Rock Island, Ill. Nov 1953. 15p Available from Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. \$.50. PB 111529

Project no. TB4-521C, Report no. 5. Dept. of the Army project no. 593-15-008.

1. Polymers - Radiation effects
2. Polymers - Bonds
3. Rubber - Radiation effects
4. RIAL R 53-4519.

STRUCTURAL ENGINEERING

Dynamics of linear elastic structures, by R. E. Blake and E. S. Swick. U. S. Naval Research Laboratory. Oct 1954. 27p diags, graph Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115586

The equations for the response of linear elastic structures to dynamic loading are derived by using only the mathematical methods familiar to most engineering graduates. The differential equations describing the response of a linear elastic structure subjected to a load are seen to be similar to the equation of a simple oscillator subjected to a similar load. A general equation is obtained for the response of a linear elastic structure to an applied force. The response of an elastic structure to a shock motion of its foundation is developed. The expression for the stress at a point is derived. NRL R 4420.

Limit design of annular reinforcements around circular cutouts in slabs, by Harold Liebowitz. U. S.

Office of Naval Research. Mathematical Sciences Division. Mechanics Branch. Apr 1954. 35p diags, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$.525.

PB 115747

The application of limit analysis to reinforced cutouts is outlined in this report for the determination of (a) actual strength of slabs having annular reinforcements around circular cutouts, and (b) dimensions of reinforcement rings so that the strength of slabs with reinforced cutouts may be designed for strength approaching that of the original whole slab subjected to static loads. ONR R 1-438.

Study of vertical transpiration, General Accounting Office. U. S. General Services Administration. Public Buildings Service. Engineering and Research Branch. Buildings Management Division. Jun 1954. 75p fold photo, fold drawing, fold graphs, tables Available free from General Services Administration, Public Buildings Service, Washington 25, D. C. PB 115730

1. Public buildings - Transportation equipment
2. Elevators, Automatic
3. Escalators.

TRANSPORTATION EQUIPMENT

Selected industrial films: Transportation, a list and description of films available to business from industrial, commercial, and government sources. U. S. Office of Technical Services. Nov 1954. 14p Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$.50. PB 111386

1. Motion pictures, Educational - Bibliography
2. Transportation - Motion pictures - Bibliography
3. OTS SIF 19.

Aeronautics

Aircraft

Considerations on the effect of wind-tunnel walls on oscillating air forces for two-dimensional subsonic compressible flow, by Harry L. Runyan and Charles E. Watkins. U. S. National Advisory Committee for Aeronautics. 1953. 9p graphs Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. \$.15. PB 115574

1. NACA 1150
2. NACA TN 2552 Revised.

Investigation into the rolling power and aileron reversal characteristics of swept wings, by A. V. Coles and R. J. Margetts. Gt. Brit. Ministry of Supply. Aeronautical Research Council. 1954. 30p photo, drawings, diags, graphs, tables

Available from British Information Services, 30
Rockefeller Plaza, New York 20, N. Y. \$.65.
PB 115526

University of Bristol, Department of Aeronautical
Engineering. Report no. 11. S. O. code no. 23-9007-
59.

1. Wings, Swept - Rolling moments - Gt. Brit.
2. Wings, Swept - Span load distribution - Gt. Brit.
3. Wings, Swept - Aspect ratio - Gt. Brit.
4. Wind tunnels, Low speed - Tests - Gt. Brit.
5. Ailerons - Reversal - Tests - Gt. Brit.
6. Bristol. University. Dept. of Aeronautical Engineering, Bristol, England
7. ARC CP 159.

Maximum lift for landing of swept wing aeroplanes,
by H. O. Palme. Svenska Aeroplan Aktiebolaget,
Linköping, Sweden. Apr 1953. 14p graphs Avail-
able from Library of Congress, Publication Board
Project, Washington 25, D. C. Microfilm \$2.00,
Photocopy \$2.75. PB 115468

1. Airplanes - Landing - Sweden
2. Airplanes - Lift - Sweden
3. Wings, Swept - Lift - Sweden
4. SAAB TN 17.

Methods of approaching an accurate three-dimen-
sional potential solution for a wing, by H. C. Garner.
Gt. Brit. Ministry of Supply. Aeronautical Re-
search Council. Oct 1948. 19p diagr, graph Avail-
able from British Information Services, 30 Rocke-
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PB 115537

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1. Falkner's vortex-lattice theory - Gt. Brit.
2. Wings - Pressure distribution - Theory - Gt. Brit.
3. Vortex motion - Theory - Gt. Brit.- 4. Wings, Sweptback - Lift - Gt. Brit.
- 5. ARC RM 2721.

On a minimum time flight path with regard to stress
and heat limitations, by Hermann Behrbohm.
Svenska Aeroplan Aktiebolaget, Linköping, Sweden.
Feb 1954. 27p graphs Available from Library of
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PB 115757

1. Flight path - Calculation - Sweden
2. Pressure, Dynamic - Theory - Sweden
3. SAAB TN 26.

Rolling power of an elastic swept wing, by E. G.
Broadbent. Gt. Brit. Ministry of Supply. Aero-
nautical Research Council. Jul 1950. 19p diagrs,
graphs, tables Available from British Information
Services, 30 Rockefeller Plaza, New York 20, N. Y.
\$1.25. PB 115541

Cover date is 1954. S. O. Code no. 23-2857.
1. Wings, Swept - Elasticity - Gt. Brit.- 2. Wings, Swept - Rolling moments - Gt. Brit.
- 3. Mach num-ber - Effect - Gt. Brit.
- 4. ARC RM 2857.

Rotary wing aircraft handbooks and history, vol. 10:
Stability and control of rotary wing aircraft, by

William E. Cobey. Prewitt Aircraft Co., Clifton
Heights, Pa. 1954. 66p diagrs, graphs Available
from Office of Technical Services, U. S. Dept. of
Commerce, Washington 25, D. C. \$2.00.
PB 111521

Contract no. W33-038-ac-21804 (20695). For Pre-
view of the series see PB 110454. For vols. 6-7,
13-14 see PB 111288-111289, 111390-111391.
1. Helicopters - Controls- 2. Helicopters - Stability
- 3. Airplanes - Stability.

Summary of stalling characteristics and maximum
lift of wings at low speeds, by H. O. Palme.
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rary of Congress, Publication Board Project,
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1. Airplanes - Stalling - Research - Sweden
2. Wings - Lift - Sweden
3. Flow, Two dimensional - Sweden
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5. Mach number - Effect - Sweden
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Summary of wind tunnel data for high-lift devices on
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D. C. Microfilm \$2.00, Photocopy \$2.75.
PB 115467

1. Wings, Swept - Lift - Sweden
2. Wings, Swept - Wind tunnel tests - Sweden
3. Lifting mechanisms - Sweden
4. SAAB TN 16.

Technique of flutter calculations, by H. Templeton.
Gt. Brit. Ministry of Supply. Aeronautical Re-
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tables Available from British Information Ser-
vices, 30 Rockefeller Plaza, New York 20, N. Y.
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1. Flutter - Calculation - Gt. Brit.- 2. RAE TN Struc 142
- 3. ARC CP 172.

Velocity distribution on thin tapered wings with fore-
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ratio at zero incidence, by S. Neumark and J.
Collingbourne. Gt. Brit. Ministry of Supply.
Aeronautical Research Council. Jun 1951. 43p
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- 3. Flow, Subsonic - Theory - Gt. Brit.
- 4. ARC RM 2858.

Aircraft fuel quantity gage. Part I: Hot wire fuel quantity gage, by Physics Dept., Johns-Hopkins University and Joseph Razek. Part II. Capacitive high frequency gage, by Joseph Razek. Oct 1945. 48f photo, drawings, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Enlargement Print \$7.75. PB 115771

Contracts OEMsr 178 and OEMsr-266.
1. Gages, Fuel 2. Johns Hopkins University. Physics Dept. 3. OSRD 5672.

Flight control servo development, by W. J. Thayer and C. L. Muzzey. Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y. Jul 1954. 67p diagrs, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.25, Photocopy \$9.00. PB 115482

This report discusses some of the problems and their solutions encountered in the development of a high performance position servo. Included are results of system analyses and actual system tests. CAL 63.

Influence of wheel spin-up on landing-gear impact, by W. Flugge and C. W. Coale. U. S. National Advisory Committee for Aeronautics. Oct 1954. 109p diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115693

Continuation of TN 2743 (PB 107686).
1. Landing gear - Wheels - Drag 2. Landing gear - Impact loads 3. Loads, Landing - Impact 4. Stanford University, Stanford, Calif. 5. NACA TN 3217.

Visual presentation of information, by Charles A. Baker and Walter F. Grether. U. S. Air Service. Air Research and Development Command. Wright Air Development Center. Aero Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Aug 1954. 118p photos, diagrs, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$3.00. PB 111547

This report provides a compilation of general human engineering recommendations and presents some of the supporting data which should aid the engineer in providing the most satisfactory visual presentations of information. Liberal use is made of pictorial, graphic, and tabular presentations to illustrate the data and design recommendations. A table of contents, subject index, and a selected bibliography are included as an aid to the user. AAF WADC TR 54-160.

Engines and Propellers

On propeller scale effects, by H. F. Nördstrom, Hans Edstrand, and Hans Lindgren. Sweden. Statens

Skeppsprovninganstalt, Göteborg, Sweden. 1954. 25p diagrs, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115238

1. Reynolds number - Effect - Sweden 2. Propellers - Model tests - Sweden 3. Sweden. Statens Skeppsprovninganstalt, Göteborg, Sweden. Meddelanden nr. 28.

Preliminary results from flow-field measurements around single and tandem rotors in the Langley full-scale tunnel, by Harry H. Heyson. U. S. National Advisory Committee for Aeronautics. Nov 1954. 19p diagrs, graphs Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115709

1. Helicopters - Rotors - Air flow 2. Helicopters - Rotors, Tandem - Air flow 3. NACA TN 3242.

Rapid, accurate prediction of pressure on non-lifting ogival heads of arbitrary shape, at supersonic speeds, by B. W. Bolton-Shaw and H. K. Zienkiewicz. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1952. 60p graphs (part fold), tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$1.25. PB 115525

Cover date is 1954. S. O. code no. 23-9007-54.
1. Flow, Supersonic - Theory - Gt. Brit. 2. Flow, Supersonic - Pressure distribution - Gt. Brit. 3. Bodies of revolution - Pressure distribution - Theory - Gt. Brit. 4. Pressure distribution - Tables - Gt. Brit. 5. Pressure distribution - Theory - Gt. Brit. 6. Cones - Pressure distribution - Gt. Brit. 7. ARC CP 154.

Retention of wood propeller blades in hubs, by Ira R. Barr. U. S. Air Force. Air Research and Development Command. Wright Air Development Center. Propeller Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Nov 1953. 55p photos, drawings, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$1.50. PB 111559

1. Propeller blades, Wooden - Retention 2. Propeller blades, Wooden - Failure 3. Propeller blades, Wooden - Whirl tests 4. AAF WADC TR 53-406.

Smoke study of nozzle secondary flows in a low-speed turbine, by Milton G. Kofskey and Hubert W. Allen. U. S. National Advisory Committee for Aeronautics. Nov 1954. 24p photos, drawing, diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115710

1. Turbines, Low speed - Flow 2. Flow - Photography 3. Flow, Subsonic - Measurements 4. Flow, Viscous - Measurements 5. Nozzles - Air flow 6. Flow, Secondary - Effects 7. Flow - Smoke patterns 8. NACA TN 3260.

Theoretical note on effusion cooled gas turbine blades, by R. Stanforth. Gt. Brit. Ministry of Supply. Aeronautical Research Council. 1954. 49p graphs, table Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$1.15. PB 115527

S. O. code no. 23-9007-65.

1. Turbines, Gas - Blades - Cooling - Gt. Brit.
2. Boundary layer, Laminar - Incompressible - Gt. Brit.
3. Boundary layer - Transition point - Gt. Brit.
4. Flow, Laminar - Heat transfer - Gt. Brit.
5. ARC CP 165.

Transonic flow past cone cylinders, by George E. Solomon. U. S. National Advisory Committee for Aeronautics. Sep 1954. 56p photos, diags, graphs Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115352

The drag coefficient and surface Mach number are studied as the free-stream Mach number is varied and, the experimental results are compared with theoretical predictions. Interferometric results for several typical flow configurations are shown and an example of shock-free supersonic-to-subsonic compression is experimentally demonstrated. The theoretical problem of transonic flow past finite cones is discussed briefly and an approximate solution of the axially symmetric transonic equations, valid for a semi-infinite cone, is presented. NACA TN 3213.

Transverse oscillations in a cylindrical combustion chamber, by Franklin K. Moore and Stephen H. Maslen. U. S. National Advisory Committee for Aeronautics. Oct 1954. 25p diags, graphs Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115598

1. Combustion chambers - Operation
2. Jet engines, Ram jet - Combustion
3. Jet engines, Turbo-jet - Combustion
4. Turbines, Gas - Combustion chambers
5. U. S. Lewis Flight Propulsion Laboratory, Cleveland, Ohio
6. NACA TN 3152.

Variable inductance acceleration transducer, by H. K. P. Neubert. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Aug 1953. 19p photos, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.50. PB 115529

Cover date is 1954. S. O. code no. 23-9007-69.

1. Transducers, Inductance - Design - Gt. Brit.
2. Circuits, Transducer - Design - Gt. Brit.
3. ARC CP 169
4. RAE TN Instrumentation 135.

Training and Training Devices

Evaluation and combination of criterion measures by factor analysis: A study of B-25 preflights by airplane and engine mechanics, by George B. Simon. U. S. Air Force. Air Research and Development

Command. Air Force Personnel and Training Research Center. Training Aids Research Laboratory, Chanute Air Force Base, Illinois. May 1954. 82p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$4.00, Photocopy \$11.50. PB 115199

Project no. 507-012-0003. Research bulletin AF PTRC-TR-54-23.

1. Airplanes - Flight tests
2. Mechanics, Aeronautical - Performance - Standards
3. Proficiency tests
4. Factor analysis
5. B-25 (Airplane)
6. AAF PTRC TR 54-23.

Psychiatric screening of flying personnel: Research on the Cornell Word Form, by John R. Barry, Saul B. Sells, and David K. Trites. U. S. Air Force. School of Aviation Medicine, Randolph Field, Tex. May 1954. 36p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$5.25. PB 115493

The Cornell Word Form, an 80-item group word-association test, was administered to 1,036 entering student pilots as part of an experimental battery of psychiatric screening tests. The criteria for these studies were various measures of adjustment in training. AAF SAM Proj 21-0202-0007, Report no. 7.

Study of the relative effects of six-week and twelve-week experimental basic training programs on a sample of limited-aptitude airmen, by Salvatore Mastropaolo, Abraham Carp, Robert I. Erdmann, and John Schmid, Jr. 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, Texas. Sep 1954. 46p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 115472

Project no. 7705, Task no. 77111. Contents: Part I. Basic training analysis. - Part II. Six-week follow-up analyses.

1. Personnel, Flying - Training
2. Personnel, Flying - Tests
3. AAF PTRC TR 54-36.

X-1 error integrator, by Wayne Hodder and W. Roth. Massachusetts Institute of Technology. Radiation Laboratory. Nov 1945. 14p photos, diags Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115604

The principle application of the error integrator is to give a numerical score of a student's ability to maintain a small error in some operation such as continuously measuring the range of a moving target on a radar set. The numerical score is formed by integrating the error with respect to time. However, the integration is arithmetical in that the score increases the same for either positive or negative errors. Contract OEMsr-262. MIT Rad Lab 645-13.

Aerodynamic forces, moments, and stability derivatives for slender bodies of general cross section, by Alvin H. Sacks. U. S. National Advisory Committee for Aeronautics. Nov 1954. 75p diags, graphs, tables (2 fold) Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115711

1. Wing theory 2. Bodies of revolution - Pressure distribution - Theory 3. Bodies of revolution - Aerodynamics 4. Bodies of revolution - Stability 5. Damping derivatives - Stability 6. NACA TN 3283.

Calculated subsonic span loads and resulting stability derivatives of unswept and 45° sweptback tail surfaces in sideslip and in steady roll, by M. J. Queijo and Donald R. Riley. U. S. National Advisory Committee for Aeronautics. Oct 1954. 110p drawings, diags, graphs, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115510

1. Stability, Lateral - Static tests 2. Damping derivatives - Stability 3. Tail surfaces - Loads 4. Tail surfaces - Rolling moment coefficient 5. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 6. NACA TN 3245.

Drag increase at high subsonic speeds, by K. Oswatitsch. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Oct 1947. 16p diags, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$1.25. PB 115536

Cover date is 1954. S. O. code no. 23-2716.
1. Wings - Pressure distribution - Theory - Gt. Brit. 2. Wings - Drag - Theory - Gt. Brit. 3. Wings - Lift coefficient - Gt. Brit. 4. Mach number - Effect - Gt. Brit. 5. Karman-Tsien method - Gt. Brit. 6. Flow, Subsonic - Theory - Gt. Brit. 7. ARC RM 2716.

Determination of the external contour of a body of revolution with a central duct so as to give minimum drag in supersonic flow, with various peripheral conditions imposed upon the missile geometry. Part III: Numerical application, by Carlo Ferrari. Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y. Nov 1953. 92p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$4.50, Photocopy \$12.75. PB 115395

Corrected copy. Contract no. N6ori-119, T. O. IV. For Parts I-II see PB 112843.
1. Bodies of revolution - Design 2. Bodies of revolution - Drag, Viscous - Theory 3. Flow, Supersonic - Theory 4. Ducts, Air - Supersonic 5. CAL AF-814-A-2.

Experimental determination of boundary-layer transition on a body of revolution at M = 3.5, by James R. Jedlicka, Max E. Wilkins and Alvin Seiff. U. S.

National Advisory Committee for Aeronautics. Oct 1954. 56p photos, drawing, graphs, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115600

1. Mach number - Effect 2. Reynolds number - Effect 3. Flow, Supersonic - Theory 4. Flow, Laminar - Theory 5. Flow, Turbulent - Theory 6. Bodies of revolution - Fineness ratio 7. Boundary layer - Transition point - Tests 8. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. 9. NACA TN 3342.

Experimental investigation of influence of edge shape on the aerodynamic characteristics of low-aspect-ratio wings at low speeds, by G. E. Bartlett and R. J. Vidal. Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y. Jun 1954. 60p photos, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115481

Presented at summer meeting I.A.S., June 21-24, 1954. Contract AF 33(038)-17397.
1. Wings - Aspect ratio 2. Wings - Aerodynamics - Effect of edge shape 3. CAL 62.

Experimental study of three-dimensional high-speed air conditions in a cascade of axial-flow compressor blades, by K. W. Todd. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Oct 1949. 40p photos (2 fold), drawings, diags, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$2.25. PB 115538

Cover date is 1954. S. O. code no. 23-2792.
1. Compressors, Axial - Blades - Flow - Calculation - Gt. Brit. 2. Compressors, Axial - Blades - Wind tunnel tests - Gt. Brit. 3. Compressors - Blades - Aerodynamics - Gt. Brit. 4. Cascades (Aerodynamics) - Design - Gt. Brit. 5. Cascades (Aerodynamics) - Tests - Gt. Brit. 6. Flow, Three dimensional - Theory - Gt. Brit. 7. ARC RM 2792.

Generalized indicial forces on deforming rectangular wings in supersonic flight, by Harvard Lomax, Franklyn B. Fuller and Loma Sluder. U. S. National Advisory Committee for Aeronautics. Nov 1954. 73p diags, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115712

1. Wing theory 2. Wings, Rectangular - Aerodynamics 3. Equations of motion 4. Flow, Supersonic - Theory 5. Mach number - Effect 6. NACA TN 3286.

High-speed laboratory of the Aerodynamics Division, N.P.L., by D. W. Holder. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Dec 1946. 279p photos, drawings, diags, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$14.60. PB 115545

Cover date is 1954. S. O. code no. 23-2560. Contents:
- Part I: Description of the installation. - Part II: Experimental techniques. - Part III. Experimental results.
1. Wind tunnels, High speed - Design - Gt. Brit.
2. Laboratories, Aeronautical - Gt. Brit. 3. Mach number - Effect - Gt. Brit. 4. Flow - Photography - Gt. Brit. 5. Schlieren effect - Gt. Brit. 6. Flow, Subsonic - Wind tunnel tests - Gt. Brit. 7. Flow, Supersonic - Wind tunnel tests - Gt. Brit. 8. ARC RM 2560.

Lift and moment equations for oscillating airfoils in an infinite unstaggered cascade, by Alexander Mendelson and Robert W. Carroll. U. S. National Advisory Committee for Aeronautics. Oct 1954. 46p diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115512

1. Cascades (Aerodynamics) - Theory 2. Compressors - Blades - Stresses 3. Compressors - Blades - Vibration 4. Propeller blades - Stresses 5. Propeller blades - Vibration 6. Airfoils, Oscillating - Lift 7. U. S. Lewis Flight Propulsion Laboratory, Cleveland, Ohio 8. NACA TN 3263.

Liquefaction of air in the Langley 11-inch hypersonic tunnel, by Charles H. McLellan and Thomas W. Williams. U. S. National Advisory Committee for Aeronautics. Oct 1954. 36p diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115599

1. Air - Liquefaction 2. Wind tunnels, Supersonic - Air conditions 3. Wind tunnels, Supersonic - Effect of condensation 4. Wind tunnels, Supersonic - Pressure 5. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 6. NACA TN 3302.

New law of similarity for profiles, valid in the transonic region, by K. Oswatitsch. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1947. 12p diagrs, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$90. PB 115535

Cover date is 1954. S. O. code no. 23-2715.
1. Similarity - Theory - Gt. Brit. 2. Prandtl-Glauert theory (Aerodynamics) - Gt. Brit. 3. Mach number - Effect - Gt. Brit. 4. Karman's similarity theory - Gt. Brit. 5. Shock waves - Pressure - Airplanes - Gt. Brit. 6. Flow, Transonic - Theory - Gt. Brit. 7. ARC RM 2715.

Optical studies of boundary layer phenomena on a flat plate at Mach number 2.35, by R. Ladenburg and D. Bershader. Princeton University. Palmer Physical Laboratory. Dec 1952. 151p photos, drawing, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$6.25, Photocopy \$20.25. PB 115269

Contract N6ori-105, Task II, NR 061-020, Final

technical report. Appendix: Evaluation procedure for interferometry of density fields with cylindrical symmetry, by G. P. Wachtell.

1. Plates, Flat - Boundary layer, Laminar
2. Boundary layer - Theory 3. Boundary layer - Transition point - Photographic analysis 4. Wind tunnels - Design 5. Flow, Supersonic - Measurement 6. Interferometry - Theory 7. Mach number - Effect.

Schlieren methods for observing high-speed flows, by D. W. Holder and R. J. North. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jul 1953. 27p photos, diagr, drawings Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.65. PB 115528

Cover date is 1954. S. O. code no. 23-9007-67.
1. Schlieren photographs - Gt. Brit. 2. Shock waves - Photography - Gt. Brit. 3. Flow, Three dimensional - Measurement - Gt. Brit. 4. ARC CP 167.

Some measurements of atmospheric turbulence obtained from flow-direction vanes mounted on an airplane, by Robert G. Chilton. U. S. National Advisory Committee for Aeronautics. Nov 1954. 22p photo, diagr, graphs, table Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115714

1. Atmosphere - Turbulence - Measurement
2. Vanes, Wind - Flow direction 3. Gust loads
4. NACA TN 3313.

Sulla determinazione di alcuni tipi di campi di corrente ipersonora (On the determination of certain basic types of supersonic flow fields), by Carlo Ferrari. Translated by R. H. Cramer. Nov 1954. 17p diagrs, graph Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115696

Translated from Rendiconti dell' Accademia Nazionale dei Lincei, classe di scienze fisiche, matematiche e naturali, ser. VIII, vol. VII, no. 6; read at the meeting held on Dec 10, 1949.

1. Flow, Supersonic - Theory - Italy 2. Wing theory - Italy 3. Fourier analysis - Italy 4. U. S. National Advisory Committee for Aeronautics 5. NACA TM 1381.

Zur kenntnis der kraftwegdiagramme von flugzeugfederbeinen (Force-deflection diagrams of airplane shock absorber struts), by K. Schlaefke. 1st-3d partial reports, translated by John Perl and J. Vanier. Nov 1954. 48p diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1512 "H" St., N. W., Washington 25, D. C. PB 115695

Translated from Technische berichte, band 11, heft 2, p. 51-53, Feb 15, 1944; hft. 4, p. 105-109, Apr 25, 1944; hft. 5, p. 137-141, May 15, 1944.

1. Struts, Shock - Stresses - Germany 2. Loads,

Landing - Impact - Germany 3. Damping capacity - Theory - Germany 4. U. S. National Advisory Committee for Aeronautics 5. NACA TM 1373.

Rockets and Jet Propulsion

Investigation of carbon (graphite) base materials suitable for rocket and ram-jet applications. Stanford Research Institute, Stanford, Calif. Under Contract No. AF 33(616)-2023. Reference P. R. 346020. By William D. Smiley. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Bimonthly progress report no. 1, covering period from April 1 to May 31, 1953. Jun 1953. 15p photos, graph, table Microfilm \$2.00, Photocopy \$2.75. PB 115355

1. Graphite - Oxidation tests 2. Graphite - Impregnation, Metals 3. Graphite - High temperature resistance 4. Graphite - Tensile strength 5. Jet engines, Ram jet - Materials 6. Rocket motors - Materials 7. Furnaces, Induction - Materials 8. SRI Proj CU-824 Report no. 1.

Bimonthly progress report no. 2, covering period from June 1 to July 31, 1953. Sep 1953. 7p table Microfilm \$1.50, Photocopy \$1.50. PB 115356

1. Graphite - Oxidation tests 2. Graphite - Impregnation, Metals 3. Graphite - Coatings 4. Jet engines, Ram Jet - Materials 5. Rocket motors - Materials 6. SRI Proj CU-824 Report no. 2.

Bimonthly progress report no. 3, covering period from Aug 1 to Sep 30, 1953. Nov 1953. 8p drawing Microfilm \$1.50, Photocopy \$1.50. PB 115357

Appendix: High temperature resistance furnace.
1. Graphite - Oxidation tests 2. Graphite - Erosion resistance 3. Graphite - Tensile strength 4. Graphite - Impregnation, Metals 5. Jet engines, Ram jet - Materials 6. Rocket motors - Materials 7. Graphite - Coatings - Vapor-deposition 8. Furnaces, High temperature - Design 9. SRI Proj CU-824 Report no. 3.

Bimonthly progress report no. 4, covering period for Oct and Nov 1953. Dec 1953. 14p photo, drawings, table Microfilm \$2.00, Photocopy \$2.75. PB 115358

Appendix A: Formulation and coating studies. - Appendix B: Hot press assembly.
1. Graphite - Oxidation tests 2. Graphite - Erosion resistance 3. Graphite - Coatings 4. Graphite - Impregnation, Metals 5. Jet engines, Ram jet - Materials 6. Rocket motors - Materials 7. Presses - Design 8. Furnaces, High temperature - Design 9. Coatings, Refractory - Vapor deposition 10. SRI Project CU-824 Report no. 4.

Bimonthly progress report no. 5, covering period for Dec 1953 and Jan 1954. Mar 1954. 15p photos, graphs, tables Microfilm \$2.00, Photocopy \$2.75. PB 115359

1. Graphite - Oxidation tests 2. Graphite - Impregnation, Metals 3. Graphite - Coatings 4. Jet engines, Ram-jet - Materials 5. Jet engines - Nozzles 6. Rocket motors - Materials 7. SRI Project CU-824 Report no. 5.

Land Transportation

Changes in traffic flow in southwest France resulting from cessation of Bordeaux port activities, by Guido G. Weigend. Rutgers University, New Brunswick, N. J. Dec 1953. 50p maps, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 114640

Contract Nonr-404(04), NR 388-005.

1. Harbors - France 2. Railroads - Freight - France 3. Canals - France 4. Traffic surveys - France.

Selected industrial films: Automotive components, a list and description of films available to business from industrial, commercial, and government sources. U. S. Office of Technical Services. Sep 1954. 26p Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$1.00. PB 111350

1. Motion pictures, Educational - Bibliography 2. Automobiles - Maintenance and repair - Motion pictures - Bibliography 3. OTS SIF 16.

Marine Transportation

On the influence of form upon skin friction resistance by H. F. Nordström, Hans Edstrand, and Hans Lindgren. Sweden. Statens Skeppsprovninganstalt Göteborg, Sweden. 1954. 27p photos, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115396

1. Ship models - Tests - Sweden 2. Ship models - Skin - Friction - Sweden 3. Sweden. Statens Skeppsprovninganstalt, Göteborg, Sweden. Meddelanden nr. 31.

Pressure distributions on the vanes of a radial flow impeller, by D. A. Morelli. California Institute of Technology. Hydrodynamics Laboratory, Pasadena, Calif. n.d. 17p photos, drawing, diagr, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115284

The present paper reports the first of a series of planned experiments to develop necessary background knowledge. An impeller has been designed, according to stated assumptions, and the external characteristics, such as heads generated at various flow rates, have been measured in detail. These characteristics will be correlated with the distribution of the pressure on the vanes.

Resistance experiments with divided ship models, by R. Rodström. Sweden. Statens Skeppsprovninganstalt, Göteborg, Sweden. 1954. 12p photos, drawing, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75.

PB 115391

1. Ship models - Tests - Sweden 2. Ship models - Wave resistance - Sweden 3. Sweden. Statens Skeppsprovninganstalt, Göteborg, Sweden. Meddelanden nr. 30.

Wetted area and center of pressure of planing surfaces, by B. V. Korvin-Kroukovsky, Daniel Savitsky, William F. Lehman. Stevens Institute of Technology. Experimental Towing Tank, Hoboken, N. J. Aug 1949. 43p photos, diags, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 115277

Tests of prismatic Vee planing surfaces were made, in order to determine the wetted length under various conditions of trim, deadrise, speed, and loading. Report no. 360. Contract N6onr-247, Task order IV, Project NR 062-012. E.T.T. project no. CC839.

WATER SUPPLY, SANITATION AND PUBLIC HEALTH

Analysis of boundary layer growth in open conduits near critical regime, by A. E. Craya and J. W. Delleur. Columbia University. Dept. of Civil Engineering. Sep 1952. 42p diags, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 115281

This paper is exclusively theoretical and its purpose is to give a sound basis to further experimental research. Contract Nonr-266(10), Project NR-062-140/5-22-51. Technical report no. 1. CU-1-52-ONR-266(10)-CE.

Choptank River spring cruise, 28 April-1 May 1952, by D. W. Pritchard. Johns Hopkins University. Chesapeake Bay Institute. Jan 1954. 40p map, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Photocopy \$5.25. PB 115774

Data report 17.

1. Sea water - Temperature 2. Sea water - Salinity 3. Currents, Ocean - Velocity - Measurement.

Drag and shape of air bubbles moving in liquids, by Benjamin Rosenberg. U. S. David W. Taylor Model Basin, Washington, D. C. Sep 1950. 23p photos, diags, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00.

PB 115282

1. Bubbles, Air - Drag coefficient 2. Bubbles, Air - Shape 3. Bubbles, Air - Motion 4. Bubbles, Air - Measurement 5. Reynolds number - Effect 6. DWTMB 727.

Experimental channel for the study of air entrainment in high-velocity flow, by Owen Lamb. Minnesota. University. St. Anthony Falls Hydraulic Laboratory. Nov 1952. 46p photos, diags Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 115268

Project report no. 34. Contract N6onr-246.

1. Flow, Fluid - Air entrainment 2. Flow, Fluid - Air entrainment - Measuring equipment 3. Water - Air content - Measurement 4. Water tunnels - Design 5. Water tunnels - Equipment.

Growth of vapor bubbles in superheated liquids, by M. S. Plesset and S. A. Zwick. California Institute of Technology. Hydrodynamics Laboratory, Pasadena, Calif. Aug 1953. 23p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115271

Contract N6onr-24426, NR 062-083. Report no. 26-6.

1. Equations of motion 2. Bubbles, Gas - Growth - Theory.

Know your surf, by J. W. Johnson and R. I. Wiegel, prepared in cooperation with the U. S. Marine Corps. California. University. Institute of Engineering Research. Sep 1950. 30p photos, diags Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115741

Contract N7onr-29519, Project NR 257-201.

1. Surf 2. Profiles, Beach.

Laboratory study of depth determination: Effect of offshore bars, by O. Sibul. California. University. Institute of Engineering Research. Wave Research Laboratory, Berkeley, Calif. Sep 1953. 29p photos, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115287

Data were obtained for three beach slopes: 1:11, 1:20, and 1:40, each slope with and without an offshore bar. The computed results were tabulated and the predicted depths obtained by averaging a number of individual values. The resulting data are presented in a series of graphs. Contract Nonr 222(17). UC IER Series 74, Issue 8.

Measurements of fluid friction with steady and unsteady motion, by James W. Daily and Kenneth C. Deemer. Massachusetts Institute of Technology. Dept. of Civil and Sanitary Engineering.

Hydrodynamics Laboratory. Jul 1952. 56p photos, drawings (1 fold), diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115280

Contract N5ori-07826, NR-062-047. Technical report no. 9.

1. Water tunnels - Hydrodynamics
2. Water tunnels - Equipment
3. Flow, Unsteady - Cavitation
4. Flow, Unsteady - Friction
5. Flow, Fluid - Friction
6. MIT HL TR 9.

Note on the circulation in the region northeast of the Bahama Islands, by C. Godfrey Day. Woods Hole Oceanographic Institution, Woods Hole, Mass. Jan 1954. 13p maps, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115781

Contract N6onr-27701 (NR-083-004). Unpublished manuscript.
1. Currents, Ocean - Bahama Islands 2. WHOI Ref 54-4.

Oceanographic observations made from the Ice Island, T-3, by L. V. Worthington. Woods Hole Oceanographic Institution, Woods Hole, Mass. Dec 1953. 10p diagrs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 114749

Contract N6onr-27701 (NR-083-004). Unpublished manuscript.
1. Oceanography - Research 2. Sea water - Salinity
3. Sea water - Temperature 4. WHOI Ref 53-92.

Solitary wave, its celerity, profile, internal velocities and amplitude attenuation, by James W. Daily and Samuel C. Stephan, Jr. Massachusetts Institute of Technology. Dept. of Civil and Sanitary Engineering. Hydrodynamics Laboratory. Jun 1952. 68p photos, drawings, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.25, Photocopy \$9.00. PB 115325

This report presents the results of the investigation of the following characteristics of the solitary wave propagated on a smooth horizontal channel bottom: the wave profile, the wave celerity, the internal particle motion, and the attenuation of the wave amplitude with distance of wave travel. The results of an initial investigation of the attenuation of the wave amplitude when the wave propagates over a rough channel bottom are included. Contract N5ori-07837, NR-062-068. Technical report no. 8. MIT HL TR 8.

Statistical analysis of wave records, by R. R. Putz. California. University. Institute of Engineering Research. Wave Research Laboratory, Berkeley, Calif. Jan 1954. 16p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115785

Contract NR 083-008. Presented at Fourth Conference on Coastal Engineering, Council on Wave Research, The Engineering Foundation, Chicago, 1953.
1. Waves, Ocean - Records - Analysis 2. UC IER Ser. 3, Issue 359.

Studies on Lake Washington ship canal, by Gunter R. Seckel and Maurice Rattray, Jr. Washington. University. Dept. of Oceanography, Seattle, Wash. Dec 1953. 109p maps, graphs, diagrs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$4.75, Photocopy \$14.00. PB 115756

Contract N8onr-530/III, Project NR 083 012. Technical report 15.

1. Water - Salinity
2. Water - Contamination
3. Canals - Design
4. Locks - Design
5. Flow, Mixed - Theory
6. WU OR Ref 53-5.

Wave velocity method of depth determination for non-uniform short crested wave systems by aerial photography, by R. L. Wiegand and R. A. Fuchs. California. University. Institute of Engineering Research. Wave Research Laboratory, Berkeley, Calif. Sep 1953. 13p graph Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115288

Brief summaries of studies are presented together with the general conclusions which determine the framework of a practical means of depth determination. The effects of onshore and offshore surface winds, refraction angle, beach slope, offshore bars, short-crestedness, non-uniformity and photogrammetry are discussed. The best types of data to use are discussed and the conclusions regarding the statistical nature of the proposed solution presented. Contract Nonr 222(17), Final report. UC IER Series 74, Issue 9.

MISCELLANEOUS

Development of the marine sciences on the Gulf of Mexico, report of a commission appointed by the Southern Regional Education Board at the request of the University of Texas, the Agricultural and Mechanical College of Texas, the Louisiana State University, and the Board of Trustees for Institutes of Higher Learning in the State of Mississippi. Southern Regional Education Board, Atlanta, Ga. Sep 1954. 15p Available from Southern Regional Education Board, 830 W. Peachtree St., N. W., Atlanta, Ga. PB 115717

1. Oceanography - Research - Gulf of Mexico.

Evaluation of driving safety posters and poster display practices in the United States Air Force, by Frank E. Manning, Harry J. Older, James T. Dunn. U. S. Air Force. Air Research and Development Command, Human Factors Operations Research Laboratories, Bolling Air Force Base, Washington,

D. C. Aug 1953. 48p photos, graphs, tables
Available from Library of Congress, Publication
Board Project, Washington 25, D. C. Microfilm
\$2.75, Photocopy \$6.50. PB 115551

1. Posters, Safety
2. Safety education
3. Institute for Research in Human Relations, Philadelphia, Pa.
4. AAF HFORL TN 54-8.

Experimental investigation of fire monitors and nozzles, by Hunter Rouse, J. W. Howe, and D. E. Metzler. Iowa State University. Institute of Hydraulic Research, Iowa City, Iowa. Nov 1949. 64p photos, fold drawings, graphs (part fold) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.25, Photocopy \$9.00. PB 115242

Contracts NObs-24084, N7onr-495, N8onr-500, Report no. 3.

1. Fire fighting equipment - Design
2. Fire extinguishers - Monitors - Design
3. Fire extinguishers - Nozzles - Design
4. Flow, Turbulent
5. Flow, Jet mixing.

Industrial engineering. Report of a visit to the U.S.A. in 1953 of a British specialist team on industrial engineering. Anglo-American Council on Productivity. Sep 1954. 127p photo, drawings, map, diags, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$1.25. PB 106484

1. Industrial management
2. Industry - Organization, control, etc.
3. Industries - U. S.
4. Engineering, Industrial
5. Engineering, Industrial - Education.

Investigation of cellulase of myrothecium verrucaria, by J. D. Bultman and J. M. Leonard. U. S. Naval Research Laboratory. Sep 1954. 19p diags, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.00, Photocopy \$2.75. PB 115503

An investigation of the properties of a cellulase preparation from the metabolic filtrate of myrothecium verrucari was undertaken. A concentrated, dialyzed preparation of the active material having a protein concentration of 0.1 mg/ml was found to respond to the standard protein color tests except those involving ninhydrin and p-dimethylaminobenzaldehyde. A means of further purification of the active material by adsorption was investigated. Of the adsorbents tried anhydrous calcium phosphate, alumina, Super-cel, and magnesium silicate offered the best separation of active material on the basis of nitrogen content. NRL R 4423.

Marine borer investigations. Final report under Contract Nonr 705(00), by F. G. Walton Smith. Miami University. Marine Laboratory, Coral Gables, Fla. Jan 1954. 43p diags, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.75, Photocopy \$6.50. PB 115784

ML 6635. Report 54-5.

1. Marine borers - Control
2. Marine borers - Effect of creosote
3. Marine borers - Physiology
4. Creosote - Toxicity.

On the maximum likelihood estimate of the Shannon-Wiener measure of information, by George A. Miller and William G. Madow. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Operational Applications Laboratory, Bolling Air Force Base, Washington, D. C. Aug 1954. 25p table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115552

The limiting form and the first two asymptotic moments of the sampling distribution of the maximum likelihood estimate of the Shannon-Wiener measure of amount of information per observation drawn from a multinomial distribution are determined. Also, approximations to the bias and the mean square error of the estimate are given. Contract AF 18(600)-322. AAF CRC TR 54-75.

Photo interpretation studies in the sand hills of western Nebraska, by H. T. U. Smith. Supplementary report, under Contract N9onr 86800, Project NR 089-016. Kansas University. Geology Dept., Lawrence, Kansas. Jun 1953. 28p photos, maps (part fold) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115208

Outlines distribution of sand dunes in other continents.

1. Sand dunes - Photographic analysis.

Preliminary report on land animals at Onotoa Atoll, Gilbert Islands, by Edwin T. Moul. National Research Council. Pacific Science Board. Feb 1954. 29p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.25, Photocopy \$4.00. PB 115775

Contract N7-onr-291(04), NR 388-001. Scientific investigations in Micronesia. Report no. 18.

1. Animals - Gilbert Islands
2. Entomology - Gilbert Islands.

Recommended practices for establishment and maintenance of turf, by E. B. Cale. U. S. Waterways Experiment Station, Vicksburg, Miss. Apr 1953. 128p maps (1 fold), graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$5.25, Photocopy \$16.50. PB 115556

Report provides technical and practical information which will be of value to those responsible for preparation, review or accomplishment of specification for the establishment of vegetative ground cover. A brief discussion of maintenance practices is included. The basic principles involved in the effective establishment of turf grasses and other vege-

tation are the same, irrespective of the type of construction. Under a general heading of construction are found such vital items as cleaning and grading, drainage, fertilizer, selection of grasses, reason for planting, planting methods, compaction, and irrigation. WES TM 3-361.

Report on testing and evaluation of general purpose sunglasses, by Patricia K. Perry. U. S. Navy. Medical Research Laboratory, Naval Submarine Base, New London, Conn. Apr 1953. 6p table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$1.50, Photocopy \$1.50. PB 115453

The following points were investigated: (1) Visible percent transmission, (2) dense size, (3) percent purity (color), (4) infra-red percent transmission, (5) ultra-violet percent transmission, (6) base curvature, (7) refractive power, (8) & (9) grade of polish and surface examination, (10) frames by inspection. NMRI Proj NM 003 041.51.

Semiannual list of publications and patents with abstracts, Jan 1-Jun 30, 1954. U. S. Dept. of Agriculture. Agricultural Research Service. Western Utilization Research Service, Albany, Calif. 1954. 15p Available from U. S. Dept. of Agriculture, Western Utilization Research Branch, 800 Buchanan St., Albany, Calif. PB 115563

1. Agricultural research - Bibliography.

Sharks and their behavior, with particular reference to eight genera implicated in reports of attacks on man, by Stewart Springer. U. S. Navy. Office of the Coordinator of Research and Development. Emergency Rescue Equipment Section. Oct 1943. 38f drawings, diagr, maps Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$2.50, Enlargement Print \$6.50. PB 115772

Appendix A: Statistical summaries of field tests with repellent, by J. M. Fogelburg and Stewart Springer.

1. Shark repellents 2. Sharks - Behavior 3. Barracuda 4. Survival - Research.

Statistical inference, reliability, and significance, by Frank M. Weida and Mary D. Lum. U. S. Air Force. Air Research and Development Command. Wright Air Development Center, Aeronautical Research Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Jul 1953. 63p graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. \$1.75. PB 111538

Some basic concepts of random sampling, reliability and significance of certain statistical measures are considered. Confidence limits are discussed as a measure of reliability. The size of sample necessary to insure "significant" experimental results (statistically speaking) is presented herein, together with a set of graphs for determining minimum sizes of samples with respect to various statistical measures. AAF WADC TR 53-149.

Tables of characteristic values of Mathieu's differential equation, a report prepared for the Applied Mathematics Panel, National Defense Research Committee, by the Mathematical Tables Project, National Bureau of Standards. U. S. National Bureau of Standards. Mathematical Tables Project. Sep 1945. 63p graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.25, Photocopy \$9.00. PB 115738

1. Tables, Mathematical 2. Mathieu functions (Aerodynamics) 3. Equations, Differential.

Tidal marshes of the Gulf and Atlantic coasts of Northern Florida and Charleston, South Carolina (Elevations, soil factors, water relations, plant zonation and succession), by Herman Kurz and Kenneth Wagner. Sep 1954. 182p photos, diagrs, graphs, map, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$7.00, Photocopy \$24.00. PB 115484

1. Botany - Ecology - Florida 2. Beach profiles - Florida.

Topsoil and seeding studies at Purdue University, Indiana, by Eldon J. Yoder. Purdue University. Engineering Experiment Station and U. S. Waterways Experiment Station, Vicksburg, Miss. Jul 1954. 55p photos, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$3.00, Photocopy \$7.75. PB 115557

Conclusions and observations summarized as follows (a) If ample fertilizer is applied, adequate turf can be grown on granular materials. (b) Nitrogen fertilization was the most important variable. (c) Quantity of seed affected the ratings soon after germination; however, as time progressed intermediate treatment (5.4 lb/1000 sq. ft) showed practically the same turf development as double this amount. (d) Depth of granular topsoil is important from standpoint of water retention and leaching of chemicals. Bibliography, graphs and tables attached. Photographs contained in text. Contract no. DA-22-079-ENG-19. WES TM 3-392.

Treatment of the stagnation point in arithmetical methods, by A. Thom. Gt. Brit. Ministry of Supply. Aeronautical Research Council. May 1951. 10p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. \$.75. PB 115539

Cover date is 1954. S. O. code no. 23-2807.

1. Mathematical equations and solutions - Gt. Brit. 2. ARC RM 2807.

U. S. Navy manual of safety equipment. Revised edition. U. S. Navy Dept. Office of Industrial Relations. Safety Branch. 1954. 199p photos, drawings, diagrs, graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm \$7.25, Photocopy \$25.25. 1. NAVEXOS P-422 Revised. PB 110045r

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 U. S. GOVERNMENT RESEARCH REPORTS. As PB number 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

- The absorption and distribution of radioactivity in plants grown upon soils contaminated with fission products — A preliminary report, by W. G. Long, F. G. Teubner, S. H. Wittwer, and H. B. Tukey. Michigan State College, East Lansing, Michigan. September 1954. Contract No. AT(11-1)-159. 9p. Microfilm \$1.50, Photocopy \$1.50. (AECU-2945)
- Quarterly report of biological and medical research division, by A. M. Brues. Argonne National Lab. October 1954. Contract W-31-109-eng-38. 100p. Microfilm \$4.50, Photocopy \$12.75. (ANL-5332)
- Method for evaluating radiation hazards from a nuclear incident, by J. J. Fitzgerald, H. Hurwitz, Jr., and L. Tonks. Knolls Atomic Power Laboratory. March 26, 1954. Contract No. W-31-109-eng-52. 27p. \$.25. (KAPL-1045)
- A study of the contamination potential of polonium static eliminators, by Louis B. Silverman and Fred A. Bryan. University of Calif., Los Angeles. August 7, 1950. Contract No. AT-04-1-GEN-12. 11p. \$.20. (UCLA-84)
- Studies on flash burns: Further report on the protective qualities of fabrics, as expressed by a protective index, by George Mixer, Jr. University of Rochester. October 27, 1954. Contract W-7401-eng-49. 19p. Microfilm \$2.00, Photocopy \$2.75. (UR-354)
- The viscosity of uranyl sulfate solutions 20° to 90°C, by J. R. Heiks and J. S. Jegart. Mound Laboratory. February 22, 1954. Contract No. AT-33-1-GEN-53. 9p. Microfilm \$1.50, Photocopy \$1.50. (MLM-788 (Rev.))
- The vapor pressure of actinium. Preliminary report, by K. W. Foster. Mound Laboratory. July 7, 1953. Contract No. AT-33-1-GEN-53. 9p. Microfilm \$1.50, Photocopy \$1.50. (MLM-901)
- Air cleaning studies. Progress report for July 1, 1952 to June 30, 1953, by Melvin W. First and others. Air Cleaning Lab., Harvard Univ. School of Public Health. August 5, 1954. Contract AT-(30-1)-841. 31p. \$.35. (NYO-1591)
- A study of the lime-soda softening process as a method for decontaminating radioactive waters, by Robert F. McCauley, Robert A. Lauderdale and Eliassen. Sedgwick Lab. of Sanitary Science, Mass. Inst. of Tech. September 1, 1953. Contract No. AT(30-1)-621. 94p. Microfilm \$4.50, Photocopy \$12.75. (NYO-4439)
- The chemistry of uranium(IV) orthophosphate solutions: Part I. The solubility of uranium(IV) orthophosphates in phosphoric acid solutions, by J. M. Schreyer. Oak Ridge National Laboratory. June 17, 1954. Contract No. W-7405-eng-26. 34p. \$.35. (ORNL-1747)
- The determination of potassium and sodium in siliceous, Argillaceous, and phosphatic rocks by the flame photometer, by Lillie Jenkins. United States Geologic Survey. July 1954. 17p. \$.25. (TEI-453)
- Separation of liquids by thermal diffusion, (thesis), by John Edward Powers. Univ. of Calif., Radiation Lab. August 1954. 163p. Microfilm \$6.50, Photocopy \$21.50. (UCRL-2618)
- Ethyl thioltrifluoroacetate as an acetylating agent with particular reference to peptide synthesis, by Elmer E. Schallenberg and M. Calvin. Radiation Lab., Univ. of Calif., Berkeley, Calif. June 1954. Contract No. W-7405-eng-48. 20p. \$.25. (UCRL-2632)
- A guide to selection of organic materials suitable for radiochemical work, by James F. Bennett. Radiation Lab., Univ. of Calif., Berkeley, Calif. July 12, 1954. Contract No. W-7405-eng-48. 18p. \$.25. (UCRL-2666)

Chemistry and Chemical Engineering

- Analytical applications of the reaction of thorium with benzenephosphonic acid, by Charles V. Banks and Rodney J. Davis. Iowa State College, Ames Lab. September 22, 1954. Contract W-7405 eng-82. 23p. Microfilm \$2.25, Photocopy \$4.00. (ISC-524)
- Corrosion of reactor structural materials in high-temperature water. I. Descaling methods, by R. Fowler, Jr., D. L. Douglas, and F. C. Zydes. Knolls Atomic Power Laboratory. August 27, 1954. Contract No. W-31-109 Eng-52. 30p. Microfilm \$2.25, Photocopy \$4.00. (KAPL-1198)
- The lithium-sodium liquid metal system, by O. N. Salmon and D. H. Ahmann. Knolls Atomic Power Laboratory. August 20, 1954. Contract No. W-31-109 Eng-52. 25p. Microfilm \$2.25, Photocopy \$4.00. (KAPL-1205)

A method for preparing codeinone, by Henry Rapoport and Helen N. Reist. Radiation Lab., Univ. of Calif., Berkeley, Calif. August 27, 1954. Contract No. W-7405-eng-48. 5p. \$.10. (UCRL-2683)

Electronics and Electrical Engineering

Reactor engineering lectures, by Stuart McLain. Argonne National Laboratory. September 1954. Contract W-31-109-eng-38. 75p. Microfilm \$3.75, Photocopy \$10.25. (ANL-5311 Pt. I)

Sir Mark a double-diaphragm pressure transmitter for the primary coolant system, by A. J. Bialous. (Notes compiled by G. G. Heard, Jr.) Knolls Atomic Power Laboratory. October 13, 1954. Contract No. W-31-109 Eng-52. 27p. Microfilm \$2.25, Photocopy \$4.00. (KAPL-1213)

Sample collector and counter, by James B. Deal, Jr. and John F. Buchen. Los Alamos Scientific Lab. October 13, 1954. Contract W-7405-Eng-36. 20p. Microfilm \$2.00, Photocopy \$2.75. (LA-1677)

Vacuum problems and techniques, by C. E. Normand, Frank A. Knox, G. W. Monk, Alan J. Samuel, and W. R. Perret. Tennessee Eastman Corporation. January 1950. Contract No. W-7405-eng-26. 265p. \$1.75. (TID-5210)

Geology and Mineralogy

Preliminary regional mapping in the Ruby Quadrangle, Arizona, by Bruce P. Webb and Kirby C. Coryell. Salt Lake Exploration Branch, Division of Raw Materials. May 1954. 12p. \$.20. (RME-2009)

Uranium occurrence in asphaltites. Technical report - June 1, 1952 to March 31, 1953, by Thomas D. O'Brien. Univ. of Minnesota. March 31, 1953. Contract No. AT-(30-1)-1360. 6p. \$.10. (RME-3040)

Sedimentary properties of salt wash sandstones as related to primary structures. Part II. Technical report for April 1, 1952 to March 31, 1953, by William Lee Stokes and Walter Sadlick. Dept. of Geology, Utah Univ. October 1953. Contract No. AT-30-1-1182. 26p. \$.25. (RME-3067)

Preliminary report on relation of structure to uranium mineralization in the Todilto Limestone, Grants District, New Mexico, by Philip C. Ellsworth and Arthur Mirsky. Grand Junction Exploration Div., Div. of Raw Materials. September 10, 1952. 15p. \$.20. (RME-4020)

Reconnaissance in the Western part of the Trans-Pecos Region of Texas, by Jonathan P. Hadfield, Jr. Division of Raw Materials. January 23, 1953. 15p. \$.20. (RME-4021)

Minor elements in some rocks, ores, and mill and smelter products, by E. P. Kaiser, B. F. Herring, and J. C. Rabbitt. United States Geologic Survey. April 1954. 119p. \$.80. (TEI-415)

Instrumentation

Eddy current type diameter gauge for corrosion measurements, by William B. Doe. Argonne National Laboratory. September 1954. Contract W-31-109-eng-38. 16p. Microfilm \$2.00, Photocopy \$2.75. (ANL-5227)

Dual channel pulse analyser and count-rate meter for gamma spectrometer monitor, by R. S. Paul and M. R. Wood. Engineering Dept., Hanford Atomic Products Operation. June 17, 1954. Contract No. W-31-109-eng-52. 19p. \$.25. (HW-32166)

The model 500 pulser, by O. L. Stone. Los Alamos Scientific Lab. March 26, 1953. Contract No. W-7405-eng-36. 29p. \$.25. (LA-1330)

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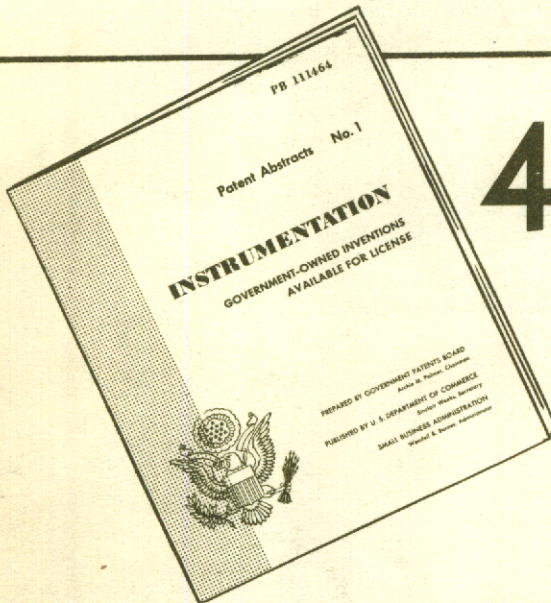
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