

FINDING AID: 77-10

RECORD GROUP: RG 77      National Research Council

ACCESSION: 85-86/044

BOX RANGE: 1-10

DESCRIPTION: The finding aid is a list of reports.

INSTRUCTIONS: The reports are listed as they appear in the boxes.

May 1985

(1985-86/044)

PHYSICS REPORTS

FA 77-10

BOX 1 REPORTS P, PAA, PD, PEE

P - General Physics Reports

*Various subjects. During the war years, mainly ballistics. Have historical value.*

P10 to P129, except: 11, 20, 34, 69, 78, and 82. May 1933 - March 1955.

P72A - The Counter Chronograph and Photoelectric Screens for Accurate Measurement of Projectile Velocity. July 1942, J.J. Marskell. Revised July 1943, R.W. McKay and P.T. Demos.

P109 - Photo Electric Sky Screens: Theory of the Basic Circuits. April 1944, J.S. Marskell.

P110 - Report on Non-Packing Skid-Proof Shoe Sole. April 1944.

P111 - Measurement of Blast Pressures with Piezo-Electric Gauges. July 1944, by R. Bailey and P.T. Demos.

P124 - The Triback and Adapter for Use with Ottawa MKIII Telephoto Sky Screen. February 1945, P.T. Demos and W.J. Flood.

P126 - Experimental Tests of the NRC Telephoto Sky Screens. July 1945, P.T. Demos.

P127 - V.F.E. Listening at Prince Rupert, B.C. February 1945, J.C. Beynon.

P128 - Ionization Current Amplifier. May 1945, C.R. Covington.

P129 - Report on Installation and Trials of Magnetometer Steering and Control in Fairmile MLOGS Ship. June 1945, L.D. Armstrong and J.C. Beynon.

P131 - Tachymetric Sight - Joystick Control, A.T.O.B. Project #43. October 1945, Armstrong, Hurst, McCullough, Preston.

P132 - Measurement at Victoria Beach, Man. of Magnetic Elements (H, V, and Z) During Solar Eclipse. July 1945, C.K. Jones.

P133 - A General Purpose Low Pass Amplifier in the Sub-Sonic Frequency Range and its Applications with Respect to Cable Sway Effects on Loops. November 1945, J.C. Beynon.

P138 - Measurement of Pressures in 20 Millimeter Gun Barrel. April 1948, R. Bailey.

P140 - Radioactive Deposits Found at Ottawa after the Atomic Explosions of January and February 1951. March 1951, D.C. Rose and J. Katzman.

P141 - A Review and Investigation of Electric and Magnetic Resonance Processes. October 1951, F.E. Geiger.

P142 - The Transcode Automatic Programme. March 1955.

PAA - Acoustical (and Hydraulic)

- *Definite historical value.*

PAA-12 - Visits to Aeronautical Institutions in England. May 1933, J.J. Green.

PAA-24 - The Effect on Performance of Carrying a Canoe on an Aeroplane. October 1935, J.J. Green. } *The quintessentially Canadian research topic!*

PAA-41 - Notes on the Trials of the R.C.M.P. Patrol Cruiser Laurier, Held at Quebec City, July 1936.

Unnumbered Reports - Calibration. S.J. Murphy. 1932-1933.

PD - Reports from the Director's Office

- *Broad reports on subjects of interest to Canada at the time. Historical value.*

PD-1 to PD-3 - R. Ruedy. December 1947-January 1948.

PEE - Physics - Electrical Engineering

*Contains many routine calibration reports which could be discarded. Also contains many usefully descriptive reports and reports dealing with other organizations which have historical value.*

Unnumbered Reports - Conductivity Standards, 1933, A.J. Grant.

*See also comment in accompanying letter*

PEE-4 to PEE-210, except: 50-53, 70, 72, 76, 83, 110, 175. July 1933 - July 1938.

PEE-28 - Final Report on the Accuracy of Watthour Meters due for Reseal. January 1934, A.J. Grant.

BOX 2 REPORTS: PEE

PEE - Physics - Electrical Engineering

PEE-211 to PEE-665, except: 254, 291, 298, 309, 388-9, 437, 521, 533, 555, 578, 591, 598, 623, and 624. September 1938-May 1944.

PEE-414 - Aircraft Power Supplies. Compilation of Available Reports and Articles. 13 September 1941, J.H. Simpson. Part I and Part II.

PEE-619 - Trials of Power Operated Turret of A.A. Tank Skink. February 5, 1944, N.L. Kusters.

PEE-650 - Investigation of the Comparative Shock Resistance of Electric Lamps. 14 April 1944, N.L. Kusters.

BOX 3 REPORTS: PEE

PEE - Physics - Electrical Engineering

- PEE-666 to PEE-1076, except: 779, 806, 829, 926, 936, and 949. May 1944-April 1955.
- PEE-754 - Revised Control Gear and Diffused Lighting. 5 February 1945, J.M. Vanderleck.
- PEE-780 - Tests on 85 Stark Electric Instruments in Accordance with C.W.S. Spec. C39.2-1944. 31 March 1945, A.J. Grant.
- PEE-781 - Tests on 10 Sparton Electric Instruments in Accordance with C.W.S. Spec. C39.2-1944. 31 March 1945, A.J. Grant.
- PEE-787 - Investigation of Synthetic Compounds to Replace Crude Rubber Compounds in Mining Cable Insultants. 9 May 1945, P.A. Duchastel.
- PEE-823 - Concealment of Ships by Diffused Lighting. August 1945, J.M. Vanderleck, T.M. MacInnes.
- PEE-863 - Report on Fully-Automated Plotter (A.A.). 5 November 1946, R.M. Morris, J.H. Simpson, and H.B. Abells.
- PEE-877 - Qualification Approval Test on 80 Bach Simpson Electrical Instruments. December 5, 1947, B.J. Rafuse.
- PEE-967 - A.C. Instrument Calibration Unit. December 1951, R.H. Smith.

BOX 4 REPORTS: PEM, PES, PHC

PEM - Physics - Electrical Engineering

PEM - 18 October 1935.

PES - Physics - Physical Tests of Metals. Primarily for Materials Division Inspection Board of U.K. and Canada

*Reports of routine testing mainly during World War II. Little historical value (except to indicate type of work being done)*

PES-1 to PES-1199, except: 49, 213, 235, 236, 315, 333, and 799. November 1934-July 1945.

PHC - Physics - Heat and Conductivity

*Early measurements on heat flow and insulation which later became part of the mandate of the new Division of Building Research. Historically significant.*

PHC-17 to PHC-499, except: 93, 100, 101, 155, 173, and 270. March 1933-September 1953.

PHC-215 - Thermostatic Control of Railway Refrigeration Cars. October 1941, C.D. Niven.

PHC-269 - Second Report on the Plastic Flow of Frozen Wood Pulp. J.D. Babbitt.

PHC-484 - Calibration of an Air Permeability Instrument. August 1952, I. Moote. (There is also Report PHC-484 on Thermal Conductance and Insulation - September 1952, C.D. Niven).

3

Report Unnumbered - Measurement of Thermal Conductivity of Canadian Industries, Ltd. Ammonium Nitrate. March 1949 by J.O. Babbitt.

BOX 5 REPORTS: PLT, PM, PN, PO

PLT - Physics - Low Temperature

*— Routine samples. Limited value.*

PLT-1 to PLT-4, April 1952-June 1953.

PM - Physics - Metrology

*{ Much routine but also many reports related to important Canadian developments in surveying, aerial photography etc. Historically significant.*

PM-10 to PM-1693 (with many gaps), April 1933-December 1954.

PM-502 - Report on Organization of Gauge Laboratory. October 1941, R.H. Field.

*{ an important wartime development.*

PM-508 - Design and Construction of Data-Reading Camera for Aircraft. September 1941, R.H. Field.

PM-509 - Design of Instrument for Position-Finding from Horizontal Base Observation. September 1941, R.H. Field.

PM-1691 - The Examination of Cork Faced Pressure Pads of O.S. Cameras for Flatness and the Determination of the Deflections of the Pads and Compression of the Cork When Stressed. December 1954, E. Green.

Unnumbered Reports.

PN - Physics - Navigation (Sonar)

*{ Asdic / Sonar developments during WWII represented Canada's first real involvement in this field, which has continued to be important.*

PN-2 - Review of the Asdic Oceanographical Conferences. January 1944, J.P. Tully, Appendix to PN-2.

*{ Historical value.*

PN-3 - Review of the Asdic Oceanographical Conferences. April 1944.

PN-5 - Sound Ranging Charts. August 1944, J.P. Tully.

PN-6 - Sound Ranging Analysis. September 1944, J.P. Tully.

PN-8 - Sound Ranging Charts. October 1944, J.P. Tully.

PN-11 - The Computation of Sound Intensity in Sea Water. August 1945, W.M. Cameron.

PN-12 - Efficiency of '2' Asdic in Positive Water. September 1945, J.P. Tully.

PN-13 - The Virtual Temperature Slide Rule. September 1945, J.P. Tully.

PO - Physics - Optics

*Optics, a new field for Canada, developed rapidly during WW II. Aerial photography became important in postwar mapping of Canada. Some interesting interactions with other organizations (e.g. PO-169).*

5.

PO-6 to PO-349, except: 7-8, 121, 335, and 337. February 1933-August 1944.

PO-320 - An Instrument for Taking Ranges Between 700 and 2100 yards. April 1944, L.E. Howlett and R.A. Nodwell.

PO-322 - Life Test of Eagle V. Camera. April 1944, P.D. Carman.

PO-330 - A Comparison of Two Methods of Taking Aerial Photographs at Low Altitude from High Performance Aircraft. May 1944, L.E. Howlett and T.L. Collins.

PO-331 - Test of Mill Fuses. May 1944, P.D. Carman.

PO-332 - Test of Chamberlain Vibration Absorbers in a Type 25 Camera Mount. May 1944, P.D. Carman.

PO-334 - Evaporation in Vacuum. June 1944, K.M. Baird.

PO-345 - Interim Report on Air Tests of M46 Flash Bombs. August 1944, P.D. Carman, T.L. Collins.

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**BOX 6 REPORTS:** PO, POA, PPC, PR

PO - Physics - Optics

- PO-351 to PO-499, August 1944-June 1949.
- PO-352 - Non Reflection Films. September 1944, K.M. Baird,
- PO-363 - A Comparative Air Test of the 12" F/2.5 Aero-Ektar and the Eastman 8" F/1.5 Lens for Night Photography. November 1944, L.E. Howlett and P.D. Carman.
- PO-380 - A Criterion for Measuring the Speed of Aerial Photographic Emulsions. February 1945, L.E. Howlett.
- PO-381 - Lens Film Resolving Power Tests on Two Eastman Prototype Lenses. February 1945, K.M. Baird.
- PO-384 - U.S.P. Vitamin A - Study 1945. May 1945, J.E. Kenedy.
- PO-385 - Development Characteristics of the Continuous Processing Machine. April 1945, P.D. Carman and R.L. Clarke.
- PO-390 - Lens Film Resolving Power to Tests of a German F16.3 75 cm Telephoto Lens and a Ross Xpres 20 F/6.3 EMI.176856/472D/10.
- PO-394 - Tri-Camera Mount for Fairchild K-17B Cameras in a Mitchell Aircraft. July 1945, R.A. Nodwell and P.C. Barstow.
- PO-428 - Tests on Safety Fuses. February 1948, W.E.K. Middleton.
- PO-489 - Dual Gunsight for T-33 Aircraft. April 1954, P.D. Carman.  
- \* A History of the War Work of the Optics Section - October 1945.

POA - Physics - Spectrochemical Analysis - *Routine work for Dept of Agriculture*

POA-1 to POA-54, October 1939-February 1944.

PPC - Physics - Photometry and Colorimetry - *Varied requests with some historical interest*

PPC-1 to PPC-109, November 1949-July 1954.

PR - Physics - Radio { *Early radio receiver testing and other activities of Dr. J. T. Henderson (paper in Manuscript Division) Historical Value.*

Reports 1935-1941 (most 1935-36) [Broadcast Receiver Tests].

PRB-66 - October 1942.

*Early work on Cobalt 60 therapy units and other radiation sources in hospitals. Definite historical value.*

PR - Physics - Radiology (Industrial)

PR-1 to PR-155, except: 3, 10-11, 41-69, 110-111, and 130, January 1949-June 1952.

- PR-6 - Material Required to Carry Out Radiography with CO60 or Radium. August 1949, A. Morrison.
- PR-7 - Exposure Graphs for Radium Radiography of Steel. A. Morrison.
- PR-8 - The Use of Cobalt 60 for Industrial Radiography. A. Morrison.
- PR-12 - Skipping, Storage, and Handling of Cobalt 60. K.J. Parry.
- PR-15 - X-Ray Protection Coefficient of Plate Glass. C. Garrett.
- PR-16 - Working Drawings of Tools for Handling Radioactive Sources. A. Morrison and K.J. Parry.
- PR-87 - Absorption Corrections Used in Radium Standardization. January 1951, J. Kastner.
- PR-90 - Beta-Ray Thickness Gauges. March 1951, W.R. Dixon.
- PR-91 - Iridium 192 for Gamma-Ray Radiography. February 1951, A. Morrison.
- PR-109 - Material Required to Carry Out Radiography with Cobalt 60, Iridium 192 or Radium. August 1949, revised August 1951, A. Morrison.
- NRC No. 2457 - Absorption Corrections for Radium Standardization. 1951, G.M. Keyser.
- PR-113 - Background Information on Cobalt 60 Teletherapy Units. August 1951, A. Morrison.
- PR-116 - An Intercomparison of Radium Preparations Carried Out by the National Bureau of Standards of the U.S.A., The National Physical Laboratory of Great Britain, and the National Research Council of Canada. February 1952, J. Kastner and A. Morrison.
- PR-129 - Cobalt-60 Teletherapy Unit: Output, Depth, Dose and Isodose Distributions. February 1952, W.R. Dixon, C. Garrett and A. Morrison.



BOX 7 REPORTS: PR, PRV, PS, PSA, PST

PR - Physics - Radiology (Industrial)

PR-156 to PR-249, except: 192, June 1952-January 1955.

PR-218 - Measurements of the Build-Up of Cobalt-60 Gamma Radiation in Iron and Lead. March 1954, C. Garrett and G.N. White.

PRV - Radiology - *Reports on visits - historical value.*

PRV-10 to PRV-47, November 1943-May 1947.

PS - Acoustics and Ultrasonics

*Applications of sound and sound measurement which vary from the acoustics of the Senate chamber, to the detection of submarines and attempts to repel birds. Historical value.*

PS-9 to PS-344, except: 16, 37, 39-40, 107, 111, 136, 239, and 275, July 1934-April 1955.

PS-105 - Report on Visit to United Kingdom, February 6 to June 13, 1941. July 1941, G.S. Field.

PS-109(?) A Demonstration of the Use of a Cathode Ray Oscillography as a Visual Detector in Submarine Echo-Ranging. December 1941, E.P. Hincks.

PS-110 - Report of a Visit to Brush Development Corporation, Cleveland, Ohio, December 19-20, 1941. December 1941, G.S. Field.

PS-112 - Report on Acoustic Minesweeping and Acoustic Measurements at the 'S' Section, Mine Design Department, H.M.S. Vernon, Edinburgh, January 1947, J.R. Leslie.

PS-195 - Ship Noise at Ultrasonic Frequencies (FH Project, Report NO. 6). January 1944, J.R. Leslie.

PS-205 - Band Response Tester, Model PA-1. June 1944, G.N. Ilas and T.D. Northwood.

PS-251 - The Salinometer Model XI. September 1945, Hin Lew.

PS-254 - New Temperature Compensation Cell for Salinometer Model XI. October 1945, Hin Lew.

PS-300 - Depth Measurements in the Seaward Icefield by Sonic Echo-Ranging. December 1948, T.D. Northwood and F.W. Simpson.

PS-312 - Operating Instructions for Intercommunication System, Sault Ste. Marie Laboratory. September 1949, T.D. Northwood.

PS-337 - Sound for Repelling of Birds. March 1953, G.S. Thiessen.

PSA - Acoustics - Asdic Range Conditions

PSA-1 to PSA-6, August 1944-April 1945.

PST - Stores

PST-1 - March 1945.

**BOX 8 REPORTS:**

PTR, APTR, PX, PZ, CAORG.  
Physics Quarterly Reports, PXB, PXR, PWM.

PTR - Physics - Temperature and Radiation *{ mainly calibrations. Little historical value. }*  
PTR-1 to PTR-397 (with gaps), October 1949-April 1955.

APTR - Applied Physics - Temperature and Radiation  
APTR-413 to APTR-508, except: 415-417, 420-450, 457-461, 463-470, 472-474, 477, 489-493, 495, 502-503, June 1955-April 1956.

APTR-494 - Paper Drying. December 1955, H. Preston-Thomas. *{ a much studied Canadian problem. Historical value. }*  
APTR-504 - Paper Drying. March 1956, H. Preston-Thomas.

PX - Physics - X-Ray Examination *{ X-ray examination of a wide variety of materials including WWII rubber substitutes (milkweed etc) pearls and other exotic substances. Early development of X-Ray diffraction in Canada. Historical value. }*  
PX-1 to PX-260, except: 17, 141, 211, 216, 232, February 1934-February 1949.

Radiographic Inspection Procedure for Light Alloy Castings Used in the National Research Laboratories. 1942, G.C. Laurence, L.W. Bell and J.W. Archibald.

PX-126 - X-Ray Diffraction Examination of Rubbers in a German Submarine Escape Suit. July 1943, A.L. Blakers, E.B. Paul.

Rubber from Canadian Grown Plants. April 1943.

PXD - X-Ray Diffraction  
PXD-262 to PXD-267, April 1950-December 1952.

PXR - X-Ray Diffraction (Rubber)  
PXR-1 to PXR-3, June 1945-June 1945.

PWM - (War Mission) Reports and Correspondence *- Definite historical value.*  
War Mission in England, September and October 1939. November 1939, R.W. Boyle.  
A History of the War Work of the Optics Section. October 1945. War History of Division of Physics.

PZ - Measurement of Radium *{ Measurement of radium content and radioactive contamination. Historical value. }*  
PZ-1 to PZ-148, except: 3-4, 7, 12, 19, 45 and 65, November 1933-June 1949.

Exposure Graphs for Radium Radiography of Steel. June 1943, E.M. Nodwell and A. Morrison.

PZ-71 - A Portable Geiger-Mueller Counter. October 1944, W.J. Hushley.

PZ - Certificates used by the Radiology Section to report radium or radio-equivalent content of radioactive samples. 1934-1965.

Miscellaneous - Unnumbered Reports, 1933-1940

*Widely varied but generally some historical value.* 10.

Alberta Moss-Tex. September 1933, B.G. Ballard.

Auto Sights for Coast Defence Guns. Description of a Model Developed by National Research Council of Canada. November 1946. Lt. General A.G.L. McNaughton and R.H. Field.

Sample of Blood-testing for Carbon Monoxide Haemoglobin. L.E. Howlett.

Preliminary Trials on Instrument Methods of Measuring Forestry Fire Hazard. June 1936, D.C. Rose.

Final Report on Leathers for Mr. Purves, L.E. Howell.

Reports Prepared in the Division of Research Information During the Fiscal Year 1932-33.

Progress Report on the Experimental Work of the Measurement of Velocities of Projectiles. D.C. Rose and G.P. Morrison.

A Report on Vellums. L.E. Howlett.

Reports of the Canadian Army Operational Research Group - CAORG

*Early application of radar to weather phenomena. Has historical value though not strictly N.R.C. records*

Report No. 11

Summer Storm Echoes on Radar M.E.W., November 1944.

Report No. 26

S. Band Echoes from Snow, June 1945.

Report No. 30

Analysis of Storm Echoes in Height Using M.H.F., June 1945.

Report No. 40

Radar Weather Messages and Their Use, November 1945.

Report No. 42

Investigations of the 'Bright Band' discussed in CAORG Report No. 30, November 1945.

Box 10

Physics Quarterly Progress Reports 1949-1953 — *Historical value.*

Miscellaneous - Papers Related to Metrology ← *Historical value*

"Standards." Ledger Recording Lengths of Standards of Survey Chains over Various Time Periods. 1914-1973

Surveys Laboratory. "Verification of Comparator Base Measurement" and "Rule Intercomparison". Worksheets 1928, 1931, 1948

R.H. Field, "The Physical Testing Laboratory History". Xerox copy 1931

R.H. Field, Reprints 1934-8, 1944, 1946-9, 1950-52, 1955

R.H. Field, Miscellaneous Correspondence 1935-8 1941, 1947, 1953

Box 10 (cont'd)

Miscellaneous - Heat and Solid State Physics

*The history of a project which did not quite succeed. Has historical value.*

M.A.R.T.I.N. Project. Description, Computer Print-outs, Purchase Requisitions. 1967-78

Estimates for the Division of Physics

*- Details of divisional estimates which are not available elsewhere. Has historical value.*

Estimates for the fiscal years 1950-51 to 1954-55.

Schedule of fees for Standardization Test work - 1949, 1956, 1957.

Estimates for 1961-62 and that year's finances.

Estimates for 1962-63 and that year's finances.

Staffing and estimates for 1963-64.

Physics Quarterly Progress Reports

March, June, September, December 1949-53

**Box 9**

Physics Quarterly Reports

1954

1955 March only

Applied Physics Quarterly Progress Reports

June 1955-December 1959

March 1966-September 1969

Pure Physics Quarterly Progress Reports

March 1956-December 1956

March 1966-December 1967

March 1968-September 1969 (No September 1968).

*Note: The Division of Physics formally divided into Pure Physics and Applied Physics in 1955 and reunited to form a single division in 1969. The reports summarize the work done in much more detail than annual reports etc. Historical value. There are some gaps.*

**Box 10**

Division of Physics - Quarterly Progress Reports

December 1969-September 1974