

Dr. Cassius W. Curtis Papers (1942-1980)

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2 boxes, 1 linear foot*

Abstract:

Documents and photographs relating to Lehigh University Physics faculty member, Dr. Cassius W. Curtis. This collection includes his research in the field of atomic spectroscopy; his contribution to war research for fundamental studies for the U.S. Army on the dynamic behavior of metals relating to ballistics; correspondence relating to his research.

Contact Information:

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Creator:

Dr. Cassius Wild Curtis (1906-2004)

Title:

Dr. Cassius W. Curtis Papers (1942-1980)

Provenance:

Donated by Cassius W. Curtis' daughter-in-law, Lyndell Curtis of Bethlehem, Pennsylvania to the Lehigh University Physics Department and transferred to Special Collections in October of 2008.

Restrictions to Access:

This collection is open for research.

Preferred Citation:

[Identification of item], Cassius Wild Curtis Papers, SC MS 0136, Special Collections, Linderman Library, Lehigh University, Bethlehem, PA

Copyright Notice:

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Biographical Note:

Dr. Cassius W. Curtis was born in Noblesville, Indiana in 1906. He graduated from Williams College in 1928 where he was a member of Phi Beta Kappa. For the next two years Curtis taught at Hamilton College until he left to study at Princeton University where he received his Ph.D. in 1936 for his research in the field of atomic spectroscopy. In this same year Curtis became an assistant professor at Western Reserve University where he remained until his teaching career was interrupted in 1942. He was asked to return to Princeton to join the National Defense Reserves Committee to contribute to war research for fundamental studies for the U.S. Army on the dynamic behavior of metals in order to improve the ability of armor plate to stop the new high-speed shells that penetrated existing armor. In 1946 he left Princeton to become a professor at Lehigh University. Curtis directed sixteen Ph.D. dissertations and many master's theses during his tenure there. In 1960-61 he served on the sub-committee for Lehigh's Committee on Educational Policy. Curtis received the Christian R. and Mary F. Lindback Award for Distinguished teaching in 1963 and continued to contribute to Lehigh academic program until he retired in 1971. At the time of his retirement, Curtis was a member of the American Association of Physics Teachers; Delta Upsilon fraternity; Phi Beta Kappa, national scholastic honorary; and Sigma Xi, national research honorary; and honorary member of Tau Beta Pi. Curtis resided in Bethlehem, PA with his wife Ruth until his death in 2004.

Scope and Content Note:

The collection consists of two archival boxes containing a total of 31 folders of Curtis' research material in the form of notes diagrams and illustrations as well as letters of correspondence. This collection also includes 11 glass slides and 7 negatives which are housed separately in the Lehigh Photo Collection. Research topics consist of spectroscopy, ballistics and the behavior of metals.

Online Catalog Terms:

Curtis, Cassius Wild, 1906-
Lehigh University- Faculty.

Lehigh University- Dept. of Physics.
Princeton University.
Case Western Reserve.
United States. Dept. of the Army.
National Defense Research Committee.
War Manpower Commission.
Lead--Analysis.
Spectroscopy.
Ballistics.

Related Material:

McLennan, James A. *History of the Physics Department*. 2002. Lehigh University call number: L 378 E M225h.

Curtis, Cassius. Lehigh Collection Vertical File: SC LVF C979.

Forensic analysis : Weighing Bullet Lead Evidence. National Research Council (U.S.). Committee on Scientific Assessment of Bullet Lead Elemental Composition Comparison. Washington, D.C.: National Academies Press, 2004. Lehigh University call number: 363.259 N277f

Range and Ballistic Tables, 1935; Printed for the Use of the Midshipmen at the U.S. Naval Academy in Connection with the Textbook Exterior Ballistics. [Annapolis, Md.: U. S. Naval Institute, 1935] Lehigh University call number: 623.5 U58r

Exterior ballistic tables based on numerical integration. Prepared by the Ordnance Department, U.S. Army. Washington, Govt. Print. Off., 1924- Lehigh University call number: 623.54 U584e v.1

Description of Collection:

Series I. Princeton University

Box 1

A. Preliminary Research

- 136.01.01 Stability of Caliber .60 type BC-2 Bullets: 1st rough draft. Jan. 27, 1943
- 136.01.02 Experimental hypervelocity 20-mm capped projectile
- 136.01.03 Deformation of projectiles as a result of velocity
- 136.01.04 Perforation of homogeneous armor- NDRC. Oct. 1943-45
- 136.01.05 Energy absorbed as a function of striking energy

B. Findings

- 136.01.06 Table of Contents: Ballistics 1943-45
- 136.01.07 Exterior Ballistics
- 136.01.08 Interior Ballistics
- 136.01.09 Terminal Ballistics
- 136.01.10 Correlating Graphs of Tables and Calculations
- 136.01.11 Projectile Descriptions
- 136.01.12 Miscellaneous

Series II. Lehigh University

Box 2

A. Research

- 136.02.01 Analysis MuII: Colloquium
- 136.02.02 Analysis MuII
- 136.02.03 Identification of spectral lines from corona of the sun
- 136.02.04 Methods of applied spectroscopy
- 136.02.05 Recent advances in applied spectroscopy
- 136.02.06 Raman spectra
- 136.02.07 Shock waves
- 136.02.08 Shock wave research at Lehigh
- 136.02.09 Developments in terminal ballistics
- 136.02.10 Dynamic behavior of metals
- 136.02.11 Propagation of elastic strain pulses along cylindrical metal bars
Nov. 1955

B. Lectures and Conferences

- 136.02.12 Experimental seminar Oct. 20, 1956
- 136.02.13 Second OOR conference Feb. 7-8, 1957
- 136.02.14 Dynamic behavior of metals: AIP lecture Apr. 1958
- 136.02.15 Dynamic behavior of metals: Bryn Mawr 1960- Conference

C. Publications

- 136.02.16 Original Publications: C.W. Curtis
- 136.02.17 Transient electron-inertia field produced by strain pulse: J.D. Kennedy & C.W. Curtis

D. Correspondence

- 136.02.18 Correspondence letters

Series III. Visual Material

Box 3

A. Notes on slide presentation

136.02.19 Propagation of strain in bounded solids: Ingersol-Rand, Sept. 1958

B. Glass Slides of the propagation of strain in bounded solids (presentation).
GS0520-GS0531.

(All the glass slides are housed in the Lehigh Photo Collection)

Some of these slides may correlate with 136.03.01 “Notes on slide presentation.” GS0520-GS0530 are in black and white and measure 8x10 cm. Slide GS0531 is in color and measures 8x10 cm.

GS0520. “Measurement of Strain Produced in Cylindrical Bar by Force Applied to End” with corresponding diagram.

GS0521. “Strain from Colliding Bars” with corresponding diagram.

GS0522. “Geometry and Boundary Conditions” & “Various Types of End Conditions” with corresponding diagrams.

GS0523. Graph of Relative Strain vs. Reduced Time with corresponding formulas.

GS0524. “Strain with No Dispersion” & “Actual Strain Record” with corresponding graphs.

GS0525. “Time-Dependent End Loading of Semi-Infinite Cylinder Initially at Rest and Unstrained” with corresponding diagram.

GS0526. “Dominant Frequencies-Long. and Trans. Modes” with corresponding diagram.

GS0527. “Eq. Transformed to Exclude Z and θ ” and “End Cond. Expanded as Series in θ ” equations.

GS0528. “Roots of Pochhammer-Chree Frequency Eq. Sinusoidal Waves in Cyl. Bar (Zero Stress at Lateral Surface)” with corresponding diagram.

GS0529. “Energy – Units 10^4 Wave-Numbers” with corresponding diagram.

GS0530. “Energy Levels of MnII” and corresponding diagram.

GS0531. “Fig. 621 Illustrations of continuous and line spectra.”

C. Negatives – 7 negatives: 10.5 x 8 cm

**All seven negatives are housed in the Lehigh Photo Collection.*

NG3658. “The Emission Lines in the Solar Corona”

NG3659. Picture of the Solar Corona

NG3660. “Telescope”

NG3661. “Wave-numbers of coronal lines”

NG3662. “Reports from February Eclipse Observers”

NG3663. “Wave-numbers of coronal lines” and corresponding diagrams

NG3664. “The spectrum of the inner corona line along the solar equator”