Fritz Engineering Laboratory
"Project 237" Documents

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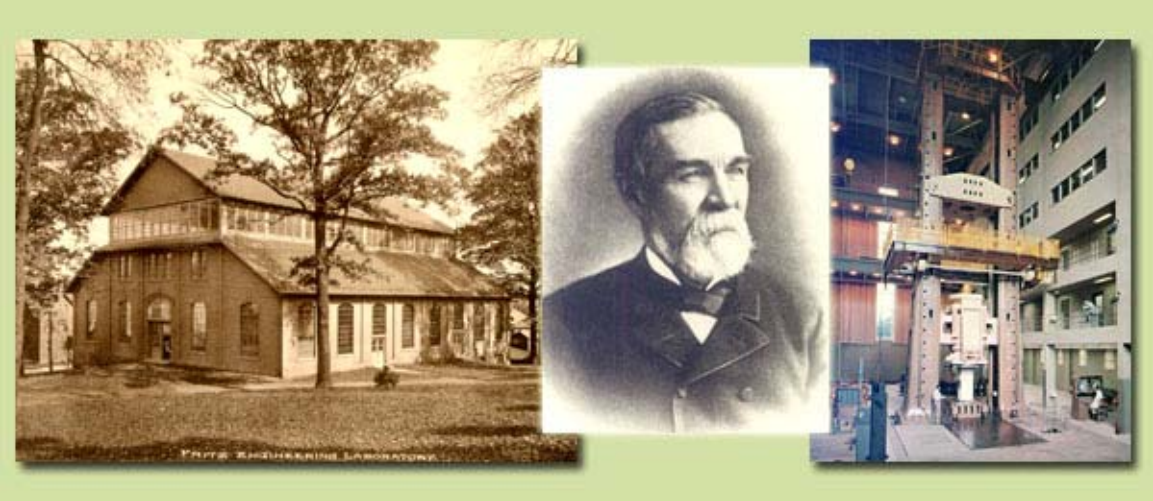

Abstract: "Project 237" was created by the Lehigh University Department of Civil Engineering for the purpose of recording Fritz Engineering Laboratory research history. During the decades, especially from the earliest days of the first decade (1910) of operation to the mid 1980s, Fritz Engineering Laboratory was a center of important civil engineering research doing research that would be included in the nation's building specifications such as AASHTO, ACI, ASTM, AWS. The Lab was known worldwide for some very innovation research projects as well as commercial testing. The innovative research included testing of the steel plates that were used to build the Panama Canal locks, the cable anchorages for the first Tacoma Narrows Bridge, the suspension cable for the Golden Gate Bridge, George Washington Bridge, Brooklyn Bridge, the joists for the World Trade Center, "Telstar" – the United States' first telecommunication satellite, the pioneering prestressed concrete beams designed for use in the rapid construction of the U.S. Interstate Highway System, aluminum bridge systems, early attempts at composite design of highway slabs, dredge pumps, compacted urban refuse bales for use in consolidating landfills and plastic design of multistory frames. The Fritz Engineering Laboratory as a named structural research entity was replaced by the ATLSS (Advanced Technology for Large Structural Systems)

testing facility for structural engineering research in 1986 with Lehigh University's acquisition of Bethlehem Steel Corporation's Homer Research Laboratories adapted for civil engineering departmental use.

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Historical Sketch:
The original Fritz Engineering Laboratory was funded, designed and built by John Fritz beginning in 1909 and dedicated in 1910. The original laboratory was designed as a one-quarter scale building of a building also designed by John Fritz, known as the Number 2 Machine Shop, for the Bethlehem Iron Works (predecessor to the Bethlehem Steel Company/Corporation). The steel frame of the building was erected in 1909 as a plaque on a steel beam in the south wall of

the test bay indicates as well as the lintel above the bay door. Mr. Fritz also provided the largest test machine, an 800,000 lb Riehle test machine, in the world at the time for his laboratory. This machine tested some of the structural plates manufactured by McClintic-Marshall (1888 civil engineering alumni) for the Panama Canal as well as the cable anchorages designed by Bethlehem Steel Company for the first Tacoma Narrows Bridge (it was the bridge design not the cable anchorages that caused this bridge to fail so spectacularly).

By the mid 1930s a need to expand was indicated and Professor Hale Sutherland, head of the civil engineering department, made an attempt to build an addition but the economic situation at the time thwarted the attempt. A graduate degree program in civil engineering had been introduced in 1927/28 and research work expanded greatly.

By 1951 another attempt was made to expand by Professor William J. Eney. With the help of the Bethlehem Steel Corporation, Professor Eney succeeded in having built a seven story steel frame addition. The building's cornerstone was laid in June, 1954 and by October, 1955 the addition, known as "the new" Fritz Laboratory, was dedicated. Professor Eney following in John Fritz's footsteps also had installed in the addition the largest test machine in the world, a 5,000,000 lb. Baldwin Universal Testing Machine which got its claim as largest because of an addition made to its height to accommodate very long structural members. This laboratory addition and testing machine made Lehigh's civil engineering department and the Fritz Engineering Laboratory world famous. Many visitors from around the world came to participate in unique, innovative research testing noteworthy enough to appear in newspapers and articles in many professional journals. "Project 237" was designated as a file to record the many different aspects of this "new" addition and the research performed in it as well as material relating to the original building.

Scope and Content Note:
This collection contains photographs and newspaper articles describing some of the newsworthy research done in Fritz Engineering Laboratory. Most of the 253 photographs of research projects were made by Richard N. Sopko, Fritz Lab photographer c. 1962 to early 1990s and are of assorted sizes but mainly in black and white. Earlier photographs were made by assorted staff and faculty many pictured in the collection and depict camaraderie among the staff and faculty in the new research facility. The original newspaper articles were photocopied onto acid free paper and these images are now in the collection.

Organization of the Content:
The original collection was filed in three black three-ring binders with items glued on to paper sheets in an order of most recent date in front and earliest date in back

of binder. One binder contained primarily ephemera and two binders specifically photographs identified as 237 – xxx and later a photo file number devised by Richard N. Sopko listing the month and year the photo was made. These binders were discarded and the contents divided into numerous archival folders designated 143.01.01 (Binder One), 143.01.02 (Binder Two), 143.01.03 (Binder Three).

Online Catalog Terms:
Lehigh University. Dept. of Civil and Environmental Engineering.
Fritz Engineering Laboratory.
Lehigh University – Photographs
Fritz, John, 1822-1913.
Eney, William J. (William Joseph)
Johnston, Bruce Gilbert, 1905-
Beedle, Lynn S.
Slutter, Roger G., 1931-
Sutherland, Hale, b. 1884-
Gibson, Glenn James.
Myers, Richmond E.
Fritz Engineering Research Society.
Plastic Design of Multi-Story Frames (Conference) (1965 : Bethlehem, Pa.)
Bridges, Aluminum.
Project Telstar.
Tacoma Narrows Bridge (Tacoma, Wash. : 1940)
Composite materials – Testing.
Prestressed concrete construction.
Reinforced concrete construction.
Testing machines.

Riehle Test Machine.
Baldwin Universal Testing Machine.
Bruce G. Johnston Professorship.
Reynolds Aluminum Company.

Detailed Description of the Collection:
Box 1:
Contents of three binders: one binder containing primarily newspaper articles and other ephemera attached to paper sheets now protected in mylar sleeves; two binders containing primarily 253 black and white photographs of assorted sizes with a few colored photos also protected in mylar sleeves:
Binder One contents: Folder 143.01.01…

143.01.01.01 Fritz Lab Project 237 Newspaper Articles and Pictures 1952-1956.

Photocopy of binder cover: PROJECT 237 NEWSPAPER ARTICLES and PICTURES 237.126; title page: NEWS RELEASES Project 237; Brown and White Tuesday, December 15, 1952 Testing Lab Center to Cost $1 Million (front page of Brown and White); The Bethlehem Globe-Times Friday, October 14, 1955 Technology Won't Stand Still Fritz Engineering Laboratory Hailed As Giving Lehigh Lead in Test Field; This Month At Lehigh February, 1956 Giant Machine Tests Specimen for Long Highway Bridge in La., Hale Sutherland Retires As Civil Engineering Teacher; Brown and White February 24, 1956, 70-Ft. Bridge Beam Tested In Lehigh Lab First Test of Its Kind in New Laboratory (two photos of prestressed concrete beam as largest specimen even to enter Fritz Lab); Brown and White March 2, 1956 70-Foot Beam Finally Snaps in Fritz Tests by Pete Burdash; Bethlehem Globe-Times April 4, 1956 Advances in Plastic Steel Design Outlined at Institute Conference; Bethlehem Globe-Times April 6, 1956 Portal Frame Tests Close Lehigh Parley; Sunday Call-Chronicle April 22, 1956 A Challenge – The newy installed Amsler machine; Sunday Call-Chronicle April 22, 1956 New Lehigh University Testing Machines Busy; This Month at Lehigh April 1956 "The Campus Was The Setting For The National Conference Of The A.I.S.C."; The Bethlehem Globe-Times, He's Key Man On Test Job – Kenneth Harpel; Bethlehem Globe-Times Friday, August 24, 1956 Slab Under Scientific 'Shakes' To See How Much It Can Take; The Bethlehem Globe-Times Sept.'56 Lehigh Profs At Cambridge For Seminar – Dr. Bruno Thurlimann and Dr. Robert Ketter; The Bethlehem Globe-Times, October 9, 1956 Making A Cautious Turn – A 65-Foot Concrete Bridge Beam; Brown and White, 10/9/56 22-Ton Concrete Beam Undergoes Strength Tests; The Bethlehem Globe-Times, October '56, Week's Tests Crack Big Concrete Beam – 133,000-lb. Pressure Cracks Concrete Beam; one mylar sleeve with three pockets: A. 3 ½" x 5" black and white photo and negative (68-ft prestressed concrete beam in test set up), B. 4" x 6" print (prestressed concrete beam under Baldwin test machine with standing men), C. 3 ½" x 5" negative of previous print.

143.01.01.02 Fritz Lab Newspaper Articles 1957.
The Bethlehem-Globe-Times March 23, 1957 Lehigh University's Dr. William I. (i.e. J) Eney photo (photo also includes Nezir A. Kirdar of Baghdad, Iraq, Hakam Atasi, a Syrian, and Gengiz Gokkent of Turkey, both students at Lehigh); Morning Call May 26,1957 Asa Packer Home Opens For Season (photocopy with some Arabic writing); Morning Call June 30, 1957 At Lehigh Monster Machine Tests Materials Under Strain by Ann Kovalenko; Danvers, Ill. Independent Jul 5, 1957 Pre-Built Bridge Spans Aid Local Road Builders (This was printed in fifty newspapers throughout the country.); Neue Zuricher Zeitung TECHNIK Mittwoch, 7. August 1957 Beitrage zur Theorie und Praxis des Stahlbaues.

143.01.01.03 Fritz Lab Newspaper Articles 1958.

Lehigh Alumni Bulletin January 1958 European Leaders at Fritz Lab; Globe-Times Wednesday Febraury 5, 1958 Lehigh Testing Machine Snaps Beam With 2500 Ton Pressure; Brown and White Friday, Feb. 7, 1958 Fritz Lab Machine Endues Almost Five Million Pounds; Globe-Times April, 1958 Congdon Names Aide To Whitaker, Lehigh President (two civil engineering professors: Bruno Thurlimann and George C. Driscoll also named in article); Globe-Times April 1958 Two Lehigh Men Win Honors For Structural Design Studies (Beedle and Driscoll pictured); Globe-Times, Saturday, July 26, 1958 Unique Plate Girder Tested in Lehigh Lab; Globe-Times Aug. 6, 1958 Bridge Bar Resists Tons Of Pressure (photo of eyebars fabricated to hold cables for Throgs Neck Bridge); The New York Times, Friday, August 8, 1958 Test of Strength (same photo as previous only smaller); Bethlehem Globe-Times August 27, 1958 Could Withstand 100 Years (article describes an aluminum bridge design); Bethlehem Globe-Times 200 Engineers, Designers To See Aluminum Bridge Test At Lehigh; Bethlehem Globe-Times August 30, 1958 Lehigh Tests Cease—So Do House Rattles; Bethlehem Globe-Times August 27, 1958 Engineers Test Limits Of Bridge, New Type Aluminum Span Could Withstand 100 Years; Bethlehem Globe-Times August 29, 1958 City House Rattles and Shakes; Police Suspect Lehigh Lab; The Morning Call September 3, 1958 Bridge Tests Back—Rattles, Too; New York Herald Tribune August 28, 1958 Aluminum Bridge May Cut Road Costs; The Morning-Call Sept. 4, 1958 Quiet Reigns in Area Of Lehigh Bridge Tests; 3 ½" x 5" black and white print attached to page (photo of aluminum bridge at Fritz Lab).

143.01.01.04 Fritz Lab Newspaper Articles 1959-1961.
Globe-Times October 20, 1959 Lehigh Faculty Men To Give Technical Papers (articles mentions Lynn S. Beedle, Bruno Thurlimann, Bruce G. Johnston, Robert L. Ketter, Samuel J. Errera, Harold Mindlin, William J. Eney, David Baillie, Konrad Basler, Alan Cook, Charles G. Culver, George C. Driscoll, Theodore V. Galambos, George Lee, Ti-ta Lee, Roy J. Leonard, Le-Wu Lu, John A. Mueller, Karim Nasser, A. Nitta, Morris Ojalvo, Alex Ostapenko, Donald A. Recchio, Harold S. Reemsnyder, John C. Rosner, L. Tall, Jin Seng Toh, B.T. Yen; The Bethlehem Globe-Times Wednesday, December 16, 1959 Researcher At Lehigh Patents Camera Which Could Save Lines (article about Ivan J. Taylor); Globe-Times 12/17/59 $1,060,713 Spent In Year By Researchers At Lehigh; The Bethlehem Globe-Times Tuesday, September 27, 1960 Preflexed Steel And Concrete Undergoes Tests In Lehigh Lab; Sunday Call-Chronicle, Allentown, Pa., November 13, 1960 1,500 Scouts From 3 States Visit Lehigh (Prof. C.L. Hulsbos discusses testing machine in Fritz Laboratory); The Bethlehem Globe-Times Tuesday, January 17, 1961 Research Council Sessions Get Lehigh Staff Reports (article mentions Fritz Lab researchers: Lynn S. Beedle, George C. Driscoll, Jr., Theodore V. Galambos, George C. Lee, Le-Wu Lu, Alexis Ostapenko, L (John) L. Rumpf, Lambert Tall, Bung(Ben)- Tseng Yen); The Bethlehem Globe-Times

Monday, January 30, 1961 $1,200,000 In Research Conducted At Lehigh University In 1960 (two pictures of Fritz Lab testing and Ben Yen at controls of test machine); Globe-Times 6/22/61 Miss Young Secretary At Lehigh 35 Years (Miss Etta E. Young secretary in civil engineering department, also mentioned are Prof. William Eney, present head of department (Eney retired in 1971, see Eney collection), Roger M. Hansen, Samuel J. Errera, Kenneth R. Harpel, as well as the late Ralph Fogg and Hale Sutherland (Sutherland retired in 1956, see 143.01.01.01); Globe Times 9/1/61 Lehigh Engineer Gets Peace Corps Mission (picture of Daniel Haines, M.S.C.E.'61).

143.01.01.05 Fritz Lab Newspaper Articles 1962-1966.
The Bethlehem Globe-Times Monday, January 1, 1962 Jap Students Have First Baby of 1962 (Yuhshi Fukumoto, C.E. grad student), Newark Sunday News, Newark, N.J. March 11, 1962 Huge Device Tests Welds (picture of Baldwin testing machine included in article); sheet of paper with notation - Alumni Day Contest 1962 Test of an 8WF40 Steel Stub Column Failure Load = 700,000 lbs. Winners 1. Symanovich (7 02,000), 2. P.O. MacQueen (650,000), 3. Stuart Vogt II (650,000), 4. Mr. White (750,000), 5. D.T. Stevenson (750,000), 6. S.H. Vagt (650,000), 7. Jean Arndt (600,000), Simonelle (800,000), 8. R.V. Arndt (550,000), 9. ED. Schmantz (850,000), 10. Paul Stauffer (855,000) – (P.O. MacQueen, B.S.C.E. '07 would bequeath eventually to Lehigh an endowment of $15,000 for the civil engineering department's library – the fund was named the P.O. MacQueen Fund); Morning Call Allentown, Pa. Feb 16 1963 University Advancing Pump Tests (unusual research program the nation's largest dredge pump test); The Bethlehem Globe-Times Thursday, Feb. 28, 1963 Seminar Pupils Visit Lehigh's Fritz Lab; K.R. Harpel Is Named For Exchange Award (Cited for Community Service, Harpel foreman of Fritz Lab, picture is included in article and the program of the Third Annual Golden Deeds Award Banquet Exchange Club of Bethlehem); sheet of paper with notation – Alumni Day Contest 1963 June 1, 1963 Test of a Rilco Laminated Timber Column 24 ½" x 12'-6" (Douglas Fir) Failure Log 820,000 lbs at a fast rate of loading Winners: 1. Arthur P. Goldenberg (675,000 lbs), 2. Elaine Diefenderfer (650,000 lbs), 3. Carson Diefenderfer (543,000 lbs), 4. Stanley H. Heffner (460,000 lbs), 5. L. Sharper (450,000 lbs), 6. John Billings (406,000 lbs), 7. Gary Gulden (402,000 lbs), 8. Meryl Silverbey (400,000 lbs), 9. Mrs. Stanley Heffner (380,000 lbs), 10. C. J. Flayhart (400,000 lbs). The Bethlehem Globe-Times Thursday, February 25, 1965 Research Prize Won By Lehigh Professor Dr. T.V. Galambos; The Bethlehem Globe-Times Thursday, March 18, 1965 Voice Of The People – Hysteria Attitude (opinion expressed by William J. Eney regarding the Mobile and Montgomery, Alabama marches of Dr. Martin L. King); The Bethlehem Globe-Times Friday, March 19, 1965 Voice Of The People – White Man's Problem (a retort by William L. Harpel, a Lehigh University Student to William J. Eney's opinion of March 18, 1965); The Bethlehem Globe-Times Monday, March 22, 1965 Voice Of The

People – Not Reassured by David M. Green (Lehigh professor), What Eney Missed by Ferdinand P. Beer (Lehigh professor); Globe-Times November 24, 1965 Thanks From India by N.R. Nagaraja Rao (PhD C.E. '65); The Brown and White Friday, March 11, 1966 Faculty News – Dr. George Driscoll and Dr. Lynn S. Beedle (honored as first annual Construction's Man of the Year); The Brown and White Friday, March 11, 1966 Protesters March (article included picture of civil engineering student Gunnar Bagge (M.S.'66) protesting Viet Nam war); Globe-Times April 6, 1966 Nation's Column Engineers Open 2-Day Parley at Lehigh/Column Engineers To Meet at Lehigh (article has picture of column in Baldwin testing machine, meeting of Column Research Council – (CRC was founded at Lehigh University in 1944 by Bruce G. Johnston) Lambert Tall, civil engineering professor served as coordinator of conference); The Bethlehem Globe-Times Friday, April 29, 1966 Lehigh Student Wins Award (David J. Fielding); The Bethlehem Globe-Times Friday, May 6, 1966 Lehigh Promotes 22 On Faculty And Staff (David Van Horn, to full professor and John Fisher to associate professor of civil engineering department among the 22); The Bethlehem Globe-Times Monday, May 9, 1966 Lehigh Staff Members Scheduled For Lectures (mentioned are John W. Fisher and Roger G. Slutter of civil engineering department); The Bethlehem Globe-Times Saturday, September 24, 1966 Lehigh Promotes Three To Assistant Professor (Roger G. Slutter promoted to research assistant professor of civil engineering); The Bethlehem Globe-Times Monday, October 10, 1966 Two Global Perils Cited At Lehigh Founder's Day; The Bethlehem Globe-Times Thursday, October 13, 1966 Lehigh Professor Addresses Engineers (Dr. George C. Driscoll); The Bethlehem Globe-Times Tuesday, October 18, 1966 Lehigh Faculty Men Attend Conference (Drs. Lynn S. Beedle, Bung-Tseng Yen, Lambert Tall, John W. Fisher, John A. Mueller, Lee (Le)-Wu Lu, David A. VanHorn, John B. Herbich); The Bethlehem Globe-Times Wednesday, October 19, 1966 (picture of Baldwin testing machine with caption title "LAB WORK"); Lehigh University Brown and White Tuesday, October 25, 1966 Dr. Zettlemoyer Named Vice President, Research; The Brown and White Tuesday, Oct. 25, 1966 'Boat Race' Runs Dry by Marty Marasco (article describes Fritz Lab 'boat race': Jane Arnold and Linda Pearce civil engineering secretaries in in 'boat' Miss Inertia, flag Fritz Lab Navy).

143.01.01.06 Fritz Lab Newspaper Articles 1967-2007.
Civil Engineering (ASCE) January 1967 Peter B. Cooper (PhD'65) (appointed assistant professer at Kansas State University); Sunday Call-Chronicle, Allentown, Pa., Feb. 5,1967 (picture of Baldwin testing machine with caption COMPLEX EQUIPMENT names of civil engineering staff: Stuart Eddy, MS candidate and Dr. Roger G. Slutter in picture of test bar used for a prestressed concrete beam); Morning Call Allentown, Pa. April 5, 1967 Heat Exchangers Lehigh Tests Supports For Air Products Units (article describes work Fritz Lab, Stuart Eddy, Roger Slutter test for Air Products & Chemicals); The Bethlehem Globe-Times

Saturday, November 4, 1967 Dr. George C. Driscoll Jr. cited with A.S.C.E. Walter L. Huber Award; The Daily Register Baltimore, Wednesday, March 6, 1968 Rope Passes 2-Million Pound Test In Lab At Lehigh University; **Fritz Engineering Research Society 33rd Annual Banquet November 9, 1968** (program of the initiation of FERS members: Charles Anderson, Sebastian Bauer, Herbert L. Bill, Jr., Reidar Bjorhovde, Jacque Brozzetti, Chiou-horng Chen, Yan-liang Chen, Sergio Covarrubias, David J. Fielding, Ronald Gotzon, Walter H. Graf, Terence J. Hirst, George E. Hunter, George M. Lee, Salvador Lozano, Paul Marek, Maul Nowaczek, Minoru Ohta, Jorgen G. Ollgaard, Irving Oppenheim, Siamek Parsanejad, Raymond J. Poletto, Joseph J. Rohal, Erhard G. Schultchen, Raymond J. Smith, John A. Steimetz, Oner Yucel, 1968-69 Officers: President – Dr. Bernard M. McNamee, Secretary – Ulise C. Rivera; Sunday Call-Chronicle, Allentown, Pa., Nov. 10, 1968 F-4 Pennsylvania Had Its Own Horatio Alger by Dr. Richmond Myers (article about John Fritz); Sunday Call-Chronicle, Allentown, Pa., Nov. 17, 1968 F-4 For Lehigh University Fritz Built Fritz Hall (Fritz Lab); The Bethlehem Globe-Times Thursday, January 16, 1969 Dr. George C. Driscoll Named Fritz Lab Associate Director; **Research and Industrial Testing FRITZ Engineering Laboratory Lehigh University** (brochure describing the staff, services, research and testing machines available at Fritz Lab circa 1972); Lehigh Research Review, May 1974 Rio de Janeiro to Niterio (the longest hollow box girder bridge in the world was built in Brazil, the Brazilian government requested a field study directed by Fritz Lab staff and faculty including John W. Fisher, Alexis Ostapenko, John Hartley Daniels, Bung (Ben) Tseng Yen); Lehigh Week August 24, 1989 (page 2) Obituaries – Roger G. Slutter, 59, Operations Chair Of Fritz Laboratory, (page 3) Lehigh Hosts Symposium in China (geotechnical division of Lehigh's civil engineering department co-hosted 2nd International Symposium on Environmental Geotechnology at Tongji University, Shanghai, participating from Lehigh were: Hsai Yang Fang and Sibel Pamukcu; Celebrating the life Dr. Lynn S. Beedle (memorial service November 1, 2003 program); The Brown and White Tuesday, November 11, 2003 Former professor leaves legacy by Lauren Eisner (Lynn Beedle is subject of article); Morning Call Saturday, November 20, 2004 Obituaries – Bruce A. Laub Sr. (manager of civil and environmental engineering, Fritz Lab and ATLSS); **Fritz Engineering Research Society 69th Annual Banquet Wednesday February 23, 2005** (program of the initiation of FERS members: Jonthan Bayreuther, Ramakumar Byrraju, Paul DeSario, Jun Dong, Amie Humphrey, Tom Gentis, Angela Kontopanos, Donghao Liu, Gregory Parent, Wesley Peter, Tyler Tate, Michael Urban, Matthew Walsh, Margaret Warpinski, Michael Wolski, Matthew Yarnold, Songye Zhu, 2003-2004 Officers: Honorary President - John Abruzzo, General Secretary - Katie Wheaton, Faculty Advisor – Dr. Richard Sause; IvenGou@aol.com Friday, 19 January 2007 Old Fritz Lab (e-mail correspondence from Fred Gozum, MS'56 relating his recollections of his student days in the original Fritz Lab); CD disk Fritz Lab.

2004 Newspaper Scans (some of the newspaper articles that made Fritz Lab well known).

143.01.01.07 Bruce G. Johnston Professorship
Asa Packer People 1991(page 4) Glenn Gibson, '35, endows Johnston professorship; **The Bruce G. Johnston Professorship** (a brochure describing the creation of this honor by Glenn Gibson, a personal friend of Bruce Gordon Johnston)

143.01.01.08 George C. Driscoll Notes – Fritz Lab Plaques (Prof. George Driscoll's personal notes for establishing plaques to honor well known Lehigh University civil engineering historical facts: First Hydraulic Laboratory built under college auspices 1887 by Mansfield Merriman (brief vitae), In Honor of **John Fritz** for building Fritz Engineering Laboratory, The Guerber Engineering Co. Bethlehem, PA. 1909 (the steel erector for original Fritz Lab), Bethlehem Globe Times October 13, 1955 Tests To Highlight Fritz Lab Dedication).

Binder Two contents: 143.01.02 Photographs II (contains three folders of 114 photos (taken by Fritz Lab photographer, Richard N. Sopko) mounted on paper pages contained in mylar sleeves, captions of photos in handwriting of Dr. Roger G. Slutter, who conducted the research tests)

143.01.02.01 Fritz Lab Composite Beam Tests Photographs (folder contains ten mylar sleeves containing 37 photos 4" x 5" black and white glossy)

143.01.02.01.01A 4/70/4-10 Close up Buckling at Center Support typical of end Beams

143.01.02.01.01B 4/70/4-9 (concrete beam with SC 55 12 stenciled among series of cracks)

143.01.02.01.01C 4/70/5-11 (close up of steel beam flange on roller showing strain gages and strain lines)

143.01.02.01.02A 4/70/1-3 (overhead view of concrete beam with SC 55 1 stenciled among series of cracks)

143.01.02.01.02B 4/70/1-3 (overhead view of concrete beam with SC 55 3 stenciled among series of cracks)

143.01.02.01.02C 4/70/2-5 (overhead view of concrete beam with SC 55 6 stenciled among cracks)

143.01.02.01.02D 4/70/2-6 (overhead view of concrete beam with SC 55 7 stenciled among cracks)

143.01.02.01.03A 4/70/3-7 (as previous except beam stenciled SC 55 10)

143.01.02.01.03B 4/70/3-8 (as previous except beam stenciled SC 55 11)

143.01.02.01.03C 4/70/1-3 (duplicate see 143.01.02.01.02)

143.01.02.01.03D 4/70/1-4 (beam stenciled SC 55 3)

143.01.02.01.04A 4/70/2-5 (beam stenciled SC 55 6)

143.01.02.01.04B 4/70/2-6 (beam stenciled SC 55 7)

143.01.02.01.04C 4/70/3-7 (duplicate see 143.01.02.01.03)

143.01.02.01.04D 4/70/3-8 (duplicate see 143.01.02.03)

143.01.02.01.05A 4/70/4-9 (beam stenciled SC 55 12)

143.01.02.01.05B 4/70/4-10 Buckling detail close up. Typical (close up of beam flange with attached strain gages on left side and strain lines)

143.01.02.01.05C 4/70/5-11 Buckling detail close up (Typical) (close up of beam flange with attached strain gages on right side and strain lines)

143.01.02.01.06A 3/70/23-5 Flange Buckled at under support (close up of beam flange with attached strain gages on both sides of support)

143.01.02.01.06B 3/70/23-5 (duplicate of previous)

143.01.02.01.06C 3/70/23-6 (extreme close up of roller under beam)

143.01.02.01.07A 3/70/13-1 (overhead view of beam stenciled SC 7S)

143.01.02.01.07B 3/70/16-7 (overhead view of previous beam but two hard hats visible at bottom of photo)

143.01.02.01.07C & D (duplicates of previous two photos)

143.01.02.01.08A 3/70/18-11 (overhead view of beam SC 7S)

143.01.02.01.08B 3/70/18-12 (overhead view of beam SC 7S 6)

143.01.02.01.08C & D (duplicates of previous beam)

143.01.02.01.09A 3/70/21-1 (overhead view of beam SC 7S 9)

143.01.02.01.09B 3/70/21-2 (overhead view of beam SC 7S 1)

143.01.02.01.09C & D (duplicates of previous two photos)

143.01.02.01.10A 3/70/22-3 (overhead view of beam SC 7S 14)

143.01.02.01.10B 3/70/22-4 (overhead view of beam SC 7S 15)

143.01.02.01.10C & D (duplicates of previous two photos)

143.01.02.02 Fritz Lab Composite Beam Tests (Folder contains ten mylar sleeves containing 39 photographs 4" x 5" black and white glossy)

143.01.02.02.01A 3/70/24-8 Buckling SC-7S

143.01.02.02.01B 3/70/13-2 Instrumentation View SC-7S

143.01.02.02.01C & D (duplicates of previous two photos)

143.01.02.02.02A 3/70/14-3 Lateral sway, bracing connection, Lateral sway bracing connection detail

143.01.02.02.02B 3/70/15-5 Lateral sideway Bracing, Sway bracing detail

143.01.02.02.02C & D (duplicates of previous two photos)

143.01.02.02.03A 3/70/17-10 load tension hanger

143.01.02.02.03B 3/70/14-4 Floor attachement tension Hanger

143.01.02.02.03C & D (duplicates of previous two photos)

143.01.02.02.04A 3/70/16-8 Loading Mechanism for beams SC-3 to 8 S
143.01.02.02.04B 3/70/16-8 (Upside down) Loading Mechanism for beams SC-3S, 4S, 5S, 6S, 7S, & 8S

143.01.02.02.04C 3/70/25-10 Beam SC-7S after the test (underview of concrete slab and beam on main floor of Fritz Lab)

143.01.02.02.05A 3/70/26-12 Beam SC-7S after test (longshot view of test framed by Baldwin Test Machine)

143.01.02.02.05B 3/70/38-7 Beam SC-7S final crack pattern

143.01.02.02.05C & D (duplicates of previous two photos)

143.01.02.02.06A & B 3/70/26-11 Composite Beam Test SC-7S Project 359 (duplicates)

143.01.02.02.06C 3/70/15-6 (beam SC 7S)

143.01.02.02.06D 4/70/6-1 Beam SC-7S final crack pattern

143.01.02.02.07A 4/70/37-5 (beam SC 8S 1)

143.01.02.02.07B 4/70/37-6 (beam SC 8 S 3)

143.01.02.02.07C 4/70/38-7 (beam SC 8S 7)

143.01.02.02.07D 4/70/39-10 (beam SC 8S 12)

143.01.02.02.08A 4/70/46-11 (beam SC 8S 29)

143.01.02.02.08B 4/70/54-3 Beam SC-8S final Crack pattern

143.01.02.02.08C 4/70/40-11 (beam SC 8S 16)

143.01.02.02.08D 4/70/45-10 (beam SC 8S 21)

143.01.02.02.09A 4/70/77-2 Buckling SC-8S

143.01.02.02.09B 4/70/1-3 Buckling SC-8S

143.01.02.02.09C 5/70/3-8 (beam SC 6S 4)

143.01.02.02.09D 5/70/4-9 (beam SC 6S 8)

143.01.02.02.10A 5/70/5-11 (beam SC 6S 15)

143.01.02.02.10B 5/70/10-4 (beam SC 6S 26)

143.01.02.02.10C 5/70/10-3 (beam SC 6S 20)

143.01.02.02.10D 5/70/11-5 (beam SC 6S 30)

143.01.02.03 Fritz Lab Composite Beam Tests (folder contains 10 mylar sleeves with 37 photographs)

143.01.02.03.01A 5/70/15-1 Yield (Plastic hinge) SC-6S

143.01.02.03.01B 5/70/17-6 Plastic hinge SC-6S)

143.01.02.03.01C 5/70/16-4 Sway bracing detail

143.01.02.03.01D 5/70/18-7 Tension hanger loading detail

143.01.02.03.02A 5/70/20-11 SC-6S final crack pattern

143.01. 02.03.02B 3/70/15-6 (beam SC 7S)

143.01.02.03.02C 4/70/6-1 SC-7S final crack pattern

143.01.02.03.03A 4/70/37-5 (beam SC 8S 1)

143.01.02.03.03B 4/70/37-6 (beam SC 8S 3)

143.01.02.03.03C 4/70/38-7 (beam SC 8S 7)

143.01.02.03.03D 4/70/39-10 (beam SC 8S 12)

143.01.02.03.04A 4/70/40-11 (beam SC 8S 16)

143.01.02.03.04B 4/70/45-10 (beam SC 8S 21)

143.01.02.03.04C 4/70/46-11 (beam SC 8S 29)

143.01.02.03.04D 4/70/54-3 (beam tilted on edge in a chain sling suspending from crane hook)

143.01.02.03.05A 4/70/77-2 SC-8S buckling detail (strain gages on right)

143.01.02.03.05B 4/70/1-3 SC-8S buckling detail (strain gages on left)

143.01.02.03.05C 5/70/3-8 (beam SC 6S 4)

143.01.02.03.05D 5/70/4-9 (beam SC 6S 8)

143.01.02.03.06A 5/70/5-11 (beam SC 6S 15)

143.01.02.03.06B 5/70/10-4 (beam SC 6S 26)

143.01.02.03.06C 5/70/10-3 (beam SC 6S 20)

143.01.02.03.06D 5/70/11-5 (beam SC 6S 30)

143.01.02.03.07A 5/70/15-1 SC-6S plastic hinge

143.01.02.03.07B 5/70/17-6 SC-6S plastic hinge

143.01.02.03.07C 5/70/16-4 SC-6S lateral sway bracing & floor attachement (i.e. attachment) tension hanger

143.01.02.03.07D 5/70/18-7 SC-6S loading tension hanger detail

143.01.02.03.08A 5/70/20-11 SC-6S final crack pattern

143.01.02.03.08B 1/70/38-3 SC-5S casting failure

143.01.02.03.08C 4/69/1-1 SC-3S A Positive Moment Test

143.01.02.03.08D 4/69/31-8 SC-3S A Final Crack pattern

143.01.02.03.09A 1/70/17-8 Gage & wire protection

143.01.02.03.09B 1/70/17-8 Gage & wire protection

143.01.02.03.09C & D 1/70/18-10 Gage & wire protection (duplicates)

143.01.02.03.10A 1/79/18-10 Gage & wire coating protection (duplicate of previous two photos)

143.01.02.03.10B 1/70/38-3 Failure at Casting SC-5S

143.01.03 Fritz Lab Project 237 Photographs & Figure #'s (Binder Three – contains 43 mylar sleeves holding 129 photos and 6 negatives and sheets of paper listing a Table of Contents)

143.01.03.01 Fritz Lab Project 237 Photographs & Figure #'s Reports - Original Fritz Lab.
(Title page of Binder three PHOTOGRAPHS Fritz Lab Facilities),
(three table of contents pages listing the following:
Fritz Lab Drawings – Circa 1945 Prints Filed in Room 301 4/4/61,
Fritz Lab Drawings – Circa 1909 Prints Filed in Drawer No.3, Room 301 (two pages) - (Prints being stored in Room 301 ceased at death of Prof. Roger G. Slutter in July 1989 – he occupied Room 301 during his tenure as chief of Lab operations. Following his death room contents were cleared out and stored elsewhere))

143.01.03.01.01A 237-6 1930 black and white photo 5" x 7" (Original Fritz Lab's Riehle Test Machine with large heavily bound steel cylinder in machine – a yardstick with the legend "The Store That Measures Up to Your Need")

143.01.03.01.01B 237-7 1932 black and white photo 5" x 7" (Original Fritz Lab interior view east to west with Riehle Test Machine in distance with tall column in the machine, shadows of Lab windows on floor)

143.01.03.01.02A 237-5 1932 black and white photo 5" x 7" (Original Fritz Lab interior view of spiral reinforced concrete cylinder in test machine)

143.01.03.01.02B 237-4 1935 black and white photo 5" x 7" (Original Fritz Lab exterior view)

143.01.03.01.03 237-8 1935 black and white photo 5" x 7" (Interior view of original Fritz Lab showing an overview of the machinery)

143.01.03.02 Fritz Lab Project 237 Reports Fritz Lab Facilities – Staff & Students (11 pages of Project 237 Reports Fritz Laboratory Facilities table of contents dated April 4, 1961)

143.01.03.02.01A black and white photo 3 ½" x 4 ½" Peggy (Marsh) Bates (237-1002) 11/56

143.01.03.02.01B black and white photo 3 ½" x 4 ½" Alfons Huber – Research Associate (237-1001) 11/56

143.01.03.02.01C black and white photo 2" x 3" R(obert) G. Sarubbi (237-1003) 5/16/57

143.01.03.02.01D black and white photo 2” x 3” S(amuel) J. Errera – Engineer of Tests (237-1004) 5/16/57 by geo. Nasr

143.01.03.02.02A black and white photo 3 ½” x 4 ½” Veronica Olanovich – Secretary (237-1005) 10/25/57 also Bob (Robert) Ketter and (Ivan) Jack Taylor

143.01.03.02.02B black and white photo 2 ½” x 2 ½” Thor L. Anderson (237-1006) 6/30/58

143.01.03.02.02C black and white photo 2 ½” x 2 ½” John W. Fisher (237-1007) 6/30/58

143.01.03.02.02D black and white photo 2 ½” x 2 ½” Pete L. Deutsch (237-1008) 6/30/58

143.01.03.02.02E black and white photo 2 ½” x 2 ½” Jose A. Santos (237-1009) 6/30/58

143.01.03.02.02F black and white photo 3 ½” x 4 ¾” Basil Assimacopoulos (237-1010) 7/17/59

143.01.03.02.03A black and white photo 3 ½” x 4 ½” Jim Kable (236-1011) 7/17/59

143.01.03.02.03B black and white photo 3 ½” x 4 ½” Bob Carle (237-1012) 7/22/59

143.01.03.02.03C black and white photo 3” x 3 ¼” George Tamaro 1/61/28

143.01.03.02.03D black and white photo 3” x 3 ¼” Paul Zarzeczny 1/61/29

143.01.03.02.03E black and white photo 3” x 3 ¼” Charles Culver 1/61/30

143.01.03.02.04 black and white photo 2 ½” x 2 ½” (Ivan) Jack Taylor – May 1954

143.01.03.03 Project 237 Table of Contents – Photos 1952-1955/56 (three pages of table of contents, 10 mylar sleeves containing 33 photos)

143.01.03.03.01A black and white photo 4 ¾” x 6 ¾” <u>Calibration of 800,000 Lb. Testing Machine</u> (237 – 1) 12/31/52 (Prof. William J. Eney standing looking at the Riehle Test Machine, man wearing white lab coat kneeling at base of machine)

143.01.03.03.01B black and white photo 4 ¾" x 6 ¾" Calibration of 800,000 Lb. Testing Machine (237 – 2) 12/31/52 (Prof. William J. Eney standing looking at Riehle Test Machine, man wearing white lab coat kneeling and bending over at base of machine checking calibration rings)

143.01.03.03.02A black and white photo 3 ½" x 4 ¾" Marlene Nauman, Bernadine Krenicky, Lucille Fox, Patricia Torres Trimming Christmas Tree (237 – 3) 12/23/53 (two portraits of John Fritz in background)

143.01.03.03.02B black and white photo 3 ½" x 4 ¾" Bernadine Krenicky, Patricia Torres, Marlene Nauman, Lucille Fox Before Trimmed Christmas Tree (237 – 4) 12/23/53 (two portraits of John Fritz in background, black lunch pail in foreground on steel beam)

143.01.03.03.03A black and white photo 3 ½" x 4 ¾" Pierce N. Schmid, Machinist At Work on Milling Machine (237 – 5) 1/5/54

143.01.03.03.03B black and white photo 3 ½" x 4 ¾" Bernadine Krenicky and Patricia Torres Displaying Their Handicraft to George Driscoll (237 – 6) 1/5/54 (a Manger Silhouette scene on a board above a desk)

143.01.03.03.03C black and white photo 3 ½" x 4 ¾" (Geerhard) Haaijer and (George) Driscoll Measuring Specimens (237 – 7) 1/54 (two seated men putting the soles of their shoed feet together, woman seated in background)

143.01.03.03.04A black and white photo 3" x 4 ¾" Frame Test – Summer Course 9/15/55 (237 – 8) (first plastic design course at Lehigh University, overhead view)

143.01.03.03.04B black and white photo 3" x 4 ¾" Frame Test – Summer Course 9/15/55 – (237 – 9) (floor level view from back toward portal frame)

143.01.03.03.04C black and white photo 3" x 4 ¾" The 300,000 Lb. Machine (237 – 10) 9/55

143.01.03.03.05A black and white photo 3" x 4 ¾" 5,000,000 Lb. Machine (237 – 11) 9/55 (overhead view)

143.01.03.03.05B black and white photo 3" x 4 ¾" 5,000,000 Lb. Machine (237 – 12) 9/55 (up turn floor view)

143.01.03.03.05C black and white photo 3" x 4 ¾" Column Test – 5,000,000 Lb. Machine (237 – 13) 9/55

143.01.03.03.05D black and white photo 3" x 4 ¾" Column Test – 5,000,000 Lb. Machine (237 – 14) 9/55 (close up view)

143.01.03.03.06A black and white photo 3" x 4 ¾" Amsler Equipment (237 – 15) 9/55 (long shot floor level)

143.01.03.03.06B black and white photo 3" x 4 ¾" Amsler Equipment (237 – 16 9/55 (overhead view)

143.01.03.03.06C black and white photo 3" x 4 ¾" Amsler Alternating Stress Machine (237 – 17) 9/55

143.02.03.03.06D black and white photo 3" x 4 ¾" Typical Offices (237 - 18) 9/55 (two secretaries (Mary Ambrose at desk by window) seated at two desks, through open door to inner office is Prof. William J. Eney seated at desk)

143.01.03.03.07A black and white photo 3" x 4 ¾" Files and Duplicating Room (237 – 19) 9/55 (three secretaries standing at various office machines)

143.01.03.03.07B black and white photo 3" x 4 ¾" Library (237 – 20) 9/55

143.01.03.03.07C black and white photo 3" x 4 ¾" Darkroom (237 – 21) 9/66 (Prof. George A. Dinsmore looking at negative)

143.01.03.03.07D black and white photo 3"x 4 ½" Hydraulics Laboratory 9/55 (237 – 22) (water rushing through a flume)

143.01.03.03.08A black and white photo 3" x 4 ¾" Sanitary Engineering Laboratory (237 – 24) 9/55 (group of men working a lab counters)

143.01.03.03.08B black and white photo 3" x 4 ¾" Concrete Laboratory (237 – 24) 9/55 (group of men working over lab counters)

143.01.03.03.08C black and white photo 3" x 4 ¾" Materials Testing Laboratory (237 – 25) 9/55 (four men by a machine)

143.01.03.03.09A black and white photo 3" x 4 ¾" Soils Mechanics Laboratory (237 – 26) 9/55 (group of men seated a tables)

143.01.03.03.09B black and white photo 3" x 4 ¾" Soil Mechanics Laboratory (237 – 27) 9/55 (three men at equipment)

143.01.03.03.09C black and white photo 3" x 4 ¾" Fluid Mechanics Write-Up Room (237 – 28) 9/55

143.01.03.03.09D black and white photo 3" x 4 ¾" Structural Models Laboratory (237 – 29) 9/55 (Prof. William J. Eney second from left standing among students)

143,01.03.03.10A black and white photo 3 ½" x 4 ½" Cylinder Tests, Student Concrete Lab (237 – 30) December, 1955 (floor view, Prof. George A. Dinsmore standing at left, Prof. George C. Driscoll standing at left)

143.01.03.03.10B black and white photo 3 ½" x 4 ½" Cylinder Tests, Student Concrete Lab (237 – 31) December, 1955 (high overview)

143.01.03.03.10C black and white photo 3 ½" x 4 ½" Olsen 120,000 Lb. Electomatic Testing Machine (237 – 32) 9/56 (one man by machine)

143.01.03.03.10D black and white photo 3 ½" x 4 ½" Olsen 120,000 Lb. Electomatic Testing Machine (237 - 33) 9/56 (two men by machine)

143.01.03.04 Fritz Lab Photos 1955 – 57 (10 mylar sleeves, 34 black and white photo except where noted the photos are black and white 3 ½" x 4 ½")

143.01.03.04.01A Scout Visitation 10/20/56 (237 – 34)

143.01.03.04.01B Scout Visitation 10/20/56 (237 – 35)

143.01.03.04.01C Scout Visitation 10/20/56 (237 – 36)

143.01.03.04.01D Scout Visitation 10/20/56 (237 – 37)

143.01.03.04.02A Fritz Engineering Laboratory (Picture appearing on Xmas letter) (237 – 38) – November, 1956

143.01.03.04.02B Compressive Fatigue of Concrete Cylinders (237 – 39) December 20, 1956

143.01.03.04.02C Compressive Fatigue of Concrete Cylinders (237 – 40) December 20, 1956

143.01.03.04.02D Compressive Fatigue of Concrete Cylinders (237 – 41) December 20, 1956

143.01.03.04.03A Fritz Lab Parking Lot (237 – 42) January 3, 1957

143.01.03.04.03B 68' Prestressed Concrete Beam Test (237 – 43) 1956

143.01.03.04.03C Amsler Alternating Stress Machine (237 – 44) 1956

143.01.03.04.03D Flexure Test, Column with Perforated Cover Plates (237 – 45) 1956

143.01.03.04.04A Two-Bay Portal Frame Test (237 – 46) 1956

143.01.03.04.04B SESA (Del. Val. Sect.) Mtg. (237 – 47) Feb. 12, 1957

143.01.03.04.04C SESA Del Valley Section Meeting (237 – 48) February 12, 1957

143.01.03.04.04D Static test of 68' prestressed concrete beam (Project 255) (237 - 49) 1956

143.01.03.04.05A Xmas Party – 1956 (237 – 50) (Group in main bay of Fritz Lab – this is a print of a negative that is included in the William J. Eney collection)

143.01.03.04.05B Xmas Party – 1956 (237 – 50) (Four distinct people around a foil covered barrel, in the margin the names: Roy Snyder, Roger Dittig, Peg Marsh (Bates), Geo(rge) Nasr, this is a print from a negative included in the William J. Eney collection)

143.01.03.04.05C Xmas Party – 1956 (237 – 50) (Prof. George A. Dinsmore standing with his son in Lab, negative is included in the William J. Eney collection)

143.01.03.04.05D Xmas Party – 1956 (237 – 50) (Group of people in main bay of Fritz Lab with Christmas tree in corner by big door, negative is in the William J. Eney collection)

143.01.03.04.06A Xmas Party – 1956 (237 – 50) (Same as previous)

143.01.03.04.06B Lehigh University Womens Club (237 – 51)-1 April 23, 1957 (Group of women seated in front of Baldwin Testing Machine)

143.01.03.04.06C Lehigh University Womens Club 237 – 51.2 – April 23, 1957 (in margin is written A. de Neufuille, E. E. Young, Peg Coppens, Grace Scheirer, Mary Lobach, Joanna Deu, W. J. Eney) (overhead view of women seated in main bay of Fritz Lab)

143.01.03.04.06D AREA Committee 8 Meeting 237 – 52.1 May 13, 1957

143.01.03.04.07A AREA Committee 8 Meeting 237 – 52.2 May 13, 1957

143.01.03.04.07B Micrometer Storage Cabinet 237 – 53 May 24, 1957

143.01.03.04.07C black and white photo 7 ½" x 9 ¼" Visit of European Productivity Association – Mission 388 237 – 54.1 November 25, 1957

143.01.03.04.08A black and white photo 7 ½" x 9 ¼" Visit of European Productivity Association – Mission 388 237 – 54.2 November 25, 1957

143.01.03.04.08B black and white photo 7 ½" x 9 ¼" Visit of European Productivity Association – Mission 388 237 – 54.3 November 25, 1957

143.01.03.04.09A Prestressing of Anchorage (237 – 55)

143.01.03.04.09B Model Showing Set-up for Alternating Torsion Test on Ship Propeller Shaft (237 – 56)

143.01.03.04.09C Calibrated Hand Wrench for High Tensile Bolt Connections. (237 – 57) (technician Robert Dales using the hand wrench)

143.01.03.04.10A black and white photo 7 ½" x 9 ½" Fritz Engineering Laboratory (237 – 58) October 1955 30906A-1

143.01.03.04.10B black and white photo 5" x 8 ¼" 5,000,000 Testing Machine (237 – 59) October 1955

143.01.03.05 Fritz Lab Photo 1956-61 (seven mylar sleeves containing 24 black and white photos, most photos except where noted are 3 ½" x 4 ¾")

143.01.03.05.01A "Scrapping Steel" (237 – 60) July 1958

143.01.03.05.01B black and white photo 7 ½" x 9 ½" Amsler Alternating Stress Machine – Sept. 1955

143.01.03.05.02A Alumni Day – June 1956 (237-62) (overhead view of large group of people seated in main bay Fritz Lab)

143.01.03.05.02B Alumni Day – June 1956 (237-63) (concrete cylinder beneath test head of Baldwin Test Machine)

143.01.03.05.02C Alumni Day – June 1956 (237-64) (concrete cylinder shattered)

143.01.03.05.03A.B,C STUD WELDING EQUIPMENT donated by KSM PRODUCTS (237-65) (three photos of KSM Products, Inc. Stud Welding Merchantville, N.J.

143.01.03.05.03D Professor W. J. Eney – Talk Miss E. E. Young's Retirement Luncheon June 1961 (237-66)

143.01.03.05.03E Professor W. J. Eney Miss E. E. Young's Retirement Luncheon June 1961 (237-67)

143.01.03.05.04A Miss E. E. Young – Original Fritz Lab Sec. Retirement Luncheon June 1961 (237-68)

143.01.03.05.04B S. J. Erreta – Presents Gift Miss E. E. Young – Retirement Luncheon June 1961 (237-69) (M. O. Fuller looks on) (in margin on yellow note is 237-049)

143.01.03.05.04C E. E. Young – Accepts Gift Miss E. E. Young – Retirement Luncheon June 1961 (237-70)

143.01.03.05.04D Miss E. E. Young – You may look, but that belongs to me. June 1961 (237-71)

143.01.03.05.05A Miss E. E. Young – Retirement Luncheon June 1961 "Good-bye – old friend" (237-72)

143.01.03.05.05B Student Chapters ASCE Regional Meeting – April 24, 1961 (237-73) Prof. Herbich – Spur Dike Project

143.01.03.05.05C Student Chapters ASCE Regional Meeting – April 24, 1961 (237-74) Rob Warner – Fatigue of Prestressed Concrete Beams

143.01.03.05.06A Student Chapters ASCE Regional Meeting – April 24, 1961 (237-75) Le-Wu Lu (view of his back) – Frame Stability

143.01.03.05.06B Student Chapters ASCE Regional Meeting – April 24, 1961 (237-76) Roger Hansen – Bolted Connections

143.01.03.05.06C Student Chapters ASCE Regional Meeting – April 24, 1961 (237-77) Prof. (Theodore "Ted" V.) Galambos – Columns

143.01.03.05.06D Student Chapters ASCE Regional Meeting – April 24, 1961 (237-78) Watching tension test in 5,000,000 lb. testing machine (outdoors looking into Lab) (in margin on yellow note is 237-048)

143.01.03.05.07A Student Chapters Regional Meeting – April 24, 1961 (237-79) Watching tension test in 5,000,000 lb testing machine (interior overhead view) (in margin on yellow note is 237-047)

143.01.03.05.07B Student Chapters ASCE Regional Meeting – April 24, 1961 (237-80) Watching tension test in 5,000,000 lb. testing machine (interior closer view)

143.01.03.05.07C Student Chapters ASCE Regional Meeting – April 24, 1961 (237-81) Watching tension test in 5,000,000 lb. testing machine (interior wide overhead view)

143.01.03.06 Fritz Lab Photos Plastic Design Conf. 1965 (three mylar sleeves containing six photos – four black and white, two colored)

143.01.03.06.01 black and white photo 4 ½" x 10" Summer Conference – Plastic Design of Multi-Story Frames August 23 – September 2, 1965 Group Picture of Participants (237-82) (Large group of men standing outside Fritz Lab)

143.01.03.06.02A black and white photo 8" x 10" (Summer 1965) (237-84) (the Plastic Design of Multi-Story Frames conference, group of men seated in front of Baldwin Test Machine in Fritz Lab, instructor standing holding microphone)

143.01.03.06.02B black and white photo 8" x 10" (Summer 1965) 237-85 (overhead view of men seated by the Baldwin Test Machine in Fritz Lab, instructor standing with microphone in front of test setup)

143.01.03.06.03A black and white photo 8" x 10" (Summer 1965) 237-86 (overhead view of group of men seated in main bay of Fritz Lab observing a fatigue test setup, Prof. Roger Slutter holding microphone in front of setup)

143.01.03.06.03B color photo 3 ½" x 3 ½" Christmas Party – Dec. 1966 (237-87) Santa – Joe Vojta, little girl – Cara Slutter

143.01.03.06.03C color photo 3 ½" x 5" F.E.R.S. Picnic (237-88) Jack Taylor

143.01.03.07 Fritz Lab Photos Assorted Subjects – Research Manual 237.6 (six mylar sleeves containing 19 photographs, six negatives)

143.01.03.07.01 black and white photo 5 ½" x 7" 237-88 Photograph of 5,000,000 lb. Testing Machine 11/75/58-5

143.01.03.07.02A color postcard 3 ½" x 5 ½" Fritz Laboratory 1982 (1955 addition) (photo by R(ichard) N. Sopko, Fritz Lab photographer)

143.01.03.07.02B black and white postcard 3 ½" x 5 ½" Fritz Engineering Laboratory Lehigh University Bethlehem, Pa. (original laboratory built by John Fritz)

143.01.03.07.02C color photograph 5” x 6 ¼”Fritz Engineering Laboratory 6/82/13N (on back) (photograph taken by Richard N. Sopko, same as color postcard 143.01.03.07.02A)

143.01.03.07.03A color photo 4” x 6” (wall plaques containing names of civil engineering alumni awarded the PhD, year of degree, and title of dissertation. The wall plaques idea initiated by Prof. Arup K. SenGupta, department chair 1998-2005)

143.01.03.07.03B color photo 4” x 6” (same as previous but different angle, photos by Richard N. Sopko circa 2005)

143.01.03.07.03C color photo 3 ½” x 5” (11/90/21-15) Fritz Engineering Laboratory (original building)

143.01.03.07.04A black and white photo 4” x 5” 5/79/3-15 (on back of photo) (photo taken by Richard N. Sopko) (photo shows railroad car undercarriage)

143.01.03.07.04B black and white photo 4” x 5” (photo by Richard N. Sopko) (photo shows long steel I beam in Baldwin Test Machine)

143.01.03.07.04C black and white photo 4” x 5” (photo by Richard N. Sopko) (photo shows a upward view of two men standing on cross beams placing strain gages on the previous long steel I beam)

143.01.03.07.04D black and white photo 4” x 5” (photo by Richard N. Sopko) (long shot of steel I beam in Baldwin Machine)

143.01.03.07.04E black and white photo 4” x 5” (photo by Richard N. Sopko) (tight view of man on scaffolding adjusting a gage for the steel I beam)

143.01.03.07.04F black and white photo 4” x 5” (photo by Richard N. Sopko) (long distance view of steel I beam in Baldwin Machine, group of men in lower right corner includes student Negussie Tebedge, Prof. Lambert Tall both with beards, Robert Dales and Prof. John L. Wilson, unknown man with hard hat)

143.01.03.07.05 (three negatives)

143.01.03.07.06 (three negatives)

143.01.03.07.07 Research Manual 237.6 2/2/60 Section 33, Page 33.1 Drafting Instructions

143.01.03.07.08 (two sheets of yellow tablet paper fastened with staple dated 5/2/60, appears to be Prof. William J. Eney's handwriting regarding a message to SE (Samuel Errera) regarding equipment for soils lab and President's New Equipment Fund May 15, 1960)