Longsworth (Lewis G.) papers

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Summary Information

Repository:	Rockefeller Archive Center
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Creator:	Rockefeller University
Creator:	Rockefeller Institute for Medical Research
Title:	Lewis G. Longsworth papers, Rockefeller University Faculty
ID:	FA177
Date [inclusive]:	1930-1970
Physical Description:	5 Cubic Feet 17 boxes and 2 volumes
Language of the Material:	English

Preferred Citation

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Biographical/Historical note

Lewis Gibson Longsworth, researcher in physical chemistry at The Rockefeller University from 1930 until his retirement in 1970 with researches and publications on the electrochemistry of salt and protein solutions with applications in biology and medicine. His major interest has been in the determination of mobilities, first of small ions, then of macromolecules such as protein and finally of uncharged particles that do not respond to an electric field.

Biographical note	
1904	Born November 16 in Somerset, Kentucky
1925	A. B. Southwestern College, Winfield, Kansas

1927	M. A. Kansas University, Lawrence, Kansas
1928	Ph. D. Kansas University, Lawrence, Kansas
1928-1930	National Research Council Fellow at The Rockefeller Institute for Medical Research, New York City
1930-1939	Assistant in Physical Chemistry, RIMR, New York City
1939-1945	Associate in Physical Chemistry, RIMR, N. Y. C.
1945-1949	Associate Member, RIMR, N. Y. C.
1949-1970	Member and Professor, Rockefeller University, N. Y. C.
1963	Moundbuilder Citation for Distinguished Service Southwestern College
1968	American Chemical Society Award in Chromatography and Electrophoresis
1970-	Professor Emeritus, The Rockefeller University (Closed laboratory)

Served: Civilian investigator on Manhattan Project OSRD 1941-1942, Editorial Boards of: Journal of The American Chemical Society; Journal of General Physiology; Journal of Colloid Science, National Academy of Sciences: Committee oh Battery and Additives, 1953-1961; Committee to Evaluate a Classified Project of Bureau of Ships, 1962

Member of: National Academy of Sciences, New York Academy of Science (Vice-president 1944), American Chemical Society, Electrochemical Society, Harvey Society, Sigma Xi, Phi Beta Kappa, Alpha Chi Sigma

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Scope and Contents note

Professional correspondence, collected reprints, slides, and other special formats (transparencies, prints, illustrations, and negatives).

Boxes 1 and 2 consist of biographical material, bibliography and collected reprints. Primarily a collection of professional correspondence (1935-1969). Correspondence consists of exchanges of scientific information, discussions of problems and suggested approaches for design and use of apparatus; discussion of experimental results and calculations. Includes frequent examples of detailed analyses and calculations to assist in the experimental work, calculation or interpretation of diffusion and electrophoretic work done in other laboratories or other investigators. Some correspondence deals with arrangements for conferences.

Box 3 contains slides. Boxes 4-17 contain slides and other special formats (transparencies, prints, illustrations, and negatives).

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Arrangement note

Boxes 1 and 2 are arranged in alphabetical and chronological order. Correspondence arranged in alphabetical order by correspondent. The number of items is shown by figure in parentheses.

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File Plan note

Former Classification: I 450 L866

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Administrative Information

Publication Statement

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Conditions Governing Access note

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Controlled Access Headings

- Cell and biomolecular sciences
- Biology -- Research
- Electrophoresis
- Medical technology
- Medical sciences
- Medical research
- Electrochemistry
- Chemistry
- Biochemistry
- Life sciences

Collection Inventory

Biographical material

Arrangement

Boxes 1 and 2 are arranged in alphabetical and chronological order.

Title/Description	Instances
Biographical sketch prepared by Lewis G. Longsworth	box 1
Biographical sketch prepared by University Public Relations	box 1
Bibliography	box 1
Citation from Office of Scientific Research and Development (photocopy), 1945 March 1	box 1
Patent 2,563,729 (photocopy), 1951 August 7	box 1
2 photographs	box 1

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Correspondence

Arrangement

Correspondence arranged in alphabetical order by correspondent.

Title/Description	Instances
A	box 1
Alberty, Robert A., 1945-1960	
Abramson, Harold A.	
Afghan, B. K.	
Agar, John N.	
Ahrens, E. H.	
Amis, Edward S.	
Angers, John W.	
Appel, F. W.	
Ashton, J. M.	
Astin, A. V., 1951-1955	

Scope and Contents note

Chairman of Committee on Tables of Constants and numerical data.

Includes correspondents R. C. Gibbs and W. Albert Noyes.

Includes also, copies of meetings minutes and progress reports.

Austrian, S.

B box 1

Babb, A. L.

Baldwin, R. L.

Baskin, Leonard S.

Bass, Lawrence W. Meeting of New York section of American Chemical Society, 1936 May 8

Bates, Roger G. Congratulations on ACS Award in Chromatography, 1968

Bearman, Richard J.

Beckman, Charles O. Columbia University Colloquium, 1957 November 6

Becsey, Julius

Scope and Contents note

Includes photos and drawings on investigations.

Beyerlein, Adolph On mss "Thermogravitational Thermal Diffusion V..."

Bier, Milan Introduction to v. 2 of Electrophoresis

Bierlein, James A., 1958

Scope and Contents note

Includes recommendation in 1958 for NSF fellowship grant.

Brattsten, Inger

Briggs, Lyman J.

Brink, Frank Reports on RI graduate students, 1964-1966

Bryngdahl, Olof

Buff, Frank P.

Bull, Henry B. On review of mss "The Effective Electrophoretic Radii of adsorbed protein molecules"

Burt-Gerrans, J. S.

Butler, J. A. V.

C box 1

Cann, John R., 1949-1961

Cannon, R. Keith, 1939-1947

Scope and Contents note

Primarily concerned with work on egg albumin; includes some items on protein conference, New York Academy of Sciences 1940 Nov. 8-9.

Chanu, J. K.

Claesson, Stig

Scope and Contents note

Includes 2 photographs.

Cohn, Edwin J.

Coryell, Charles D.

Creeth, J. Michael

Curtis, Raymond M. Electrophoretic studies on maternal and fetal plasma, 1941-1944

D-E-F box 1

Davidson, Arthur W. letter of appreciation and good wishes, 1966

Scope and Contents note

Includes letters to Clarke Weskoe, Ernest Griswald.

Davies, J. A.

Scope and Contents note

Includes two graphs on diffusion coefficients.

Doty, Paul

Dunlop, Peter J.

Eisenman, George

Eldredge, Noreen Problems of a satisfactory diffusion cell

Eliassaf, J. Diffusion data of some salts at elevated temperatures

Farrar, John advice on optical system apparatus

Feakins, D.

Ferry, Ronald M.

Fischer, L.

Fox, Malcolm F.

French, Dexter Diffusion measurements on cyclohepta-amylose	
Fuoss, Raymond M.	
Fricke, Hugo Conduction measurements on bacteria	
Gibson-Gordon	box 1
Gibson, R. E. letter of appreciation for work as a Referee for National Academy of Sciences Research Council Committee in Basic Research, Advisory to Office of Ordnance Research for U.S. Army, 1959	
Gilbert, G. A. Moving boundary theory applications; "bimodal" boundary	
Gordon, A. R., 1942-1953	

Scope and Contents note

Includes copy of mss submitted to Journal of American Chemical Society, 1953.

Gosting	box 1
Gosting, Louis J., 1947-1959	

Biographical/Historical note

National Research Council Fellow in MacInnes Lab September 1948-June 1950

H-I-J	box 1
Haase, R.	
Halwer, Murrav	
Hartley, G. S.	
Heidelberger, M. Results of electrophoretic analyses of ovalbumin preparations	
Helmer, Oscar M.	
Hoch, Hans	
Huddleson, I. Forest	
Huffman, E. O.	
Irwin, M. R. Differentiation work between serum proteins and hemoglobins of horse, mule and donkey	
Jacobsen, C. F. Six month visitor in laboratory 1947-1948, 1947-1948	
James, G. Watson	
K	box 1

Kauzmann, Walter J.	
Kedem, Orah	
Kegeles, Gerson	
Kirkwood, John G.	
Klotz, I. M. Diffusion of hemerythrin	
Krause, C. A. Congratulations on 90th birthday	
Krucke, E.	
L-M	box 1
La Mer, Victor	
Lamm, O.	
Li, C. H.	
Linderstrøm-Lang, K. 6-month visit of Jacobsen to Lab. Analysis, micro-photo and copy of publication note on new protein derived from ovalbumin called plakalbumin	
Lippman, Richard W.	
Lyons, Philip A.	

Scope and Contents note

Includes items from and about Arthur D. Payton.

McMeekin, Thomas L. from U.S. Dept of Agriculture	
Martin, A. J. P.	
Meleny, Frank	
Metcalf, W. S.	
Meyer, Karl	
Miller, Donald G. Diffusion experiment readings on AgNO#	
Mudge, C. S.	
Muntz, John A.	
N	box 2
Neurath, Hans, 1941-1965	
Nobel Committee for Chemistry. Nomination of Lyman C. Craig, 1952-1960	
Northrop, John H. Question of homogeneity of a purified antitoxin, 1941	
O	box 2

Ogston, A. G. The Gouy Diffusionmeter	
Oncley, J. L.	
Onsager, Lars	
Oster, Gerald	

Scope and Contents note

Includes one holograph and 2 diffusion photos.

Osterhout, W. J. V. Primarily holograph letters on mss, but includes several personal items	
P	box 2
Payton, Arthur see under Lyons, Philip A.	
Pembroke, Richard H. Electrophoretic patterns of maternal and fetal plasma	
Perera, George A. Tiselius pattern used in diagnostic confirmation	
Perlmann, Gertrude E., 1943-1952	
Phillips, Hannah	
Plotz, Harry Electrophoretic analysis of typhus vaccine supernate	
Poison, A.	
Putnam, Frank W. Elecrophoretic study of a water soluble fraction of a naturally occurring mixture of plant proteins	
R-S	box 2
Rhodes, E.	
Rivers, T. M. Use of electrophoretic patterns to distinguish between whole and reconstituted milk	
Rockefeller Institute Deals with various graduate students and materials for physical chemistry teaching and examination, 1964-1966	
Scatchard, George	
Schachman, Howard K.	
Scheraga, H. A.	
Schonert, Hansjurgen	
Scudder, John Electrophoretic patterns of Dr. Elliot's serum and plasma samples	
Sendroy, Julius Apparatus for electrophoretic measurements	
Sitharama Rao, D. N. On thesis review	

Scope and Contents note

Includes 7 items with R. H. Stokes and Registrar of Univ. of Poona.

Smith, Edgar Reynolds, 1942-1956

Smithies, O.

Snell, Fred M.

Solomon, A. K.

Squire, Phil G.

Steele, J. Murray

Steigman, Joseph

Stockmayer, Walter H., 1951

Scope and Contents note

Includes 1951 mss "Theory of moving concentration boundaries".

Stokes, R. H.

Scope and Contents note

Includes thesis review for B. J. Steel see also Sitharama Rao on thesis review.

Stoll, Norman

Strohl, C. Orville Moundbuilder Citation for Distinguished Service from Southwestern College

Scope and Contents note

Includes acceptance remarks.

Sturtevant, Julian M.

Svensson, Harry, 1939-1955

T-Z box 2

Tanner, C. C.

Tiselius, Arne

Trautman, Rodes, 1962

Scope and Contents note

Includes Longsworth mss "Experimental Procedures suggested by a comparison of Short-Column

Sedimentation by Thermal Diffusion" 1962 Colloid Symposium.

Tyrrell, H. J. V.

Van Holde, K. E. on sealing Tiselius cells

Villegas, Raimundo Assistance with diffusion coefficients of some solutes in water solution

Wales, Michael Comments on report of Ultracentrifuge Conference, 1950

Wang, Jui H.

Weeks, Sinclair 1954 letter of appreciation for work and report of National Academy of Sciences Committee on Battery, 1954

Williams, J. W. Testing of Gerson Kegeles theory of interference fringes at schlieren diaphragm

Wishnia, Arnold Discussion of possible effects of charge fluctuation on reversible boundary spreading

Young, E. Gordon

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Slides and other Special Formats

Title/Description	Instances
Slides	box 3

Arrangement note

Original slide groupings, by number.

0-99 Activities, 0-49 Apparatus, 50-99 Measurements, 100-199 Bacteriology, 100-149 Apparatus, 150-199 Measurements, 200-299 Conductance, 200-249 Apparatus, 200-224 Cells, 225-249 Circuits, 250-299 Measurements, 300-399 Differential Titrations, 300-349 Apparatus, 350-399 Measurements, 400-449 Distribution Ratios, 500-599 Glass Electrode, 600-699 Ionization Constants, 700-799 Liquid Junctions, 700-724 Apparatus, 724-774 Theory, 774-799 Observations, 800-899 Optical Properties, Inc., 900-999 Overvoltage, 1000-1099 Pressure Effect on E.M.F., 1100-1199 Transference Numbers, 1100-1124 Apparatus, 1125-1149 Theory, 1159-1199 Measurements, 1200-1299 Heavy Water, 1200-1249 Apparatus, 1250-1299 Measurements, 1300-1399 Electrophoresis, 1300-1309 Apparatus, 1310-1319 Methods, 1320-1349 Diagrams, Patterns, 1350-1359 Mobilities, 1360-1369 Quantitative, 1360-1369 Quantitative Interpretation of Patterns, 1380-1389 Vaccine Virus, 1420-1430 Sedimentation, 1500 Solubility, 1600-1699 Miscellaneous, 1700-1739

Electron Microscope, 1740-1780 EMF Centrifuge, 1800 Galvanic Cell, 1900-1910 Concentration Boundaries, 1911-1920 Moving Boundary Systems, 1921-1930 Moving Boundaries of Weak Electrolytes, 1951-1959 Two-Salt Boundaries, 1960-1969 Binding of Salt Ions by Proteins, 1970 Differential Ionic Hydration, 2000 Interference Method for the Study of Diffusion, 2000-2010 Method, 2020 Interference Fringe Photo, 2030 Optical Methods, 2040-2049 Diffusion Cells, 2050-2059 Diffusion Results, 2100 Magnetic Float Method, [No number] Diffusion Res.

Explanatory note by CK 12 Jan 1984:

The original order of these slides was lost during the clean-up after the flood [Note: 22 Dec. 1982]. They were re-grouped into the following categories:

A Recordings and Tracings

B Tables

C Drawings

D Graphs

E Photographs [apparatus]

Scope and Contents

[xx] is used within this series in the finding aid to refer to diagrams in the original paper finding aid. Please see the archivist to obtain a paper copy of the finding aid.

Recordings and Tracings	box 3
[Bars with handwritten labels], 1961 March 9	
Tracing [xx]	
Tracing [xx]	
61-1680B	
Recording, thin bands [xx]	
Recordings a-j 2400-1600 seconds	
Schlieren scanning patterns of 1.5% raffinose boundaries in 0.1 N LiCl	
1.5% raffinose boundaries in 0.1 N LiCl [1904]	
Fig. 7 Tracings of the patterns obtained during the electrolysis of 0.2N: 0.5 N Solutions of potassium chloride.	
0.1 N Na Acetate: 0.1 N NaCl, 0.1 N NaI [1915]	
0.2 N KI03: 0.15 N KI03, 0.05 N KC1 [1814]	

Fig. 9 Tracings of the patterns obtained during the electrolysis of 0.1 N: 0.2 N solutions' of cadmium iodide	
[xx]	
Vertical thin bands	
Diffusion of 0.4% digitonin in 63% ethanol	
Tables	box 3
Diffusion coefficients of iodine at zero concentration in some organic solvents at 25 deg	
Effect of temperature on the diffusion coefficients of some solutes at zero concentration in water	
Table 3: Results of moving boundary analyses of barium-calcium-magnesium mixtures. L. G. Longsworth 2853-7B, 1951 September 12	
Treatment of fringe data Pattern of 0.75% levulose after diffusion for 13003 seconds	
Table. 2. Results of moving boundary analyses of chloratebromate mixtures	
Effect of temperature on diffusion in dilute aqueous solutions C [unreadable] = 0.3 wt%	
Drawings	box 3
0.1 normal KC1. MacInnes and Dole	
Milli-ammeter, Zn, Cu...	
Zn, H2, Potemtiometer	
0.1 N CaCl2 0.2 N CaCl2	
Arrangement for determining the effect of gravity on the potential of a galvanic cell [1802]	
- CuSO4 soln NaCl in agar soln. + traces BaCl2; NaOH, phenolphthalein H2SO4 soln. +	
H2SO4 H2SO4 HNO3... [1801]	
n1=2 n2 D1=4D2... n1=2 n2 D1=1/4 D2...	
Apparatus outline: [xx]	
(SO4) (current) [—— (H)	
Horizontal lengths drawn to scale [xx]	
Graphs	box 3
Pressure x Overvoltage	
Seconds x Overvoltage	
Mean relative concn. x Normalized fringe separation	

Vh / 2kuc × 2kuc / vC1 dn / dh	
Pressure x Overvoltage for a platinum electrode	
Concn. × Dx 106	
Comparator reading-cm. x Fringe number	
Fig. 5 Transference numbers of lanthanum chloride as a function of the square roots of the concentration: +, Jones and Prendergast: # direct, moving boundary method; O, differential moving boundary method	
Mean relative concn. x Normalised fringe separation	
Photographs	box 3
glass apparatus	
Apparatus, Dr. Ecker C-37466 XI-13-47	
Apparatus A-37466 XI-13-47	
Apparatus D-37466 XI-13-47	
[2043] Apparatus	
[2041] 37268C-B Longsworth Apparatus	
[2042] A-37268 Apparatus VI-4-47 Dr. Longsworth	
[2100] Apparatus	
Slides added	box 3
"Fig. 3 Human serum, myeloma. Migration time 38' at 8.3 V/ cm. 5391-7D L. G. Longsworth 2 Mar 55"	
L. G. Longsworth 7729-7 30 Dec 57, 1957 December 30	
"Drawing of a Volta Pile"	
Fringe number × Diffusion coefficient × 10#	
[Console]	
Drawing and recording: L. G. Longsworth 6923-7B Rev, 1957 January 8	

Slides and other special formats

Scope and Contents

Contains slides and other special formats (transparencies, prints, illustrations, and negatives).

Title/Description	Instances
Cartons 1-3: Miscellaneous "A": recordings, tracings, patterns	box 4

Conditions Governing Access:

Conditions Governing Access

RAC is unable to provide access to obsolete media. When feasible, a digital surrogate may be created via special order. All applicable charges will apply. See RAC Head of Archival Services or RAC Head of Digital Programs for details.

Carton-1: "A" (Recordings...)	box 5

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Cartons 2-3: "B" Miscellaneous (Tables)	box 5
Carton 1: "B" Miscellaneous (Tables)	box 6
Cartons 2-3: "C" Miscellaneous (Drawings)	box 6
Cartons 1-3: "C" Miscellaneous (Drawings)	box 7
Cartons 1-3: "D" Miscellaneous (Graphs)	box 8
Cartons 1-3: "D" Miscellaneous (Graphs)	box 9
Carton 1: "E" Miscellaneous (Photos, primarily of apparatus, some of microorganisms)	box 10
Carton 2: "F" Miscellaneous (3 2-part slides)	box 10
Carton 3: "G" Miscellaneous (Equations)	box 10
Color transparencies Original cards used as dividers, in wood slide trays. [See previous page for transcript]	box 11
Black and white prints (curling) of virus and apparatus	box 12
Illustrations - includes charts, diagrams, and graphs	box 13
Lantern slides and photographic negatives - microorganisms	box 14
Illustrations - includes charts, diagrams, graphs, and photographs	box 15
Illustrations - includes charts, diagrams, graphs, and photographs	box 16
Photographic negatives - miscellaneous scientific material	box 17

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Collected Reprints

Processing Information note:

Processing Information note

Removed to RAC library, 1988 August 9.