



Smithsonian  
*National Museum of American History*  
*Kenneth E. Behring Center*

## SHARE Numerical Analysis Project Records

NMAH.AC.0498

Jodi L. Bunnell and Atsushi Akera

1995

Archives Center, National Museum of American History  
P.O. Box 37012  
Suite 1100, MRC 601  
Washington, D.C. 20013-7012  
archivescenter@si.edu  
<http://americanhistory.si.edu/archives>

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## Collection Overview

<b>Repository:</b>	Archives Center, National Museum of American History
<b>Title:</b>	SHARE Numerical Analysis Project Records
<b>Identifier:</b>	NMAH.AC.0498
<b>Date:</b>	1964-1970
<b>Extent:</b>	5 Cubic feet (14 boxes )
<b>Creator:</b>	SHARE (Association) National Museum of American History (U.S.). Division of Computers, Information and Society Dietz, C. P.
<b>Language:</b>	English .

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## Administrative Information

### Acquisition Information

Collection donated by University of North Dakota Computing Center, through C. P. Dietz, 1972.

### Ownership and Custodial History

Records sent to museum 1972 by C. P. Dietz, who received them from Oliver K. Smith of TRW. The records were transferred to the Archives Center Sept. 1993 from the Division of Computers, Information, and Society.

### Processing Information

Collection processed by Jodi L. Bunnell and Atsushi Akera, 1995

### Preferred Citation

SHARE Numerical Analysis Project Records, 1964-1970, Archives Center, National Museum of American History.

### Restrictions

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## Biographical / Historical

SHARE (Society to Help Avoid Redundant Effort) was formed in 1955, when users of International Business Machines (IBM) 701 computers in Los Angeles were anticipating the delivery of the IBM 704 computer. At this time, IBM relied on its computer customers to program the machines they purchased. "The only software that came with the hardware were copies of the user's manual, a crude assembler, a loader (non-linking), and a few utility routines" (Armer, 122). Both the manufacturer and the customers needed a library of mathematical programs, called subroutines, for the computers to perform their intended tasks. To produce them individually was prohibitively expensive; the cost of developing a system to use a machine, "and a set of routines to go with that system, was usually in excess of a year's rental for the equipment" (Armer, 124). SHARE's organizers felt that this could be accomplished most efficiently through cooperation among IBM users.

The primary purpose of SHARE, according to a 1968 SHARE conference program, was "to promote the free interchange of information for advancing the effectiveness of use of [IBM System/360 or IBM 7000-series computers]. A further aim is to reduce redundant effort among system users in the preparation of computer programs for general use." SHARE sought to standardize machine language and certain machine practices, eliminate redundant effort connected with computers, promote inter-installation communication, and develop effective communication between users and the manufacturer. By mid-1956, forty-seven "installations" or organizations with an IBM computer were SHARE members, and 300 machine-checked 704 programs were placed in an IBM -maintained library for member use (Bashe, 349). SHARE members later wrote and evaluated programs for the IBM System/360 machines, a product line announced in 1964.

SHARE groups called "projects" organized, evaluated, and transmitted the information; all participation was on a voluntary basis. SHARE held two general meetings a year, at which all active projects held one or more meetings. The expansion from a focus on program creation to evaluation represented a more mature phase for the organization.

The Numerical Analysis Project was one of those groups. During the SHARE general meeting in March 1964, members participating in the Numerical Analysis Project of the SHARE applications division decided to organize and carry out an extensive project to evaluate numerical-mathematical type SHARE programs, which had to be highly accurate in order not to waste expensive computer time. Programs were selected from the SHARE-3000 series, the SSP (Scientific Subroutine Package), and the CPL (Contributed Program Library). The - co-chairmen of the evaluation committee assigned review tasks to participating members, who could accept or refuse assignments. Their review time was to be three to four months, and authors mailed their reviews to the co-chair. The chair of the Numerical Analysis Project's Program Evaluation Committee from 1965 to 1968 was Hirondo Kuki at the University of Chicago's Computing Center. After he resigned the chairmanship in 1968, Robert E. Funderlic and Joseph S. Crowell of the Union Carbide Corporation, Nuclear Division, became co-chairs; Funderlic resigned from his position later that year.

Each program was reviewed twice. Programs were evaluated extensively for reliability and accuracy, as well as timing, size, features, design, and documentation provided by the program's author. Reviewers submitted written reviews with documentation of their testing and review process.

SHARE was the first computer user group in the United States, and became a model for a number of other user groups, including GUIDE (formed in 1956) and USE (formed in 1955). Before groups like SHARE, most programmers did very little sharing of programs of general applicability. The idiosyncratic manner of machines accounted for this in part. Inoperability was a factor as well; a program written for one machine would require tedious re-coding to operate on another (Bashe, 348).

Although computer technology has changed considerably since its inception, SHARE still exists ([www.share.org](http://www.share.org)), and has offices in downtown Chicago. It has a full-time staff and more than 2,000 member companies that include international corporations, representative government agencies and educational institutions.

## References

Armer, Paul. "SHARE--A Eulogy to Cooperative Effort." *Annals in the History of Computing* 2, no. 2 (April 1980): 122-129.

Charles Babbage Institute. "SHARE Marks 40th Anniversary." *Charles Babbage Institute Newsletter* 17, no. 3.

Bashe, Charles J., Lyle R. Johnson, John H. Palmer, and Emerson W. Pugh. *IBM's Early Computers*. (MIT Press Series in the History of Computing.) Cambridge, Mass.: The MIT Press, 1986.

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## Scope and Contents

Correspondence, abstracts and reports of computer programs, punch cards, Numerical Analysis project reviews, meeting notes, and research papers.

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## Arrangement

The collection is divided into four series.

Series 1: Correspondence, 1964-1970

Series 2: SHARE General Program Library, 1964-1967

Series 3: Numerical Analysis Project, 1964-1970

Series 4: Research Papers, 1968-1969

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## Names and Subject Terms

This collection is indexed in the online catalog of the Smithsonian Institution under the following terms:

Subjects:

Computers -- 1960-1970

Types of Materials:

Correspondence -- 1930-1950

Punched cards

Reports

Names:

National Museum of American History (U.S.). Division of Computers, Information and Society

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## Container Listing

### Series 1: Correspondence, 1964-1970

#### Subseries 1.1: General and Administrative, 1964-1970

Box 1, Folder 1	Advisors for Numerical Analysis Project, 1965-1966
Box 1, Folder 2	Communications with authors (partial), 1966-1967
Box 1, Folder 3	Contributed Program Library, 1968
Box 1, Folder 4	Customer contributed submittal standards and instructions, 1968
Box 1, Folder 5	FMFP DFMFP FMCG DFMCG, undated
Box 1, Folder 6	Harwell Subroutine Library, 1966-1968 and undated
Box 1, Folder 7	Correspondence, 1964-1968 and undated
Box 1, Folder 8	Correspondence, 1965-1970
Box 1, Folder 9	Correspondence, 1966-1968
Box 1, Folder 10	Correspondence, 1966-1968 and undated
Box 1, Folder 11	Correspondence, 1968-1970
Box 1, Folder 12	PID (IBM), 1968
Box 1, Folder 13	Possible Later Participation, 1966-1967
Box 1, Folder 14	Program Report Summary Index, 1967
Box 1, Folder 15	Rejects, 1966-1968
Box 1, Folder 16	Sample Form Letters, 1966-1967 and undated
Box 1, Folder 17	Scientific Subroutine Package (IBM System/360 Scientific Subroutine Package), 1966-1967

Box 1, Folder 18      Scientific Subroutine Package IBM Corporation White Plains Dr. L. Fulton, 1966-1968

Box 1, Folder 19      Scientific Subroutine Package IBM Corporation White Plains Dr. L. Fulton, 1966-1968

Box 2, Folder 1        Scientific Subroutine Package FORIT and FORIF, 1968

Box 2, Folder 2        Scientific Subroutine Package Dr. E. L. Batiste IBM Scientific Center Houston Texas, 1966

Box 2, Folder 3        SDA 3148 Correspondence, 1966

Box 2, Folder 5        SHARE Numerical Analysis Project, 1964-1966

Box 2, Folder 6        SHARE Numerical Analysis Project, 1964-1966

Box 2, Folder 7        SHARE Numerical Analysis Project, 1967

Box 2, Folder 8        SHARE Numerical Analysis Project, 1968

Box 2, Folder 9        SHARE Numerical Analysis Project, 1968

Box 3, Folder 1        SHARE Numerical Analysis Project, 1970

Box 3, Folder 2        SHARE Secretary, 1966-1969

Box 3, Folder 3        SHARE Secretary, 1968

Box 3, Folder 4        360 hardware correspondence and reports, 1965-1969

Box 3, Folder 5        360 hardware correspondence and reports, 1965-1969

Box 3, Folder 6        360 hardware correspondence and reports, 1965-1969

Box 3, Folder 7        S/360 conversion program, 1966 and undated

### Subseries 1.2: Member Organizations, 1964-1970

Box 3, Folder 8        Application Material Laboratory David Taylor Model Basin Dr. Elizabeth Cuthill, 1966-1968

Box 3, Folder 9        Argonne National Laboratory Applied Mathematics Division J. Cody, 1968-1970

Box 3, Folder 10	Aero-Jet General Corporation R. D. Glaux Manager, 1966
Box 3, Folder 11	Aerospace Corporation Richard Sylvester, 1966-1967
Box 3, Folder 12	Auburn University Edward Walker, 1966-1968
Box 3, Folder 13	University of California SHARE Librarian Computer Center, 1966-1968
Box 4, Folder 1	Bell Helicopter Company Jimmy Jackson, 1966-1968
Box 4, Folder 2	Del C.N.E.N. Giorgio Casade, 1966-1968
Box 4, Folder 3	Bell Aerosystems Richard Dworak, 1966-1967
Box 4, Folder 4	Brookhaven National Laboratory Applied Math Department Upton Mr. Kurt Fuchel, 1966-1967
Box 4, Folder 5	The Bendix Corporation Electrodynamics Division Digital Computing Group, 1967
Box 4, Folder 6	United States Air Force Aeronautical Chart and Information Center St. Louis Gene A. Betz and J. D. DeFine Scientific Computer Branch, 1966-1968
Box 4, Folder 7	C-E-I-R Inc. Joseph A. Rini, 1966
Box 4, Folder 8	General Dynamics/Convair Al Farnell, 1966
Box 4, Folder 9	University of Pennsylvania, 1966
Box 4, Folder 10	Department of Highways Ontario R. Johnston, 1966-1967
Box 4, Folder 11	Esso Research and Engineering Company Richard B. Heitler, 1966
Box 4, Folder 12	United States Air Force Environmental Technical Applications Center Navy Yard Annex Building Captain Douglas R. Greene, 1966-1968
Box 4, Folder 13	Ethyl Corporation Baton Rouge Louisiana B. A. Sobel, 1967-1968
Box 4, Folder 14	Euratom Ispra Italy Ilio Galligani and Luciana Guerri, 1966-1968
Box 4, Folder 15	AVCO Everett Research Lab Francis G. Fusco, 1966



Box 4, Folder 16 Graduate Research Center of the Southwest Carl M. Peters Digital Computing Center, 1966

Box 4, Folder 17 Heliodyne Corporation/Data Correlation Facility I.E. Golts, 1966  
Imperial Chemical Industries Limited J. A. Payne, 1966-1967

Box 4, Folder 19 IBM Corporation Rochester Carroll W. Frenzel, 1966

Box 4, Folder 20 Indiana University Donald D. Fisher, 1966-1967

Box 4, Folder 21 IBM Corporation (Monterey) R. Scott McDuffie, 1966

Box 4, Folder 22 Jet Propulsion Laboratory Charles L. Lawson, 1968

Box 4, Folder 23 National Aeronautical Space Agency Langley Research Center John Shoosmith, 1966-1968

Box 4, Folder 24 Massachusetts Institute of Technology Lab for Nuclear Science Elizabeth J. Campbell, 1966

Box 4, Folder 25 NASA-Lewis Research Center L. Richard Turner, 1966; 1969

Box 4, Folder 26 Ling-Temco-Vought Inc. J. L. Walker, 1966

Box 4, Folder 27 Massachusetts Institute of Technology, 1967;1969

Box 4, Folder 28 University of Missouri Roy F. Kollé, 1966-1967

Box 4, Folder 29 Lockheed Missiles & Space, 1966; 1968  
McMaster University, 1966-1967

Box 5, Folder 1 Mobil Oil Corporation Computer-Communications Department John A. Shilling, 1967-1968

Box 5, Folder 2 North American Aviation Inc. Downey California Gary Stone, 1966-1967

Box 5, Folder 3 Technical University of Denmark Northern Europe University Computing Center Hans Jorgen Helms Mr. Krusentstjerne Haffstrom, 1967

Box 5, Folder 4 The Service Bureau Corporation, 1966-1967

Box 5, Folder 5 New York University, 966

Box 5, Folder 6	Union Carbide Corporation Nuclear Division Robert E. Funderlic, 1966-1968
Box 5, Folder 7	IBM Institut de Calcul Scientifique Compagnie (Paris) Evrard, 1967
Box 5, Folder 8	IBM Research Center Yorktown Heights Joseph L. Ercolano Paul G. Loewner, 1966-1968
Box 5, Folder 9	Phillips Petroleum Idaho Falls Neldon H. Marshall, 1966
Box 5, Folder 10	Research Analysis Corporation W. Charles Mylander, 1966; 1968
Box 5, Folder 11	The Rand Corporation Santa Monica John Derr, 1966-1967
Box 5, Folder 12	TRW Systems Oliver K. Smith, 1966-1969
Box 5, Folder 13	The Service Bureau Corporation C. R. Fillerup, 1966-1968
Box 5, Folder 14	NASA Mannes Spacecraft Center Seabrook Texas C. Forrest Malone, 1966; 1969
Box 5, Folder 15	Stevens Institute of Technology Robert G. Kayel, 1967-1968
Box 5, Folder 16	Southern Illinois University E. R. Ashworth, 1966
Box 5, Folder 17	Stanford University Gio Wiederhold, 1966; 1968
Box 5, Folder 18	Texas A & M University Robert L. Smith Jr., 1966-1967
Box 5, Folder 19	Texaco Inc. (Houston) Edward D. McDonald, 1966-1967
Box 5, Folder 20	Common Research Computer Facility Lynn C. Hayward, 1966; 1968
Box 5, Folder 21	IBM (Toronto), 1966
Box 5, Folder 22	University of Toronto W. Kahan, 1964-1967
Box 5, Folder 23	University of North Dakota Computer Center Con Dietz, 1969
Box 5, Folder 24	Indiana University, 1966
Box 5, Folder 25	University of Tennessee I. F. Burns, 1966-1967

Box 5, Folder 26	University of Chicago C. C. J. Roothaan Hirondo Kuki, 1969
Box 5, Folder 27	University of Maryland Richard H. Austing, 1966
Box 5, Folder 28	State University of New York David A. Levine, 1966
Box 5, Folder 29	Vereinigte Flugtechnische Werke Werner Niemz, 1966-1967
Box 5, Folder 30	Xerox Corporation Rochester Lawrence M. Marks, 1966

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Box 7, Folder 1	3384-3424, 1964
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### Subseries 2.2: Library Reports, 1964 and undated

Box 8, Folder 1	Library Reports, 3001-3013, 1964
Box 8, Folder 2	Library Reports, 3014-3028, undated
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Box 8, Folder 5	Library Reports, 3047-3059, 1964
Box 8, Folder 6	Library Reports, 3060-3079, 1964
Box 9, Folder 1	Library Reports, 3080-3084, 1964
Box 9, Folder 2	Library Reports, 3085 (pp. 1-156), 1964
Box 9, Folder 3	Library Reports, 3085 (pp. 157-307), 1964
Box 9, Folder 4	Library Reports, 3085 (pp. 308-503), 1964
Box 9, Folder 5	Library Reports, 3086-3098, 1964

Box 9, Folder 6	Library Reports, 3102-3129, 1964
Box 9, Folder 7	Library Reports, 3130-3134, 1964
Box 10, Folder 1	Library Reports, 3135-3137, 1964
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Box 12, Folder 2            Reviews Pending or Rejected, 1966-1968

Box 12, Folder 3            Reviews Pending or Rejected, 1966-1968

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Box 12, Folder 8            Reviews 1965 July; SDA 3078 3083 3086 3142 3146 3015 3052

Box 12, Folder 9            Reviews 1966 April SDA 3006 3053 3099 3100 3156 3157 3158 3159 3100  
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Box 12, Folder 10            Reviews 1966 September; SHARE Secretary Distribution 3167 3170 3218  
3138 3141 3180 3181 3316 3317 3203 3204; 156 U-54

Box 12, Folder 11            Reviews 1966 November SHARE Secretary Distribution 3228 3337 3053 3096  
3098.01 3202.01

Box 13, Folder 1            Reviews 1966 December; SDA 3075 3153.01 3154 3155.01 3312 3309 3099  
3079 3026 EXPT SKI 3177.01 3178 3018 3019 3180 3181 3194 3239 3353;  
SHARE Secretary Distribution 159 U-60

Box 13, Folder 2            Reviews 1967 January; SDA 3018 3019 3202.01 3203 3204 3332; SHARE  
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Box 13, Folder 4            Reviews 1967 March; SDA 3333 3363 33721 3205 3385 SIMQ EIGEN CELI1  
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- Box 13, Folder 5      Reviews 1967 April; SDA 3099 3219 3318 3385 MINV; Share Secretary Distribution 164 U-67
- Box 13, Folder 6      Reviews 1967 May; SDA 3016 SSP/MINV EIGN SIMQ; SSD 165 U-70
- Box 13, Folder 7      Reviews 1967 August; 1967 September SDA 3018 SSD 170; SDA 34411; SHARE Secretary Distribution 1711 170 171 U-72 U-73
- Box 13, Folder 8      Reviews 1967 December; SDA 3414 SHARE Secretary Distribution 174 U-80
- Box 13, Folder 9      Reviews 1968 January; SSP RTH-11NRTNI; RTMXIDRTMX#4 IJTWI/DRTWI; SDA 3432; SHARE Secretary Distribution 176; 481
- Box 13, Folder 10     Reviews 1968 January; SDA 3115
- Box 13, Folder 11     Reviews 1968 February; SDA 3372 3451 3432 3453
- Box 13, Folder 11     Reviews 1968 April; SDA 3489; SHARE Secretary Distribution 179 U-86 U-87
- Box 13, Folder 11     Reviews 1968 June; SDA 3219 3099 i441 3202.01; SSP; EIGEN; SHARE Secretary Distribution 18.2 U-88
- Box 13, Folder 11     Reviews 1968 July CELI DCELI
- Box 13, Folder 11     Reviews 1968 October SDA 3289 (CIC) SSPCS QATR DQATR (AN)
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- Box 13, Folder 11     Subseries 233 Meeting Notes, 1968-1969
- Box 14, Folder 1      SHARE XXX [Session report], 1968
- Box 14, Folder 2      Numerical Analysis Project Meeting Chicago, 1968 June 12
- Box 14, Folder 3      Numerical Analysis Project Atlantic City 1968 October 28 to 1968 November 1 (Guide 27/SHARE XXXI)
- Box 14, Folder 4      Numerical Analysis Project Los Angeles 1969 March 3-7 [SHARE XXXII]
- Box 14, Folder 5      [SHARE XXXII minutes], 1969
- Subseries 3.4: Program Reviewing in the SHARE Numerical Analysis Project, 1968**
- Box 14, Folder 6      1968 February 10 annotated J. S. Crowell

Box 14, Folder 7            1968 February 10 annotated by R. E. Funderlic

Box 14, Folder 8            1968 February 10 computer printout

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Box 14, Folder 10          1968 October 4 annotated by J. S. Crowell

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Box 14, Folder 13          W. J. Cody. "Performance testing of subroutines", 1968 June

Box 14, Folder 14          D. S. Dodson P. A. Miller W. C. Nylin J. R. Rice. "An evaluation of five polynomial zero finders." Purdue University Computer Sciences Department Division of Mathematical Sciences, 1969

Box 14, Folder 15          Hirono Kuki and W. J. Cody. "General aspects of program certification for numerical subroutines