

**MEDICAL CENTER ARCHIVES
OF
NEWYORK-PRESBYTERIAN/WEILL CORNELL**

**1300 York Avenue # 34
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Finding Aid To

THE SOL RUBINOW, PHD (1923-1981) PAPERS

**Dates of Papers:
1945-1981**

**117 Linear Inches
(20 Boxes)**

**Finding Aid Prepared By:
Stephen Novak
Assistant Archivist
Undated**

Preface

The Papers of Sol Isaac Rubinow were collected by the Librarian, Erich Meyerhoff, from Dr. Rubinow's office in 1981, after his death. Permission for this was given by Mrs. Rubinow. The collection included many books and journals given to the Wood Library, and eight record size boxes of papers and manuscripts in great disarray. [An additional box containing mostly reprints was given in 10/06/1987.]

Biographical Note

Sol Isaac Rubinow was born in New York City on November 6, 1923, the son of Rubin Rubinow. He received a B.S. in physics in 1944 from the City College of New York and then spent two years as a physicist for the National Advisory Committee for Aeronautics at Langley Field, Virginia.

He continued his education at Brown University where he obtained an M.S. in 1947 in applied mathematics and was awarded his doctorate in physics from the University of Pennsylvania in 1951.

After doing post-graduate work at M.I.T. and Harvard he became Assistant Professor of Physics in 1956 at Stevens Institute of Technology, Hoboken, N. J. while simultaneously holding a part-time research position at New York University's Courant Institute of Mathematical Sciences.

In c. 1962, Cornell University Medical College was offered a \$1 million grant from the International Business Machines Corporation (IBM) for establishing a biomathematics program at Cornell University Medical College. This sum was to be matched by money jointly provided by Cornell University Medical College and the Sloan-Kettering Institute. The offer was accepted and Sloan Kettering Institute & Cornell University Medical College set up a committee of eminent mathematicians and statisticians to assist them in making appointments for this new department.

With the recommendation of the committee, Dr. Rubinow was appointed to the first senior full-time position in September, 1964. As a result he was responsible for creating the new Biomathematics Division at Cornell University Graduate School of Medical Sciences and for recruiting its faculty. Besides holding the Graduate School post, he was also a member of Sloan-Kettering Institute. He remained at Cornell University Medical College & Sloan Kettering Institute until his death.

As a biomathematician, Dr. Rubinow was known for his work on cell kinetics, blood flow and cancer. He was a member of several learned societies as well as being on the editorial boards of a number of scientific journals. During 1977-1978, he was a Guggenheim Fellow at the Weizmann Institute of Science at

Rehovot, Israel. He also wrote "Introduction to Mathematical Biology", (1975) one of the first text books in this field. Besides his academic interests, Dr. Rubinow was a champion chess and bridge player. He married Shirley Levinsohn in 1963; they had three children. He died on February 22, 1981 at Memorial Sloan-Kettering Cancer Center following complications resulting from an operation on a brain tumor.

Scope and Content

The Rubinow Papers consist of correspondence, drafts of articles, lectures, mathematical notations, grade books and material relating to conferences and grant proposals. Together they provide a detailed picture of Dr. Rubinow's professional life.

Of special interest is Dr. Rubinow's extensive correspondence with colleagues regarding articles, conferences and developments in biomathematics. Information on the founding of the Biomathematics Division of Cornell University Graduate School of Medical Sciences can be found in Box 5 f. 1&8. Lecture notes for courses Dr. Rubinow taught at Stevens and Cornell illustrate his life as a teacher while the voluminous data for his papers and articles give a glimpse into his research methods.

Subjects

Annual Reports

Biomathematics, Division of Memorial Sloan-Kettering Cancer Center

Cornell University Graduate School of Medical Sciences

Rachele, Julian R.

Cancer

Faculty

Horsfall, Frank L., Jr.

Fundraising

Symposia

Curriculum

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Miscellaneous notes, n.d.
Vibration & Sound Notes, 1956
Electricity and Magnetism Notes, Spring, 1958
Methods of Theoretical Physics, Lecture Notes, 1961-1962 (2v.)
Methods of Theoretical Physics by Morse & Feshbach, 1946
(mimeographed copy)
"Scattering of Neutrons by Deutrons" by Leo Sartori, Ph.D. Dissertation, M.I.T., Jan. -1956. Inscribed by author
452 Advanced Scientific Calculator Self-Teaching Manual, Wang Laboratories, 1972
"On the Force on a Rigid Sphere in Unbounded Poiseuille Flow" by Sven Bjorklund, Ph.D. Dissertation, Stevens Institute of Technology, 1965; supervised by S. Rubinow.

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"Asymptotic Solution of the Scrodinger Equation for the Three Body Problem" by David Joseph Vezzetti, Ph.D. Dissertation, Stevens Institute of Technology, 1964; supervised by Rubinow.
"A Kinetic Model of Cooperatively in Aspartate Transcarbamylyase" by Micah Dembo, Ph.D. Dissertation, Cornell University Medical College, 1976; supervised by S. Rubinow.
Rolodex listing addresses and phone numbers

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Unprocessed Mostly reprints.