Register of the Henry G. Booker Papers MSS 93

Finding aid prepared by Mandeville Special Collections Library
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La Jolla, California, 92093-0175
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Descriptive Summary

Title: Henry G. Booker Papers

Identifier/Call Number: MSS 93

Contributing Institution: Mandeville Special Collections Library

9500 Gilman Drive

La Jolla, California 92093-0175

Language of Material: English

Physical Description: 20.0 Linear feet(50 archives boxes, 12 oversize folders)

Date (inclusive): 1936 - 1988

Abstract: Professional papers of Henry G. Booker, mathematician and physicist trained at Cambridge University in the 1930s. His research focused on radio wave propagation, during a long teaching career first at Cambridge University (1936-1947) and, subsequently, at Cornell University (1948-1964), and the University of California, San Diego where he founded the Department of Electrical Engineering and Computer Science (1965-1988). The bulk of the material dates from 1970-1988. Correspondence, lecture notes, examinations, reprints, notebooks and loose research notes, reports, grants and contracts comprise the collection with teaching materials representing the greatest quantity. Teaching materials are in some cases simultaneously manuscript drafts for text books.

Creator: Booker, Henry G.

Scope and Content of Collection

This collection documents Henry Booker's professional career as a scientist and instructor at Cambridge University (1936-1947), Cornell University (1948-1964), and the University of California, San Diego (1965-1988). The materials date from 1936 through 1988, with the bulk dating from 1970 through 1988, a time representing Booker's tenure as a professor in the Department of Engineering at UCSD. The papers are arranged in nine series: 1) BIOGRAPHICAL MATERIAL , 2) CORRESPONDENCE, 3) TEACHING, 4) WRITINGS, 5) CONTRACTS AND GRANTS, 6) SUBJECT FILES, 7) ORGANIZATIONS, 8) TRAVEL, and 9) ORIGINALS OF PRESERVATION PHOTOCOPIES.

SERIES 1: BIOGRAPHICAL MATERIAL

This series contains miscellaneous biographical material such as curriculum vitae, a nomination for the Marconi Fellowship, and documentation from the Institute for Science Information identifying "A Theory of Radio Scattering in the Troposphere" by Booker as one of the most cited papers in its field.

SERIES 2: CORRESPONDENCE

The CORRESPONDENCE series is divided into two subseries: A) General and B) Reviews.

A) The General Correspondence subseries spans the dates 1974-1988 and is arranged alphabetically by correspondent's name. Correspondents include Jack Ratcliffe, Barry Uscinski, Dallas K. Lankford, and Kenneth Budden. The Budden correspondence is notable for describing how Booker came to be interested in radio propagation as an undergraduate student at Cambridge. The letters describe Booker's first meeting and early tutelage under Jack Ratcliffe at Cambridge, Booker's early career, and some of his radio wave propagation research with Ratcliffe. Also notable in this series is a letter to Edward Stern discussing some of the problems encountered with setting up the UCSD engineering department.

B) The Reviews subseries contains copies of formal reviews conducted by Booker of others' papers and proposals.

SERIES 3: TEACHING

This is the largest series in the Booker papers. It is divided into four subseries: A) Cornell, B) UCSD, C) Examinations, and D) Course and Professor Evaluations.

A) The Cornell subseries is arranged in alphabetical order with material from 1957-1966. This subseries contains lecture notes and course texts for several undergraduate mathematics and calculus courses taught by Booker at Cornell. Included here are course notes later published as a textbook, "A Vector Approach to Oscillations" (1965).

B) The UCSD subseries contains items that relate to undergraduate and graduate courses taught by Booker at UCSD from 1973 to 1988. The series is arranged alphabetically by course and contains lecture notes, texts, syllabi, and other miscellaneous materials for the various courses that Booker taught. Included in this subseries are course notes which were later published as textbooks, *Energy in Electromagnetism* (1982) and *Cold Plasma Waves* (1984).

It is important to note that during Booker's tenure at UCSD, the Physics Department was renamed twice. The materials in this subseries reflect these changes. Within the files, the department and course titles will variously be labeled "APIS" (Applied Physics and Information Science) 1964-1979, "EECS" (Electrical Engineering and Computer Science) 1980-1986, and "ECE" (Electrical and Computer Engineering) 1987-1988. Booker's file headings do not always reflect the changes. Course materials from a later year may be filed under an earlier heading, and vice versa (i.e. materials for EECS 131 may

be filed under the file heading, and with materials, for ECE 131). This has been simplified on the container list by leaving department initials off altogether and organizing material according to course description (i.e. Electromagnetic fields in free space 131A).

C) The Examinations subseries consists of midterm and final examinations for UCSD science and physics courses taught by Booker from 1970-1988. Exams are arranged by course number and filed chronologically. Some examinations include solutions to the problems.

D) The Course and Professor Evaluations subseries contains student evaluations for course number 131 from Fall 1985 to Spring 1987. These files offer some interesting insight into students' perceptions of Booker's teaching ability and style.

SERIES 4: WRITINGS

The WRITINGS series is divided into three subseries: A) Published, B) Unpublished, and C) Notebooks.

A) The Published writings subseries is arranged chronologically by year of publication, from 1938-1987. Included in this subseries are books, journal articles and reprints written by Booker. This subseries contains primarily original typescripts with some drafts and edits included. Some files also contain correspondence with publishers, proofs, and originals of diagrams.

B) The Unpublished writings subseries contains a variety of unpublished materials such as lecture notes, reports, notations, and calculations generated in Booker's career as an instructor and theorist. The material is organized chronologically with the undated material following in alphabetical order by title. The subseries includes handwritten and typed manuscripts and notes, transparencies, calculations, equations, and miscellaneous research data.

C) The Notebooks subseries contains notebooks compiled by Booker which have been left intact. They house a variety of material including lecture notes, topical files, and bibliographies. Notebooks are arranged alphabetically by title.

SERIES 5: CONTRACTS AND GRANTS

This series contains materials that relate to Booker's association with outside agencies for funding. The files are organized alphabetically by agency name and name of project. In most cases the files include a copy of the grant proposal or contract, correspondence, and some budgetary or accounting materials. The CONTRACTS AND GRANTS series primarily contains documentation of research funded by the Los Alamos National Laboratory in New Mexico from 1983 to 1987, the National Science Foundation from 1978 through 1988, and the Office of Naval Research, which funded Booker's research on extremely low frequency wave propagation from 1975-1980.

SERIES 6: SUBJECT FILES

This series is arranged alphabetically by title and includes material pertaining to such subjects as a debate Booker had with Kenneth Budden of Cambridge University regarding approximations of QL/QT. The controversy arose from Budden's review of Booker's manuscript for *Cold Plasma Waves*. Also of note is Booker's file on Jacov Alpert, a Soviet "refusnik" wishing to emigrate. Booker corresponded with Alpert from 1977 through 1988 and was successful in getting the UCSD physics department to offer Alpert a position should he be given permission to leave the Soviet Union.

Other topics in the SUBJECT FILE series are found in the files "History of electromagnetic theory" and "History of ionosphere." These files contain materials that relate to Booker's correspondence with historians regarding the history of electromagnetic and ionospheric theory. Of special interest is his correspondence with Stewart Gillmor and others, regarding an unpublished 1926 manuscript by Austrian physicist Wilhelm Altar. Gillmor contends that the manuscript, along with correspondence between Altar and Nobel Prize winner E.V. Appleton, seems to suggest that Appleton and Altar had a significant collaboration that was never acknowledged by Appleton. Correspondence between Gillmor, Booker, Jack Ratcliffe and others debate this suggestion and its implication for the history of magneto-ionic theory.

The file "Student victimization" explores the quality of undergraduate teaching in a research-oriented institution like UCSD by chronicling the 1973 student accusations of negligent teaching against physics Professor Keith Brueckner. Also of interest are the files which document turbulent events at UCSD during the Vietnam War era. Booker was particularly interested in the kind of education received by engineering students. This interest is evident in the subject files which contain collected articles pertaining to the quality and purpose of teaching university level physics and engineering.

SERIES 7: ORGANIZATIONS

This series contains materials relating to two of the organizations in which Booker was an active member: The National Academy of Science (NAS) and the International Union of Radio Science (URSI). Of historical interest is the file "URSI Reorganization" which contains documents that relate to a formal reorganization of the Union in 1970-1971. The URSI materials contain copies of minutes, routine memos, group correspondence, and lecture notes for an assembly talk in 1981. The NAS material contains nomination and election correspondence for 1986-1988, regarding NAS Section 16 - the Atmospheric Group.

SERIES 8: TRAVEL

The TRAVEL series contains materials on Booker's trip to China in 1981 and proposed trips to China, England, India and Israel. The proposed trips were canceled due to Booker's illness. The 1981 trip to China includes travel plans, itineraries, notes for lectures delivered by Booker, correspondence with Chinese colleagues and associates, reprints of Chinese scientists, and names and addresses of Chinese colleagues. Also included in this series is material related to a seminar in India commemorating S.K. Mitra which Booker did not actually attend, but he did contribute a paper.

SERIES 9: ORIGINALS OF PRESERVATION PHOTOCOPIES

The ORIGINALS OF PRESERVATION PHOTOCOPIES series contains the originals of brittle or high acid content documents that have been photocopied.

Biography

Henry George Booker was born in England in 1910 and became a U.S. citizen in 1952. He earned his degrees from Cambridge University (B.A. 1933, pure and applied mathematics; Ph.D. 1936, ionospheric physics). Booker became a Fellow of Christ's College in 1935, where he studied radio wave propagation. He later took a leave of absence to continue this research as a Visiting Scientist at the Carnegie Institution's Department of Terrestrial Magnetism.

During World War II, Booker conducted theoretical research for the Royal Air Force that led to developments in the understanding of antennas and radio wave propagation. After the war he returned to Christ's College to teach until 1948 when he became a professor of electrical engineering and engineering physics at Cornell University. After serving as director of Cornell's School of Electrical Engineering and associate director of the Cornell Center for Radiophysics and Space Research, he moved on to the University of California, San Diego to start the Department of Electrical Engineering and Computer Sciences in 1965. He became emeritus professor of applied physics in 1978 and died in 1988.

His research throughout his years at UCSD was concerned with electromagnetism, cold plasma waves, and radio waves. Booker had a great interest in the quality of both undergraduate teaching of physics and in the graduate curriculum. He also advised many graduate students. He was equally active in his own theoretical research, receiving grants from the Office of Naval Research, the National Science Foundation and the Los Alamos National Laboratory.

Among his many honors, Booker was elected a Fellow of the Institute of Electrical and Electronics Engineers in 1954 and made a member of the National Academy of Sciences in 1960. In 1978 the Union of Radio Science elected Booker honorary president. He was named an honorary professor at Wuhan University in China in 1981. Booker authored four books: *An Approach to Electrical Science* (1959), *A Vector Approach to Oscillations* (1965), *Energy in Electromagnetism* (1982), and *Cold Plasma Waves* (1984, also translated into Chinese).

Preferred Citation

Henry G. Booker Papers, MSS 93. Mandeville Special Collections Library, UCSD.

Acquisition Information

Not Available

OFF-SITE STORAGE

COLLECTION STORED OFF-SITE: ALLOW ONE WEEK FOR RETRIEVAL OF MATERIALS

Subjects and Indexing Terms

Budden, Kenneth G.

International Union of Radio Science

Lankford, Dallas K.

Ratcliffe, J.A., (John Ashworth)

University of California, San Diego -- Faculty -- Archives

University of California, San Diego -- History -- Archives

University of California, San Diego. -- Dept. of Electrical and Comput.

University of California, San Diego. Dept. of Applied Physics and Information .

University of California, San Diego. Electrical Engineering & Computer Science.

Uscinski, B.J.

Electric engineering--Study and teaching

Electromagnetism

Low temperature plasmas

Radio wave propagation

BIOGRAPHICAL MATERIAL

Box 1, Folder 1 **Biographies and curriculum vitae**
Box 1, Folder 2 **Current Contents - History of Booker's most cited publication**
Box 1, Folder 3 **Marconi Fellowship - Nomination for ninth annual award 1982**

CORRESPONDENCE

General

Box 1, Folder 4 **Abelson, Philip H. - Bertram, Sidney**
Box 1, Folder 5 **Bertram, Sidney 1985**
Box 1, Folder 6 **Benyon, Granville - Budden, Kenneth**
Box 1, Folder 7 **Budden, Kenneth - Kirby, Richard**
Box 1, Folder 8, Oversize FB-042-11 **Ferguson, Jerry A 1977 - 1985**
Box 1, Folder 9 **Klostermeyer, J. - Lankford, Dallas**
Box 1, Folder 10 **Le, Gioi - Morrison, P.R**
Box 1, Folder 11 **Polk, Charles 1980**
Box 2, Folder 1 **Ratcliffe, Jack - Ticoles, Gus**
Box 2, Folder 2 **Uscinski, Barry 1981 - 1983**
Box 2, Folder 3 **Von Biel, H. Andreas - Young, Worchester**

Reviews

Box 2, Folder 4-7 **Reviews 1973 - 1988**
Box 2, Folder 8-9 **C. Hines' Lorentz correction manuscript 1976**

TEACHING

Cornell

Box 2, Folder 10 **Basic Electrical Engin.: An Approach to Theory of Alternating Current Networks, Course 4111 1957**
Box 3, Folder 1-8, Oversize FB-042-06-10 **Calculations for systems course - Diagrams and computations 1962 - 1964**

General note

26 leaves from this folder were placed in an oversize flat box

Box 3, Folder 9-11 **Complex numbers undated**
Box 3, Folder 12 **Mathematical methods, Part 1 undated**
Box 4, Folder 1 **Mathematical methods, Part 2 undated**
Box 4, Folder 2 **Unified Field Theory of Electric Machines by R.N. Sudan undated**
Vector Calculus for Oscillations
Box 4, Folder 3-4 **Soulutions to problems 1960**
Box 4, Folder 5-8 **Preface - chapter 12 1962**
Box 5, Folder 1-2 **Chapters 13 - 14 1962**
Box 5, Folder 3 **Summarizing exercises 1962**
Box 5, Folder 4-7 **Chapters 4 - 11 and appendices 1966**
Box 5, Folder 8-9 **Part 3 - Energy Flow in Linear Systems undated**
Box 6, Folder 1-2 **Part 4 - Transform Analysis of Linear Systems undated**
Box 6, Folder 3-6 **Problems parts 1-4 undated**
Box 6, Folder 7-8 **Solutions to miscellaneous problems undated**

University of California, San Diego

Cold Plasma Waves

Box 6, Folder 9	**Lecture notes, reprints, etc. 1972 - 1978**
Box 7, Folder 1-4	**Lecture notes, reprints, etc. 1972 - 1978**
Box 7, Folder 5-7	**Typescript chapters 1 - 18 1983**
Box 8, Folder 1	**Typescript chapters 12 - 18 1983**
	Cold Plasma Waves 248
Box 8, Folder 2-4	**Lecture notes written for China trip I 1981**
Box 8, Folder 5-6	**Lecture notes written for China trip II 1981**
Box 8, Folder 7	**Term paper topics, syllabi, correspondence, etc. 1977 - 1985**
	Cold Plasma Waves 248A
Box 8, Folder 8	**Lecture notes 1977**
Box 9, Folder 1-2	**Lecture notes 1984 - 1987**
	Cold Plasma Waves 248B
Box 9, Folder 3-8	**Class notes, chapters 1 - 15 1984**
Box 10, Folder 1-2	**Class notes, chapters 16 - 18 and symbols 1984**
Box 10, Folder 3-6	**Lecture notes 1983, 1987**
	Cold Plasma Waves 248C
Box 11, Folder 1	**Exact wave solutions undated**
Box 11, Folder 2-5	**Lecture notes 1982 - 1983**
	Electromagnetic Fields in Free Space 131A
Box 11, Folder 6	**Diagrams for book 1 1980**
Box 11, Folder 7-8	**Class notes, preface - chapter 3 1980**
Box 12, Folder 1-4	**Class notes, chapters 4 - 13 1980**
Box 12, Folder 5-7	**Lecture notes 1983, 1986-1987**
Box 12, Folder 8	**Lecture notes, "PA" 1987**
Box 13, Folder 1-3	**Problems, chapters 1 - 13 1979**
	Electromagnetic Fields in Materials 131B
Box 13, Folder 4	**Diagrams for book 2 1980**
Box 13, Folder 5-6	**Lecture notes, syllabi, CAPE 1986 - 1988**
Box 13, Folder 7-8	**Lecture notes and syllabi 1988**
Box 14, Folder 1	**Lecture notes, "PB" undated**
Box 14, Folder 2-7	**Problems 1979**
Box 14, Folder 8-9	**Text 1980**
Box 15, Folder 1-6	**Text 1980**
Box 15, Folder 7-8	**Electromagnetism 101 1973**
	Energy in Electromagnetism 131C
Box 15, Folder 9-10	**Class notes, preface - chapter 3 1981**
Box 16, Folder 1-5	**Class notes, chapters 4 - 14 , appendices A-D 1981**
Box 16, Folder 6-7	**Lecture notes, etc. 1980 - 1981**
Box 16, Folder 8	**Lecture notes, etc. 1986**
Box 17, Folder 1-4	**Lecture notes, etc. 1986, undated**
Box 17, Folder 5-8	**Problems 1981**
Box 18, Folder 1-4	**Science 2 - An Outline of Electricity and Magnetism 1969 - 1970**
Box 19, Folder 1-4	**Science 2 - An Outline of Electricity and Magnetism 1970**
Box 20, Folder 1	**Science 2 - An Outline of Electricity and Magnetism 1970**
Box 20, Folder 2	**Science 2B and 2C 1970 - 1971**
Box 20, Folder 3	**Science 2C - An Outline of Electricity and Magnetism, chapters 15 - 32 1971**
Box 20, Folder 4	**Science 4A 1971**
Box 20, Folder 5	**Solutions to problems in Electricity and Magnetism, 1 - 14 undated**
Box 21, Folder 1-2	**Solutions to problems in Electricity and Magnetism, 1 - 32 undated**

Exams

Box 21, Folder 3	**101A examinations 1973 - 1976**
Box 21, Folder 4	**101B examinations 1973 - 1975**
Box 22, Folder 1-3	**131A examinations 1975 - 1987**
Box 23, Folder 1-3	**131B examinations 1976 - 1988**
Box 24, Folder 1-3	**131C examinations 1976 - 1988**

Box 24, Folder 4	**Science 2B examinations 1970 - 1971**
Box 24, Folder 5	**Science 2C examinations 1970 - 1971**

Course and Professor Evaluations

Box 25, Folder 1	**EECS 131 - Fall 1985**
Box 25, Folder 2	**EECS 131 - Winter 1986**
Box 25, Folder 3	**EECS 131 - Spring 1986**
Box 25, Folder 4	**EECS 131 - Spring 1987**

WRITINGS

Published

Box 25, Folder 5	**Application of the magneto-ionic theory to the ionosphere 1934**
Box 25, Folder 6	**Oblique propagation of electromagnetic waves in a slowly-varying non-isotropic medium 1936**
Box 25, Folder 7	**Propagation of wave-packets incident obliquely upon a stratified doubly refracting ionosphere 1938**
Box 25, Folder 8	**Ionospheric investigation concerning the lorentz polarization-correction 1938**
Box 25, Folder 9	**Slot aerials and their relation to complementary wire aerials (Babinet's prin.) 1946**
Box 25, Folder 10	**Elements of wave propagation using the impedance concept 1947**
Box 25, Folder 11	**Mode theory of tropospheric refraction and its relation to wave-guides and diffract. 1947**
Box 25, Folder 12	**Radio refraction in the atmosphere 1948**
Box 25, Folder 13	**Some problems in radio meteorology 1948**
Box 25, Folder 14	**Application of the magneto-ionic theory to radio waves incident obliquely upon a horizontally-stratified ionosphere 1949**
Box 25, Folder 15	**Concept of an angular spectrum of plane waves, and its relation to that of polar diagram and aperture distribution 1950**
Box 25, Folder 16	**Relation between the sommerfeld theory of radio propagation over a flat earth and the theory of diffraction at a straight edge 1950**
Box 25, Folder 17	**Diffraction from an irregular screen with applications to ionospheric problems 1950**
Box 25, Folder 18	**Theory of radio scattering in the troposphere 1950**
Box 25, Folder 19	**Studies on propagation in the ionosphere: an outline of the magneto-ionic theory 1950**
Box 25, Folder 20	**Studies on propagation in the ionosphere: theory of magnetic storms and auroras 1950**
Box 25, Folder 21	**New kind of radio propatation at very high freqencies observable over long distances 1952**
Box 25, Folder 22	**What is wrong with engineering education? 1954**
Box 25, Folder 23	**Theory of radio transmission by tropospheric scattering using very narrow beams 1955**
Box 25, Folder 24	**Studies on propagation in the ionosphere: some practical aspects of auroral propagation 1955**
Box 25, Folder 25	**On the level at which fading is imposed on waves reflected vertically from the ionosphere 1955**
Box 25, Folder 26	**Theory of scattering by nonisotropic irregularities with application to radar reflections from the aurora 1956**
Box 25, Folder 27	**Turbulence in the ionosphere with applications to meteor-trails, radio-star scintillation, auroral radar echoes, and other phenomena 1956**
Box 25, Folder 28	**Theory of long-duration meteor-echoes based on atmospheric turbulence with experimental confirmation 1956**
Box 25, Folder 29	**Approach to the theory of alternating current networks 1957**
Box 25, Folder 30	**Role of stratospheric scattering in radio communication 1957**
Box 25, Folder 31	**Concerning ionospheric turbulence at the meteoric level 1958**

Box 25, Folder 32	**Radar studies of the aurora 1960**
Box 25, Folder 33	**Local reduction of f-region ionization due to missile transit 1961**
Box 25, Folder 34	**Guidance of radio and hydromagnetic waves in the magnetosphere 1962**
Box 25, Folder 35	**University education and applied science 1963**
Box 26, Folder 1	**Vector approach to oscillations 1964**
Box 26, Folder 2	**Academic organization in physical science 1964**
Box 26, Folder 3	**Effects of ions on low frequency and very low frequency propagation in an abnormally ionized atmosphere 1964**
Box 26, Folder 4	**Dispersion of waves in a cold magnetoplasma from hydromagnetic to whistler frequencies 1965**
Box 26, Folder 5	**Theorum concerning reflection from a plane stratified medium 1968**
Box 26, Folder 6	**Simple methods for calculating lf and vlf reflection loss in the disturbed lower ionosphere 1968**
Box 26, Folder 7	**Comparative study of ionospheric measurement techniques 1970**
Box 26, Folder 8	**Transmission of electromagnetic waves through normal and disturbed ionospheres 1970**
Box 26, Folder 9	**Ionosphere as the secondary conductor of a transformer for elf 1973**
Box 26, Folder 10	**Fifty years of the ionosphere. The early years - electromagnetic theory 1974**
Box 26, Folder 11	**Radar communications antenna-siting for low-angle radiation at high frequencies 1975**
Box 26, Folder 12	**Role of the magnetosphere in satellite and radio-star scintillation 1975**
Box 26, Folder 13	**Electromagnetic and hydromagnetic waves in a cold magnetoplasma 1975**
Box 26, Folder 14	**Developments in the theory of radio propagation, 1900-1950 1975**
Box 26, Folder 15	**Fitting of multi-region ionospheric profiles of electron density by a single analytic function of height 1976 - 1977**
Box 26, Folder 16	**Is the teaching of electricity and magnetism in need of change? 1977**
Box 26, Folder 17	**Relation between ionospheric profiles and elf propagation in the earth-ionosphere transmission line 1977**
Box 26, Folder 18	**Theoretical model for equatorial ionospheric spread - f echoes in hf and vhf bands 1978**
Box 26, Folder 19	**Use of refractive scattering to explain shf scintillations 1979**
Box 26, Folder 20	**Role of acoustic gravity waves in the generation of spread f and ionospheric scintillation 1979**
Box 26, Folder 21	**Acoustic gravity waves, travelling ionospheric disturbances, spread f and ionospheric scintillation 1979**
Box 26, Folder 22	**Weak scattering theory applied to equatorial ionospheric scintillation for a 1980**
Box 26, Folder 23	**Application of a simplified theory of elf propagation to a simplified worldwide model of the ionosphere 1980**
Box 26, Folder 24	**Intensity fluctuations due to a deep phase screen with a power-law spectrum 1981**
Box 26, Folder 25	**Theory of refractive scattering in scintillation phenomena 1981**
Box 26, Folder 26	**Application of refractive scintillation theory to radio transmission through the ionosphere and the solar wind, and to reflection from a rough ocean 1981**
Box 26, Folder 27	**Quantitative explanation of strong multi-frequency intensity scintillation spectra using refractive scattering 1981**
Box 27, Folder 1-7	***Energy in Electromagnetism* 1980 - 1982**
Box 27, Folder 8	**Theory of radio scattering in the troposphere 1982**
Box 27, Folder 9	**Scattering theory of vhf transequatorial propagation 1983**
Box 27, Folder 10	**Simplified theory of elf propagation in the earth-ionosphere transmission line 1983**
	Cold Plasma Waves
Box 27, Folder 11-12	**Correspondence 1982 - 1987**
Box 28, Folder 1-2	**Correspondence with Peter Peregrinus 1980 - 1987**
Box 28, Folder 3	**Deleted chapter 4**
Box 28, Folder 4, Oversize FB-042-12	**Diagrams**

General note

Four leaves from this folder were placed in an oversize flat box

Box 28, Folder 5	**Editor's notes and figure captions**
Box 28, Folder 6	**Errata sheet**
Box 28, Folder 7	**Application of a scattering theory of vhf transequatorial propagation 1984**
Box 28, Folder 8	**Application of refractive scintillation theory to laser transmission through the atmosphere near ground level 1985**
Box 28, Folder 9	**Comparison between the extended-medium and the phase-screen scintillation theories 1985**
Box 28, Folder 10	**Use of scintillation theory to explain frequency-spread on f-region ionograms 1986**
Box 28, Folder 11	**Scintillation theory - a simplified treatment 1986**
Box 28, Folder 12	**Scintillation theory of the fading of hf waves returned from the f-region: receiver near transmitter 1987**
Box 28, Folder 13	**Scintillation theory of fading in long distance hf ionospheric communications 1987**

Unpublished

Box 29, Folder 1-2	**Wireless waves 1936**
Box 29, Folder 3	**Troposphere refraction 1961**
Box 29, Folder 4	**Rocket-generated mechanical waves in the ionosphere 1962**
Box 29, Folder 5	**Cold plasma waves - Lecture given in England 1964**
Box 29, Folder 6	**Some thoughts on the UCSD college system 1965**
Box 29, Folder 7	**Miscellaneous writings 1972**
Box 29, Folder 8-9	**Electromagnetic radiation from high-energy electrons coherently ejected in an atmosphere under the influence of an imposed magnetic field 1972**
Box 29, Folder 10	**Magneto-ionic theory calculations 1974**
Box 29, Folder 11	**M I O (magneto-ionic) theory calculations 1 1974**
Box 30, Folder 1	**Concept of a radio frequency camera 1974**
Box 30, Folder 2-4	**ELF (extremely low frequency) propagation 1974 - 1982**
Box 30, Folder 5	**Quiet ionosphere 1975**
Box 30, Folder 6	**Vat's observations 1975 - 1981**
Box 30, Folder 7-8	**Ion-acoustic waves 1975 - 1976**
	ELF (extremely low frequency)
Box 30, Folder 9	**Calculations 1976**
Box 31, Folder 1	**Calculations - final program 1976**
Box 31, Folder 2-3	**Behroozi 1976 - 1979**
Box 31, Folder 4	**Flow of energy across the antipodal region of an elf transmitter 1977**
Box 31, Folder 5	**Label samples 1977**
Box 31, Folder 6	**Masters 1977**
Box 31, Folder 7	**Scintillation, UCSD 1977**
Box 31, Folder 8, Oversize FB-042-13	**Scintillation, Naval Underwater Systems Center 1977 - 1978** **General note** 29 leaves from this folder were placed in an oversize flat box
	ELF (extremely low frequency)
Box 31, Folder 9	**Part 1 1979**
Box 32, Folder 1	**Part 2 1979**
Box 32, Folder 2-4	**Reflection heights 1979**
Box 32, Folder 5-9, Oversize FB-042-14	**Majidi-Ahy calculations 1979 - 1980** **General note** 20 leaves from this folder were placed in an oversize flat box
Box 33, Folder 1	**Majidi-Ahy calculations 1979 - 1980**
Box 33, Folder 2	**Original diagrams 1980**
Box 33, Folder 3	**Thick scintillating layer calculations 1980**
Box 33, Folder 4-6	**Radiation of plasma waves 1981**
Box 33, Folder 7	**Cold plasma wave calculations 1982**
Box 33, Folder 8	**Comments on spaceborne ELF systems 1982**
Box 33, Folder 9	**Fourth moment equation 1983**

Box 33, Folder 10	**Laser calculations 1984**
Box 34, Folder 1-2	**Spread f calculations 1984**
Box 34, Folder 3	**Frequency spread and single-layer program for hf ionospheric scintillation incorporating earth's curvature 1987**
Box 34, Folder 4-5	**Advanced network theory undated**
Box 34, Folder 6-7	**Antennas undated**
Box 34, Folder 8-9	**Booker paper - Transparencies undated**
Box 34, Folder 10	**Branch points in complex w plane undated**
Box 35, Folder 1, Oversize FB-042-15	**Calculations for 131 undated** **General note** 6 leaves from this folder were placed in an oversize flat box
Box 35, Folder 2-3	**Calculations - Miscellaneous undated**
Box 35, Folder 4	**Curves for two ion species undated**
Box 35, Folder 5	**E. M. (electo-magnetic) theory undated**
Box 35, Folder 6	**Graphs - Miscellaneous undated**
Box 35, Folder 7	**Heights of reflection - Preliminary version undated**
Box 35, Folder 8	**Horizontal structure in ionosphere undated**
Box 35, Folder 9	**Hydromagnetic waves B and Dyce originals undated**
Box 35, Folder 10-12	**Ionospheric refraction undated**
Box 35, Folder 13	**M I O (magneto-ionic) calculations 2 undated**
Box 36, Folder 1-2	**Notes undated**
Box 36, Folder 3	**Plasma waves talk undated**
Box 36, Folder 4	**Preliminary calculations undated**
Box 36, Folder 5	**Profiles undated**
Box 36, Folder 6-8	**Radio waves undated**
Box 36, Folder 9	**Slides - Miscellaneous undated**
Box 36, Folder 10-11	**Stanford and Kwajalein undated**
Box 37, Folder 1-3	**Surface propagation undated**
Box 37, Folder 4	**Transmission lines undated**
Box 37, Folder 5-6	**Turbulent scattering undated**
Box 37, Folder 7-8	**Untitled undated**
Box 37, Folder 9, Oversize FB-042-16	**Vat's (Hati Om) scintillation undated** **General note** 13 leaves from this folder were placed in an oversize flat box

Notebooks

Box 38, Folder 1	**Differential equations, Courant 1945**
Box 38, Folder 2	**Elasticity, Mr. Dean undated**
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