History of Computing

This catalogue explores, from the early 1800s to the late 20th century, the development and evolution of what we now call the computer revolution. Historically, ‘computers’ were human clerks who read, calculated, and plotted data from various sources. Computing machines, used increasingly from the 1920s, referred to any machine that did the work of a human computer…calculating data in formalized ways. The late 1940s saw the emergence of electronic computing machines…and, in time, ‘computing machine’ simply became ‘computer’.

Included is work from Babbage to the digital age…in primary and secondary source material to ephemera. Highlights include the first publication of Shannon’s monumental work that defined the mathematical theory of communication (and coined the term ‘bit’) to the proceedings of the first Computer Faire[sic], to an association copy of Stibitz’s, Zeroth Generation. Something, we hope, to surprise and interest nearly anyone.

There are a handful of images included, but the number of items (72) limited inclusion of all. We are happy to provide images of any item upon request.

Please let us know if you have any questions.

Lux Mentis specializes in fine press, fine bindings, and esoterica in all areas, books that have been treasured and will continue to be treasured. As a primary focus is the building and/or deaccessioning of private collections, our selections are diverse and constantly evolving. If we do not have what you are seeking, please contact us and we will strive to find it. All items are subject to prior sale. Shipping and handling is calculated on a per order basis. Please do not hesitate to contact us regarding terms and/or with any questions or concerns.


[Not in OOC] Includes more than 80 papers by a wide range of speakers from Austria, Belgium, Britain, Czechoslovakia, England, France, Germany, Italy, Sweden, Switzerland, the Soviet Union, the United States, and Yugoslavia. Very scarce.

The First International Congress on Cybernetics was held in Namur, Belgium, 26–29 June 1956, and led to the formation of the International Association for Cybernetics [incorporated in 1957].


Annals of the Computation Laboratory of Harvard University, Volume XXV.

A cornerstone work exploring Aiken’s Harvard Mark III Calculator, developed for the US Navy. It was monumental in a number of ways, critically as the first machine that used ‘constants’ (fixed values that a program can reference and it was the first piece of hardware to run off an 'internal' program…what we now think of as an Operating System. In many ways, its creation can be seen as the dawn of the modern computing age in the US.
Includes the very scarce “Artzybasheff’s famous anthropomorphic” dust jacket [OOC 418]. Overall, a handsome copy of a work challenging to find in DJ. [OOC 420] Includes Time Magazine with Mark III cover and anthropomorphic illustration.


Entire issue in original wraps, good with very good illustration, subject article from pp. 34-39. [Not in OOC]


“A very early independent report . . . on the application of electronic computers to business needs.” [OOC 438] Submitted “in partial fulfillment of the requirements for the second-year course in Manufacturing at the Harvard Graduate School of Business Administration.” “A very early independent report written by people outside the computer industry on the application of electronic computers to business needs. When this report was published, no electronic digital computer had been delivered to an American corporation . . . . The first large general-purpose computers such as ENIAC and EDVAC were originally developed for scientific and engineering applications; the report discusses the necessity of modifying both computers and business procedures to take advantage of the great computing power and speed offered by the new machines. Chapter VI, titled ‘Business machines in 1970,’ attempts to predict the future evolution of business machines ‘as they relate to manufacturing companies, department stores, insurance companies, banks and public utilities’ (p. 37).” [OOC 438]

“When this report was published, no electronic digital computer had been delivered to an American corporation (the first UNIVAC I delivered to a private rather than governmental customer was serial number 8, sold to General Electric in 1954)...” [OOC] From Gutenberg to the Internet 10.4; Origins of Cyberspace 428.

5. [Babbage, Charles]. Mr. Babbage’s Calculating Machine [Chambers’ Edinburgh Journal, No. 134]. Edinburgh: Chambers’ Edinburgh Journal, 1834. First Printing. Light even toning, minor tidemark near spine, disbound sheets, a couple small closed tears, two leaves chipped, two with very minor loss of text at bottom right corner, fragile, else clean. Printed pulp sheets. 4to. [p240], 4 leaves total. Good. Sheets. (#11028) $100.00

An early article about Babbage and his work...the first appears circa 1822. Article details the Difference Engine, exploring the difficulty of printing the resulting output accurately, and criticizing the failure to continue work on “this wonderful machine of Mr. Babbage.” [not in OOC]


This copy with ownership signature of C.C. Hurd on ffep. Hurd was an important IBM executive in the late 1930s and thereafter. [See, A History of Computing in the 20th Century] Hard to find in nice condition, this with an interesting provenance. "[A] major work, at the time, on the use of cards, primarily in scientific applications but also in administration." [Cordata, 976]


Includes:
- Shannon, “Communication Theory of Secrecy Systems” [not in OOC].
- Bardeen & Brattain, “Physical Principles Involved in Transistor Action” [OOC 450].
- Shockley, “The Theory of p-n Junctions in
Semiconductors and p-n Junction Transistors” [not in OOC].

Vol 28 is best known for No. 3, entirely devoted to the semiconductor/transistor. It includes articles by John Bardeen, Walter Brattain and William Shockley (jointly awarded the 1956 Nobel Prize in Physics for work on the subject). Other issues includes Claude E. Shannon’s ’The Synthesis of Two-Terminal Switching Circuits’, and Bardeen and Brattain’s ’Physical Principles Involved in Transistor Action’.

However, it is worth noting that Shannon’s "Communication Theory of Secrecy Systems", exploring cryptography as a function of information theory is monumental for modern crypto theory. It is "one of the foundation treatments (arguably THE foundational treatment) of modern cryptography. It is also a proof that all theoretically unbreakable ciphers must have the same requirements as the one-time pad [a secret random key used only once]" [Wikipedia] N.B. Shannon published an earlier iteration of this research in the classified report, "A Mathematical Theory of Cryptography (Memorandum MM 45-110-02, Bell Laboratory, 1945). [Shannon, Collected Papers, no. 25.40610]"

“First popular book on electronic computers. . . . When Giant Brains was published, electronic computers were virtually unknown to the general public. The few that existed were unique machines that belonged to the government . . . . Apart from occasional newspaper and magazine articles, there was virtually no information on electronic computers available for the nonspecialist reader. Berkeley’s book was intended to explain a difficult subject to curious people, most of whom would probably never see an actual electronic digital computer. . . . Berkeley’s book is written in a clear, easy-to-read style that remains quite accessible even after the passage of over fifty years.” [OOC 463]
computer." The following items include the fundamental materials that Berkeley used to explain Simon – and the rare plans and instructions sold to public hobbyists for building the machine.

- Berkeley, Edmund C. “Simple Simon. A small mechanical brain that possesses the same fundamental characteristics as its larger relatives can explain in rudimentary fashion how they work.” Scientific American, November 1950, pp. 40-43. Entire issue, slightly creased, otherwise near fine. Berkeley’s article ends on a prophetic note: “Some day we may even have small computers in our homes, drawing their energy from electric-power lines like refrigerators or radios. . . . They may recall facts for us that we would have trouble remembering. They may calculate accounts and income taxes. Schoolboys with homework may seek their help. . . . We may find the future full of mechanical brains working about us.” (p. 42).


- Berkeley, Edmund C. & Robert A. Jensen, “Construction Plans for Simon.” New York: Edmund C. Berkeley and Associates, 2nd ed., March 1952, 2nd printing, October 1952. (Not in OOC.) Original reproduced typescript [mimeo], owner’s stamp on cover, staple rusting, first and final page detached, tear in left margin of first few pages, but all pages present and in good condition. This paper is extremely rare. None shown for sale online. WCAT shows 21 copies in libraries, but almost all of these are either missing or links to the eBook version online from the University of Michigan. The Michigan copy is also 2nd edition, March 1952, 2nd printing, October 1952. The only other likely originals are at NY Public Library and Berkeley, both shown as 2nd editions, 1952, without printing information.


“This work became the most widely read early English introduction to electronic computing, remaining in print without changes as late as 1968. . . . The work contains much information on Babbage (including a reprint of the Lovelace translation of Menabrea’s paper) and chapters on British computer projects of the 1940s and early 1950s. Among the twenty- four computer experts who contributed papers to his book were Alan Turing (‘Digital computers applied to games’), . . . [regarding] his moderately successful work on programming the Manchester machine to imitate human thought processes, in this case game-playing. He described the first machine capable of playing a complete game of chess.” [OOC 504]

“The vision of the Internet and World Wide Web goes back to an article by Vannevar Bush in the 1940s. Bush outlined his vision of an information management system called the memex (memory extender) in a famous essay “As we may think.” He envisioned the memex as a device electronically linked to a library and able to display books and films. It describes a proto-hypertext computer system and influenced the later development of hypertext systems.” [O’Regan, Giants of Computing (2013), p. 61]

“Bush’s article describes his proposed Memex system for organizing, storing, retrieving, and linking information... Bush conceived of the Memex as consisting of a desk equipped with projection screens, buttons and levers, a keyboard, and a storage system designed to provide instant access to microfilmed books, periodicals, documents, photographs, etc. The Memex system would allow pieces of data to be linked into permanent ‘information trails’ dictated by the individual user’s needs, which could be called up again and modified at any future date... Only after the development of the personal computer and hyperlinks on the World Wide Web was Bush’s paper resurrected as a remarkably early expression of ideas that were eventually realized in a different way on the Internet.” [OOC 519]

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Engines, 1947. First Edition. Light shelf/edge wear, touch of foxing at the front wrapper, small owner address sticker, else tight, bright, and unmarred. Printed paper wrappers. 4to. 70pp. plus adverts. Illus. (b/w plates). Very Good-. Original Wraps. (#11063) $750.00

Subject text at: 756-767pp.
Burks was a senior engineer on the team that developed the ENIAC, the world’s first general-purpose electronic computer. A rather monumental paper. "The ENIAC performs the operations of addition, subtraction, multiplication, division, square-rooting, and the looking up of function values automatically. ... The technique of combining the basic electronic circuits to perform these functions is illustrated by three typical computing circuits: the addition circuit, a programming circuit, and the multiplication circuit" [p. 756].


First paper presented; entire volume included. [not in OOC]


This article embodied the idea of hypertext and, effectively, the function of the internet. “A remarkable early expression of ideas that were eventually realized in a different way on the Internet." [OOC 519]

"Wholly new forms of encyclopedias will appear, ready-made with a mesh of associative trails running through them, ready to be dropped into the memex and there amplified... Thus science may implement the ways in which man produces, stores, and consults the record of the race." [Bush]

The subject paper spans pp. 649-669, presented here as part of the complete volume. [OOC 245]

"Bush was a significant figure in computer science. In 1930, he invented the 'Differential Analyzer,' the most powerful general purpose analog computer of its time, and during WWII, he served as a key scientific advisor to the government. Bush is most famous among computer scientists for an article he published in 1945 describing a theoretical machine called a 'memex' that would provide linked access to a vast array of human knowledge; his article today reads like an uncanny foreshadowing of hypertext and the internet itself."

"Bush's 1936 paper, entitled "Instrumental Analysis," given as the American Mathematical Society's Gibbs Lecture that year, was an excellent survey of both analog and digital calculating devices. It included several references to Charles Babbage's work and in particular to the collection of papers published by Babbage's son (1889). The section on digital devices concluded with a discussion of how it might be possible to devise a programmable master controller that would turn a set of existing IBM punched-card machines into, effectively, what Bush described as "a close approach to Babbage's large conception." [In many ways, of course, this is exactly what Aiken, starting in 1937, convinced IBM to do, thus starting a project that led to the successful completion in 1944 of the first US program-controlled calculator, the Harvard Mark I.] [J. A. N. Lee, Computer Pioneers]


Subject article at pp. 143-146. First published in The Electrician, September 19, 1919, reprinted in its entirety here in December, 1919. “With the invention of electronic computing using vacuum tubes as switches, flip-flops became the basic storage element in sequential logic used in digital circuitry, and the basis for electronic memory.” [History of Information] [Not in OOC]


The first book on the use of punch card computing in scientific research. The adoption of punch card computational equipment radically extended the market for computers and laid the groundwork for the development of electronic computing. "Eckert developed methods for IBM, who funded the Astronomical Computing Bureau at Columbia and published his book.

Eckert’s influence in the direction of science computers was the key factor in IBM's later success in the computing field.” [Goldstine, 107-110]


Scarcely individually, this sammelband includes:


(OOC 740)


Text in German. Ex libris markings notwithstanding, a very presentable copy of an early and important work on the application of punch card accounting. Very scarce.

Includes:
• Fox, Gardner F. & E. E. Hibbard, “The Flash and the Case of The Machine That Thinks Like a Man.” Flash Comics No. 52, April 1944. The machine is “controlled by four electronic tubes,” and it uses “discs” to store “all knowledge known to mankind. . . . It functions as does the human brain, with its discs acting as a storehouse of the world’s 6 information.” “Evart Keenan returns from his planet of Karma to visit Jay and give him a gift. Keenan gives The Flash a mechanical brain, unaware that it holds the key to destroy the Flash.”
• Unknown, “Captain Marvel Tangles with the Missing Persons Machine!” Whiz Comics No. 60, November 1944. This machine is a “filing system for missing persons.” “Just punch the buttons according to the description of the missing person and a card will come out telling . . . where to find him.”


“In 1947, frustrated when a failure in one of Bell Lab’s relay computers had spoiled a run of data, Hamming began developing the first error-correction codes (now known as Hamming codes), which enabled computers to find and correct single errors in a stretch of data, as well as to discover double errors. Error correction has since been developed into a scientific discipline used in everything from extracting data transmitted from space probes, to recovering jammed communications, to guaranteeing high-quality music from a compact disk (Lee 1995, 361).” [OOC 646]

Hamming’s paper defined a method for correcting errors in block packages of transmitted data. “He further showed that, in a mathematical sense, these error correcting codes are the best possible codes [known also as ‘perfect codes’; there are none shorter” (A. M. Turing Award Portal). Hamming was awarded the A. M. Turing Award in 1968.

Before working at Bell, Hamming had been part of the Manhattan Project. "Hamming was the first coding theorist to attract widespread interest in his work" [OOC 646]. "It was an event in 1947 that prompted Hamming to undertake his most famous piece of work. One Friday, while working for Bell Laboratories, he set their pre-computer calculating machines to solving a complex problem and expected the result to be waiting for him when he began work on the following Monday. But when he arrived on Monday, he found that an error had occurred early on in the calculations and the relay-based calculators had been unable to proceed" [Turing Award Portal]. "Hamming began developing the first error-correction codes (now known as Hamming codes), which enabled computers to find and correct single errors. Error correction has since been developed into a scientific discipline used in everything from extracting data transmitted from space probes, to recovering jammed communications, to guaranteeing high-quality music from a compact disk" [OOC].

A fundamental paper defining idea of error correction in communication and computer systems.


This volume of BSTJ included some monumental papers, including:
• Hamming, “Error Detecting and
Error Correcting Codes” (OOC 646)
- Shannon, “Memory Requirements in a Telephone Exchange” (OOC 883).
- Bardeen, “Theory of Relation Between Hole Concentration and Characteristics of Germanium Point Contacts” (not in OOC).

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There are, in addition, important papers by Shannon, Bardeen/Cooper/Schreiffer [work for which they won the 1972 Nobel Prize in Physics], and others. A very handsome copy.


Otherwise Unknown Typescript on Computer Bank Accounting. This is Harrison's thesis as part of his MBA studies at NYU [Student Copy of his transcript laid in]. Original typescript with numerous original banking forms bound in as exhibits. Interesting to consider with “A very early independent report . . . on the application of electronic computers to business needs,” 1953 [OOC 438].


Scarce.


First printing of Hartree's famous inauguration speech, as issued. "[T]he first booklet on electronic computers separately published by a conventional publisher, and also one of the earliest discussions of how these machines could be used in scientific calculations ... Hartree reported his experiences with ENIAC and touched upon the possible future applications of large general-purpose computers in science, medicine and economics". [Origins of Cyberspace 649] This work marks tipping point between computers being an academic and scientific curiosity to a tool which would revolutionize scientific research and the world as a whole. "This can be seen as the start of Hartree's work on bringing computers and their potential to the attention of the scientific community." [Dictionary of Scientific Biography].

[N.B. Published in 1947, there is an interesting question as to whether Hartree knew of the classified work done at Bletchley park and the creation and use of the Colossus machines for code-breaking purposes...however, he certainly moved in social and scientific circles which suggest he might.] Uncommon generally, scarce as issued and found here.

*Article on pp. 172-176. Entire volume 24 bound together. Includes material on ENIAC. [not in OOC]*


*Subject article spans pp 172-176, in original wraps as issued. Includes material on ENIAC. [Not in OOC]*


"The first comprehensive exposition of electronic digital computing."

[OOC 652]

"These lectures were intended for a well-informed scientific audience outside the tiny group of professionals then involved with electronic computing. They represented the first comprehensive exposition of electronic digital computing, and this book was one of the first two treatises on the subject. The other book, Edmund Berkeley's *Giant Brains or Machines That Think* was written for a more popular audience and achieved greater sales... Chapter 8, entitled 'Projects and prospects,' contains the first generally available comprehensive account of the stored-program machines then in development, including EDVAC, ACE, and EDSAC." [OOC 652]


"A celebration of Napier's pivotal role in the history of calculation, the exhibition featured displays of many different types of calculating machines, as well as exhibits of other aids to calculation such as mathematical tables, the abacus and slide rules, planimeters and other integrating devices, and ruled papers and nomograms. These are described in the Handbook to the exhibition, which contains separate sections, with chapters by various contributors, devoted to each type of calculating device." [OOC 322][N.B. This is the first trade edition, OOC 323]


24 separately paginated pamphlets plus [8]pp. preliminaries *and* including the 1942 pamphlet 19A 'Automatic Reproduction Punch / Type 513' [not indicated on 24 pamphlet list], all bound together as provided to the customer. This copy issued to the Amicable Life Insurance Company (founded in Waco, TX. 1910). 1936 copyright for all pamphlets except 20A (1940) and 19A (1942) Includes numerous illustrations and diagrams.

This book was one of the "key publications from IBM". [Cortada, Before the Computer, 307]

"Primarily, this book was written to provide a single volume from which employees of International Business Machines Corporation may thoroughly familiarize themselves with the complete list of bookkeeping and accounting..."
accounting machines manufactured by their Company, and with the operation of such machines of furnishing figure-facts automatically” [from preliminaries, p [6]]

The first section, 14 pages, is devoted to the history of IBM, and sections 2 through 8 provide background on principles, the punch card, codes, organization, supervision, training, and controls. The remaining sections illustrate and explain numerous machines and their operation. Originally issued with 23 sections; this version was updated in 1940 and 1942 with two additional sections (19a and 20a) bringing the volume current.

Uncommon generally, scarce as nice as is found here.


“An elegantly printed collection of addresses and essays delivered at the Napier tercentennial celebration, along with a bibliography of the books exhibited there. The essays concerned either Napier’s life and work or developments in calculating since Napier.” [OOC 331]

A challenging book to find in good condition as the binding is prone to discoloration. A handsome copy.


This article presents an accurate scientific discussion of the newly-disclosed Harvard Mark I Calculator (with a photo) alongside fanciful cartoon drawings and exuberant prose. (“Three Girl Experts With a Battery of Ordinary Calculating Machines, Plus Albert Einstein Himself, Would Need Weeks to Work Out Computations That the Giant Machine Rattles Off in Hours.”) “In 1936, Howard Aiken was a graduate student working on his dissertation in physics at Harvard. Because the state of the art computer machinery of the time - Vannevar Bush’s analog differential analyzer at MIT - could not make the complex computations facing Aiken, he set out the broad outline of a large-scale digital computer and proposed that the Harvard physics department undertake its construction. Although Harvard and others demurred, by 1939 Aiken had convinced IBM to support the ambitious project with substantial funds and a distinguished team of engineering experts. The Mark I ("Automatic Sequence Controlled Calculator") was completed and tested in secret in 1943 and installed on the Harvard campus in 1944. It was an electro-mechanical calculator of unprecedented size, accuracy and complexity. Once a program was successfully written and input to the Mark I (on punched paper tape), the calculator ran without interruption through the programmed sequence of calculations - sometimes for days when making repetitive computations for mathematical tables. When the Mark I was revealed to the public at a formal "dedication" on August 7, 1944, it "captured the imagination of the public to an extraordinary extent and gave headline writers a field day." [Cambell-Kelly, Computer: A History of the Information Machine.] "Actual witnesses to the developments of the mid 1940's...agree that its dedication inaugurated the computer age." [Cohen, Howard Aiken: Portrait of a Computer Pioneer, 1999, p303]


The Macy Foundation Seminal Conferences on Cybernetics, 1949-1953 (the only five published)

“The Josiah Macy, Jr., Foundation sponsored a remarkable series of interdisciplinary conferences from 1946 through 1953 promoting open-ended discussion under the wide umbrella of “Cybernetics. Circular Causal, and Feedback Mechanisms in Biological and Social Systems.” The members of the Cybernetics group “represented the fields of electrical engineering, mathematics, sociology, anthropology, psychology, psychiatry, biology, physiology, anatomy, zoology.”
Review of Activities, infra, 21. There were ten such conferences, five in 1946-1948, and five more annually from 1949-1953. The conferences were intended to be informal and unscripted, and the first five were not transcribed and published. Beginning with the sixth conference in 1949, the proceedings were transcribed, edited, and published. This is a set of all five published conferences.

Participants in these conferences included, among others, Ross Ashby, Yehoshua Bar-Hillel, Donald MacKay, Warren McCulloch, Margaret Mead, Oskar Morgenstern, Walter Pitts, Arturo Rosenblueth, Claude Shannon, Heinz von Foerster, John von Neumann, Grey Walter, Norbert Wiener, and Jerome Wiesner. “Von Neumann and Wiener were the dramatic costars of the meetings, and the differences in their personal style became part of the excited and dramatic debates that characterized the formative years of cybernetics.” [Rheingold, Howard. Tools for Thought. The History and Future of Mind-Expanding Technology. Cambridge, MA: MIT Press 2000, p. 109] These proceedings “ultimately laid the groundwork for much of the future research on a diverse range of sciences, from biological physics to computer science.” [NY Times, November 9, 2002, p. 20]


$145.00

A challenging to find and important aggregation of period business machines (39 different types) with evaluations and richly illustrated. The book is "detailed and very complete for devices from the last quarter of the 1800s to the early 1920s of all types. This is the best source available for used market conditions as well." [Cortada, 873]


Hard to find in any condition. This an extraordinary copy. ($11158)

$1,500.00


$750.00


• National Bureau of Standards Applied Mathematics Series 12. Fine in original blue wraps. The first
symposium on the Monte Carlo Method, 1949 (OOC 942).

42. Morse, Philip M.; Kimball, George E. Methods of Operations Research [OEG Report No. 54] [Declassified Original]. Washington DC: Operations Evaluation Group, US Navy, 1946. First Edition. Light shelf/edge wear, few small moisture stains on boards, tape residue on front board where "CONFIDENTIAL" was covered up, navel plate and pocket at rear, LoC stamp at ffep, several stamps/notations on title page and first few others (see below), front hinge cracked, else tight, bright, and unmarred. Burgundy cloth boards, gilt lettering. 4to. 168pp. Illus. (b/w plates). Bibliography. Index. (#11059) $1,500.00

Copy No. 13. “Confidential” Classification printed on the bottom of every page [crossed out on first few’.


This copy ex Bureau of Naval Personnel Technical Library *and* ex Library of Congress.

Frequently reprinted, the last noted was 2003. Original 1946 “Confidential” edition is very rare. [Not in OOC]


“Probably the First International Symposium on Artificial Intelligence” 1958 [OOC 809] Includes more than 30 papers; the authors include Marvin L. Minsky, W. S. McCulloch, W. Ross Ashby, Grace Hopper, Stanley Gill, and John McCarthy (who delivered his paper “Programs with Common Sense”). The 1962 edition is easier to locate, the first, however, is genuinely scarce.


This is an early salesman’s manual. It is “the property” of the company, numbered and registered (No. 28), and “subject to return on call.”

It is particularly interesting because ‘Computing-Tabulating-Recording Company’ (CTR) was only rebranded International Business Machines (IBM) in 1924. There were no IBM-labeled products until 1933.


Two early and important surveys of automatic digital computers running in the US, at a time when one could list, with relative ease, every significant piece of hardware running. The first, issued in 1952 was, ‘A Symposium on Commercially Available General-Purpose Electronic Digital Computers of Moderate Price’, edited by Mina Ress. She writes: “Until recently, all commercially available general-purpose digital computers were large and cost many hundreds of thousands of dollars. Within the past year, however, a number of manufacturers have smaller, more compact (usually slower) automatic computers for sale at less than one hundred thousand dollars.” [Introduction]

Hart notes that the first survey of large scale computers was undertaken between 1947-48 and updated in 1950. However, "a large number of machines that were then only in the design stage are now in successful operation." [Preface]

Includes:

• A Survey of Automatic Digital Computers. Washington, DC, 1953. The theory, design principles and fields of usefulness of the various forms of automatic controllers commonly used in the process industry, are discussed. Some of the computer techniques in the field of instrumentation and control engineering are described. [OOC 944]


The subject article at pp. 414-423. Scarce.

"Mina Spiegel Rees (1902 – 1997) was an American mathematician. She was the first female President of the American Association for the Advancement of Science (1971) and head of the mathematics department of the Office of Naval Research of the United States. Rees was a pioneer in the history of computing and helped establish funding streams and institutional infrastructure for research." [Not in OOC]


• “Proceedings, Computation Seminar,” December 1949. (OCC 685). Includes von Neumann on “The Future of High-Speed Computing,” disputing the “major concern which is frequently voiced in connection with very fast computing machines . . . that they will do themselves out of business,” that is, “run out of work.”
• “Proceedings, Industrial Computation Seminar,” September 1950. (OCC 689)


“[The relevant history [of computer chess] begins with a paper by Claude Shannon in 1949. He did not present a particular chess program, but discussed many of the basic problems involved. The framework he introduced has guided most of the subsequent analysis of the problem. . . . It remained for A.M. Turing (1950) to describe a program along [Shannon’s] lines that was sufficiently simple to be simulated by hand, without the aid of a digital computer.” Newell, Shaw & Simon, “Chess-Playing Programs and the Problem of Complexity,” in Feigenbaum & Feldman (eds.), Computers and Thought (1963), pp. 42, 44. Shannon’s paper was first published in February 1950 in Scientific American. A more detailed version was published the following month in Philosophical Magazine, under the title “Programming a Digital Computer for Playing Chess.” [OCC 882] Shannon’s February 1950 article in Scientific American is the first published work on computer chess.


Entire issue in original wraps, subject article pp. 10-21. See note page 10: “Original manuscript received by the Institute July 23, 1940.”

Shannon presented this paper at the Institute of Radio Engineers National Convention, New York on March 24, 1948, and again at the IRE New York Section on November 12, 1947. This issue presented here, "Proceedings of the Institute of Radio Engineers" was the first publication of this paper. There was a subsequent IRE offprint of this paper and it was reprinted in the Bell System Technical Monograph series (#B-1644: 1949). In 1948 Shannon’s classic paper, "A Mathematical Theory of Communication" was published in the Bell System Technical Journal. [That first] paper founded the discipline of information theory ... Several months later, he published a second paper, "Communication in the Presence of Noise," in "The Proceedings of the Institute of Radio Engineers." "The paper here is integrally related to the first, this one effectively exploring and elaborating a focused area of the first work and attempting to contextualize it in an 'engineering' rather than strictly mathematical framework. [Kuenzig Books] [Not in OOC]
chips' internal 'logic' - a concept borne largely of microchip designers still talk and think in terms of their microscopic transistors etched on silicon. But to this day, has progressed from electromechanical relays to existed. In the intervening years, switching technology his early 20s, Claude Shannon had had the insight crucial the most important master's thesis of the 20th century. In Switching Circuits,' published in 1938, has been called "All of which is why 'A Symbolic Analysis of Relay and Modern Computer/thinkers/) methods that had previously prevailed" (history-/community during and after WW2. The theoretical rigor became widely known among the electrical engineering foundation of practical digital circuit design when it electronic digital computers. Shannon's work became the to do logic is the basic concept that underlies all problems. Exploiting this property of electrical switches upside down and also proved that it should be possible to telephone routing switches, then turned the concept arrangement of the electromechanical relays then used in binary arithmetic could be used to simplify the "In his paper, Shannon proved that Boolean algebra and circuit design from an art to a science" (The Computer written ... a landmark in that it helped to change digital significant theoretical step toward the construction of by George Boole could be ... a basis for OOC 363].


First Hard-Copy Edition of The Mathematical Theory of Communication, first published in the Bell System Technical Journal in 1948, with minor corrections and additional references. Also includes Weaver's, 'Recent
Contributions to the Mathematical Theory of Communication. Overall, a very handsome copy of this cornerstone work.


Includes:

“At the heart of [Shannon's] theory was a new conceptualization of information. . . . a general theory of communication applicable to telegraph, telephone, radio, television, and computing machines - in fact, to any system, physical or biological, in which information is being transferred or manipulated through time or space.” [Aspray 1985 pp. 119-122]. The first appearance of Shannon's monumental paper on a mathematical theory of communication. The paper is the foundation of the modern information age. "American mathematician Claude Shannon developed information theory by 1948. He reduced the notion of information to a series of yes/no choices, which could be presented by a binary code. Each choice, or piece of information, he called a 'bit.' In this way, complex information could be organized according to strict mathematical principles. His methods, although devised in the context of engineering and technology, were soon seen to have applications not only to computer design but to virtually every subject in which language was important, such as linguistics, psychology, cryptography, and phonetics; further applications were possible in any area where the transmission of information in any form was important". [Mount and List, Milestones, 65; OOC 880; Tomash & Williams S94-95]


Small security “removal authorization” stamp on ffep. Uncommon generally, scarce in DJ.

“The first treatise on how to build an electronic digital computer. It provided a 'cookbook’ describing the available ingredients and how they worked for both digital and analog computers. Because it also explained the principles involved and gave examples, it was extremely useful.” [OOC 584]


Stibitz' s self-published memoir, with signed letter (not in OOC)

Ownership signature: "Ex Libris Alice and Harold James."
The Zeroth generation refers to the age of mechanical computers (1642-1945), prior to the advent of the vacuum tube era (first generation) and beyond. With unaddressed, signed letter dated December 10, 1993, forwarding the “private printing of a manuscript on which I have been working during the most recent five years” and which “reveals several aspects of the times.” "On May 14, 1986, Denison University dedicated a permanent exhibit honoring computer pioneer George Robert Stibitz, a member of the class of 1926. The exhibit, housed in the William Howard Doane Library, was initiated and funded by Harold James and his wife Alice, who were classmates of Stibitz the class of 1926. Mr. James credits Stibitz with introducing him to Alice." [IEEEExplore]

Self published recollections of an early pioneer. A lovely copy with a strong association. Very scarce with a small handful of copies in institutional collections and none to the market in recent records.

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Subject article found at pp. 240-255 within, presented here, the entire issue. “Perhaps the best summary of ideas on the computer and the human brain in 1955-1956.” [historyofinformation[dot]com/detail.php?id=4100] The Symposium occurred at the IRE convention in March, 1955. The four panel members were Warren McCulloch of MIT, Anthony G. Oettinger of Harvard, Otto H. Schmitt of the University of Minnesota, and Nathaniel Rochester of IBM. After prepared statements and a brief discussion by the panel members, they were cross examined by a group of invited questioners: Marvin Minsky, then of Harvard, Morris Rubinoff of the University of Pennsylvania, Elliot L. Grunenberg of the W. L. Masson Corporation, John Mauchly, of what was then Remington Rand, M. E. Maron of IBM, and Walter Pitts of MIT.


• Volumes 1-3, 1954-1956, first reprinting, Johnson Reprinting, 1961, single volume bound in grey cloth, gold stamping on spine, ex-library with minimal markings, very good.
• Volumes 4-7, 1957-1960, separately bound in matching blue cloth, gold stamping on spine, wraps bound in, ex-library Burroughs Corporation, very good.


Three 1871 papers in the on “The first commercially produced calculating machine to have any real degree of reliability and usefulness.” [OOC 406]
• Hannynston, Major-General, “On the Use of M. Thomas de Colmar’s Arithmometer in Actuarial and Other Computations,” pp. 244-53.


Reasonably important early overview of various machines.

60. Var. Calculating Machines & Punched Card Computing, 1900-1965 [21 items]. Var.: Var. publishers, 1940-1996. Most all appear to be first editions/printings. Minimal to light shelf/edge wear, a few show ex libriss markings, one has remainder mark at bottom of textblock, etc., overall tight, bright, and unmarred. Various bindings (cloth and wraps). 8vo-4to. Var. pag. Illus. (b/w plates). Very Good to Fine. Hardcover and Wraps. (11090) $1,250.00


"In sum, von Neumann's paper contains much that is unappreciated or at least unattributed to him. The contents are so familiar, it is easy to forget von Neumann is not repeating what everyone knows. He anticipated many of the developments in the field he originated, and his theorems on the accuracy of Gaussian elimination have not been encompassed in half a century. The paper is among von Neumann's many firsts in computer science. It is the first paper in modern numerical analysis, and the most recent by a person of von Neumann's genius." [Joe Grcar]

Presented here are Von Neumann's unfinished manuscripts, edited and completed by Burks and embody Von Neumann's final construct of his theory of automata. [OOC 971] JVon Neumann's theory of self-reproducing automata is widely considered as one of the greatest theoretical achievements made in early stages of artificial life research.

"Von Neumann's war-related computer activities spurred his further interest in theoretical issues of the information sciences. His main concern was for developing a general, logical theory of automata. His hope was that this general theory would unify the work of Turing on theoretical machines, of McCulloch and Pitts on neural networks, and of Shannon on communication theory. Whereas Wiener attempted to unify cybernetics around the idea of feedback and control problems, von Neumann hoped to unify the various results, in both the biological and mechanical realms, around the concept of an information processor— which he called an 'automaton.' (The term automaton had been in use since antiquity to refer to a device that carries out actions through the use of a hidden motive power; von Neumann was concerned with those automata whose primary action was the processing of information.)

"The task of constructing a general and logical theory of automata was too large for von Neumann to carry out in detail with the final few years of his career. Instead, he attempted to provide a programmatic framework for the future development of the general theory and limited himself to developing specific aspects, including the logical theory of automata, the statistical theory of automata, the theory of complexity and self-replication, and the comparison of the computer and the brain." (Aspray 1958, 133–34) Minsky 1963, 506.

Ownership signature of GE Wright (presumably the noted biblical scholar).

Von Neumann's fifth and last work on automata theory— his 1956 Silliman Lectures, left incomplete at his death and never delivered. The lectures present “an approach toward the understanding of the nervous system from the mathematician’s point of view” (p. 1); they discuss the principles underlying “the systematics and the practice of computing machines” (p.3) and how these resemble or differ from the way the brain functions.
The First West Coast Computer Faire has been called "one of the most significant events in the history of personal computing." [www.dot.computerhistory.org/tdih/april/15/]. An unexpectedly large crowd of some 12,000 attended and saw the introduction of three of the most popular personal computers of the time: the Apple II, the Commodore PET, and the Radio Shack TRS-80. Steve Jobs was photographed demonstrating the Apple II, which his partner Steve Wozniak had barely completed in time for the show. The Proceedings contain some 100 articles and tutorials on 25 aspects of personal computing along with numerous advertisements.

There is one tiny mention on page 332, among a long list of exhibitors, of "Apple Computer, 20863 Stevens Creek Blvd, Cupertino, CA." The company had moved to that small space only months before, from Jobs' bedroom and garage. At the time it had eight employees, but purchased two booth spaces at the faire and debuted the Apple II. "Right there at the entrance, the wave of the future, was Apple, running a kaleidoscopic video graphics program on a huge Advent display monitor. 'It was crazy,' Randy Wigginton, who was working in the booth with Woz and Chris Espinosa and the others, later recalled. 'Everybody was coming by and asking for demonstrations, and it was fun because people were excited about it''' [Levy, Steven. Hackers. Penguin. p266].

The second is an even more extensive set of Proceedings, with more than 500 pages of articles, tutorials, and advertisements.

Ted Nelson, the author of Computer Lib/Dream Machines, opened his presentation with, "Here we are at the brink of a new world. Small computers are about to remake our society, and you know it."

Articles in the 1977 edition include:
"Robots You Can Make for Fun and Profit" by Frederik Pohl
"The 1940s: The First Personal Computing Era" by Henry Tropp
"The Unforgettable Next Two Years" by Ted Nelson
"Computer Power to the People" by David H. Ahl
"The Potential of Microcomputers for the Physically Handicapped" by Peter J. Nelson and J.G. Cossalter
"Roaming Around in Abstract 3-D Spaces" by Tom DeFanti, Dan Sandin and Larry Leske
"A Pipe Organ/Micro Computer System" by Jef Raskin
"Community Memory — a 'Soft' Computer System" by Lee Felsenstein
"Sharing Your Computer Hobby with the Kids" by Liza Loop
"Use of a Personal Computer in Engineering Education" by Roger Broucke

"Home Text Editing" by Larry Tesler
"The New Microprocessor Low Cost Development Systems" by Phil Roybal.

The 1978 edition includes a biographical sketch of Alan Kay and:
"People's Capitalism: The Economics of the Robot Revolution" by James S. Albus "Communication Protocols for a Personal Computer Network" by Ron Crane "Bringing Computer Awareness to the Classroom" by Liza Loop
"An Introduction to Programming in PASCAL" by Chip Weems, and many more....


All of Volume 26, notably including Wilkes's two 1949 articles on EDSAC. [OOC 1021, 1023] The two critical articles include:


“Wilkes' s first paper on computer programming.” [OOC 1021]

Entire issue, subject article at pp. 217-220. “Wilkes's first paper on computer programming is notable for having been submitted for publication . . . three months before EDSAC was officially operating. It confirms that the
method of programming the machine had to be worked out while the machine was in development. 'A good deal has been written about the design and construction of high-speed automatic calculating machines, but little has been said about the detailed steps which are necessary to prepare a problem for the machine and to obtain a solution - a process which is usually referred to as "programming"' (p. 127). Wilkes made special reference to EDSAC's programming system, describing its library of subroutines, methods of instruction modification and loading." [OOC 1021]

A handsome copy of this scarce issue.


Entire volume in library binding with spine labels reading “High-Speed Computing Machine” and “Maurice Wilkes.” Subject article at pp. 265-287. The first published conference on electronic digital computers in England, 1948 [OOC 650] The conference was held on March 4, 1948. The Proceedings published the six papers:
3. Wilkes, “The Design of a Practical High-Speed Computing Machine, the EDSAC” [OOC 1018]
5. Wilkerson [Turing], “The Automatic Computing Engine at the National Physical Laboratory” [OOC 933]
6. Booth, “Recent Computer Projects” [OOC 490]


“The first textbook on computer programming.” [OOC 1030]

First edition, first printing, label of Scientific Computing Service Limited, London (the English distributors) tipped onto the title page. Mimeo errata sheet [often missing] tipped into rear endpapers. Wilkes was director of the Mathematical Laboratory of the Univ. of Cambridge and, with Wheeler and Gill, EDSAC at Cambridge.

“One of the most influential textbooks of this early era ... The form of constructing programs and how they should be linked together to form a load module, as described in this book, reappears many times for different computers being constructed in different countries. It provided the basic ideas as to how one should go about creating a computing system rather than simply providing a bit of hardware to be used only by a few specialists.” [Williams 1985, 337].

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