

NEW ACQUISITIONS: WOMEN IN SCIENCE JANUARY 2022



1. Arber, Agnes. Water Plants. A Study of Aquatic Angiosperms. With a Frontispiece and One Hundred and Seventy-One Text-Figures.

Cambridge: at the University Press, 1920.

Octavo. Original green cloth, titles and Art Nouveau floral design to upper board blocked in dark green. Frontispiece, 171 line drawings within the text. Contemporary ownership signature of N. W. Gilbert to the front pastedown, brown mark from a previous ownership sticker on the front free endpaper. A few small bumps, cloth a little rubbed at the extremities, some spotting to the edges of the text block slightly affecting the margins in some places, single spot to the title. A very good copy.

First edition, first impression of this attractive and well-illustrated volume.

Botanist and historian of science Agnes Arber (1879-1960) began her scientific career as a research assistant in the laboratory of Ethel Sargent, who greatly influenced her research style and became a life-long friend. She earned her first degree at University College London, which had admitted women students since 1878, and then completed a second at Newnham College, Cambridge, earning two Firsts in her Tripos examination, though women were still not considered full members of the student body and were not awarded degrees.

From Sargent and her other tutors she learned the new style of botany which "introduced an experimental approach to plant study, including plant morphology and physiology, rather than relying on the former systematic approach" (Ogilvie, *Biographical Dictionary of Women in Science*).

In 1903 Arber published her first paper and became a lecturer at University College London. She relinquished this position when she married a fellow botanist in 1909 but, rather than giving up her career, established a home laboratory and continued publishing. "Her major study, Monocotyledons: A Morphological Study (1925) was followed by a study of grasses and cereals (The Graminae)... Arber was made a fellow of the Linnean Society in 1908. She also began research in the history of herbals, publishing in 1912 her study of Renaissance and early modern herbals (later enlarged and republished), which became the classic in that field" (BDWS). She also wrote about Goethe's botany and Nehemiah Grew, and later in life published two volumes on the philosophy of science.



2. Fell, Honor B. A Discussion on the Pericellular Environment and its Regulation in Vertebrate Tissues. Philosophical Transactions of the Royal Society of London. B. Biological Sciences. Volume 271, Pages 233-410, Number 912. 17 July, 1975. London: The Royal Society, 1975.

Large octavo. Original light brown wrappers printed in black. 3 single and 9 double-sided plates from photomicrographs. Wrappers very lightly rubbed, narrow strip of fading at the top of the upper wrapper. Excellent condition.

First edition, first printing. The uncommon full issue of the journal containing fourteen papers read at a symposium on the intercellular environment in multicellular organisms, organised by prominent cell biologist Honor B. Fell (1900-1986). A very attractive and fresh copy in the original wrappers. As well as serving as the organiser of the symposium, Fell contributed the article, "The role of mucopolysaccharides in the protection of cartilage cells against the immune reaction".

Fell's childhood interest in animals and nature was encouraged by her parents, and she received what was at the time an unusually science-focused education. She earned four degrees at St. Andrews and the University of Edinburgh, and then went to Cambridge "to learn a new technique pioneered by T. S. P. Strangeways in his research hospital. Tissues culture was a relatively new art at this time, and he had developed it to the extent that he could study the behavior of living cells on a warm stage. Fell was impressed, and when Strangeways offered her a job as scientific assistant with a grant from the Medical Research Council, she accepted.

Her first major study was on chick embryos, examining their cartilage and bones. This work culminated in her first important paper from the Strangeways in 1925, a study of the histogenesis of bone and cartilage in the long bone of embryonic chicks. From this beginning, she used techniques of organ culture to analyze the actions of various agents upon the cells of bone, cartilage, and associated tissues. The preliminary study was continued, and in 1926 she and Strangeways demonstrated that cartilage would not only grow but would differentiate in culture" (Ogilvie, *Biographical Dictionary of Women in Science*, p. 440).

When Strangeways died in 1926 Fell was appointed director of the institute, a position she held for the next forty-one years, performing important research on vitamin A and rheumatoid arthritis, and producing research that led to the discovery of interleuken-1, an important agent of the immune system. Fell was made a fellow of the Royal Society and Dame Commander of the British Empire, and received honorary degrees from Harvard, Cambridge, and Smith College.

00715 **£,100**

COMPUTER SCIENTIST PHYLLIS FOX'S COPY

4. **(Fox, Phyllis) Milne-Thompson, L. M. The Calculus of Finite Differences.** London: Macmillan and Co., Limited, 1951.

Octavo. Original blue cloth, titles to spine gilt. With the dust jacket. Lower corner of upper board bumped, tips lightly rubbed, contents faintly toned. A very good copy in the price-clipped jacket with tanned spine panel and a few small chips and splits.

Second edition of this classic in applied mathematics, originally published in 1933. With the ownership signature of computer scientist Phyllis Fox and the date January 31, 1956, indicating that Fox purchased this volume while working on the numerical solution of partial differential equations for UNIVAC.

During the late 1940s Phyllis Fox (1923 -) earned undergraduate degrees in mathematics and electrical engineering and worked as an operator for GE's differential analyser. In 1949 she obtained her master's in electrical engineering at MIT, writing for her dissertation a program for the school's unfinished vacuum tube computer the Whirlwind I. Fox then earned her doctorate in mathematics at MIT, supervised by the prominent applied mathematician Chia-Chiao Lin (1916-2013).

As Fox explained to an interviewer from the Society for Industrial and Applied Mathematics in 2005, between 1954 and 1958 she worked at the Courant Institute, an Atomic Energy Commission-funded department of the City University of New York. "[Richard] Courant ran it, but Courant, Kurt O. Friedrichs, Levy, all these famous, really, applied mathematicians were there, and I got a job. As what, I don't know. But I wasn't really a fluid dynamicist. They had bought a computer, a Univac. Now, none of these applied mathematicians really wanted to bother with the machine, but a physicist named Bob Richtmyer who came out of AEC and Los Alamos was there. He was interested in doing computations on the Univac... At that time, the main problem thing they were looking for was controlled thermonuclear. Now this isn't the bomb. The controlled fusion, of course, is the source of all power, if you can make it work. Fine. Theoretically it was clean, and an infinite source of power, once you got it going. And the Russians were probably working on it, so it was very secret. But of course, the technique would apply also to Teller and his bomb. I wasn't in the abstract analysis part of the research, but I helped with the computer probably, and some of the analysis of the equations involved, because I had that experience from MIT."

After leaving CUNY, Fox worked on the DYNAMO programming language and the first LISP interpreter and manual, taught at the Newark College of Engineering, and consulted for Bell Labs until her retirement in 1984.

The author of the present volume, Louis Melville Milne-Thomson (1891-1974), was a professor at the Royal Naval College at Greenwich who made significant contributions to applied mathematics, including the Milne-Thomson circle theorem and the Milne-Thomson method for finding a holomorphic function. He was particularly concerned with "making mathematics accessible to the beginner or non-specialist" and in 1933 "published the first of several textbooks. *The Calculus of Finite Differences* was based on his own experience of making tables and, in its preface, he states that one motivation for writing it was the lack of other texts suitable for his students" (ODNB).

00704 **£,750**



STEPHEN HAWKING'S COPY

5. (Hawking, Stephen) Ferguson, Kitty. Measuring the Universe. The Historical Quest to Quantify Space.

London: Headline Book Publishing, 1999.

Duodecimo. Original dark blue pebble-grain boards, titles to spine in silver, pale yellow endpapers. With the dust jacket. 4 double-sided black and white plates. A few very minor creases to the lower corners of some pages in the middle of the the text block. An excellent copy in the fresh dust jacket.

First edition, first printing. Presentation copy inscribed from the author to Stephen Hawking on the title page, "To Stephen — with best wishes and thanks from Kitty" and with Hawking's posthumous bookplate from G. David Bookseller of Cambridge.

Kitty Ferguson is the best-selling author of nine popular books on the history of science, most focused on cosmology, physics, and the relationship between science, religion and philosophy. She interviewed Hawking for her children's book, *Black Holes in Spacetime* (1991), and the two developed a rapport, with Hawking later consulting her on his own book, *The Universe in a Nutshell* (2001). Ferguson has published a three-part biography of Hawking, with the first volume, *Stephen Hawking: Quest for a Theory of the Universe* appearing in 1991. It was followed by

two further volumes, one to mark his 70th birthday in 2012, and the final volume in 2019 following his death.

00705 **£,500**



6. Mann, Ida C. The Development of the Human Eye. With a Foreword by Sir John Herbert Parsons.

Cambridge: at the University Press, 1928.

Octavo. Original blue cloth, titles to spine gilt. 2 plates, numerous diagrams and illustrations from photos within the text. Spine rolled and a little faded, cloth rubbed at the extremities, upper corner bumped, lower hinge cracked, contents faintly toned. Very good condition.

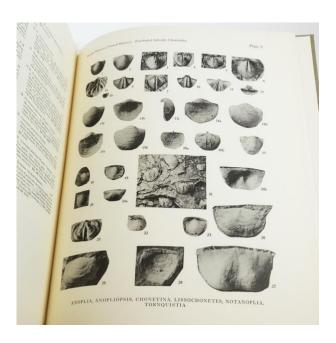
The rare first edition of this ground-breaking work on the embryology of the human eye. No copies are noted in auction records since 1980.

Dame Ida C. Mann (married name Gye, 1893-1983) entered the London School of Medicine for Women in 1914, and also undertook training at the Royal Free and St Mary's hospitals. During the period at St Mary's she assisted Professor J. E. S. Frazer in embryological research; her developmental studies were presented as a dissertation for the DSc (London, 1924), and formed the basis of her notable first textbook, *The Development of the Human Eye* (1928), still in print forty years later" (ODNB).

"After qualifying Mann decided to specialize in ophthalmology, and took her first post under Leslie Paton at St Mary's, becoming FRCS in 1924. She also held several teaching appointments while she progressed up the ladder towards consultant ophthalmologist status, reaching the highest point in 1927 with appointment as senior surgeon on the staff of Moorfields Eye Hospital, London, the first woman ever to do so. At the same time she established a Harley Street practice and consolidated herself as a leading clinical ophthalmologist in London, but still carried on her developmental studies and teaching (including the diploma course in Oxford). In this period up to the Second World War she learned and promoted the then new technique of slit-lamp microscopy of the eye, applying it both to patients and to animals in the London Zoo. She was also instrumental in bringing to London in 1938 Josef Dallos, the Hungarian pioneer of

glass contact lenses, just ahead of the Nazi take-over of Hungary, and with him she established the first contact lens centre in the United Kingdom. With the outbreak of war it became necessary to evacuate Moorfields. At the instigation of Sir Hugh Cairns Mann moved to Oxford in 1941 to undertake the clinical training of medical students diverted from London, and there she was appointed to Margaret Ogilvy's readership in ophthalmology, as well as a personal chair, the first woman ever to hold the title of professor in the University of Oxford, and a professorial fellowship in St Hugh's College. Despite this time-consuming work she still travelled to London to perform surgery, carried out important research on the ocular effects of war gases, and kept up a staggering number of other activities, including the vigorous reorganization of Oxford Eye Hospital. In this period she was the first to use penicillin to treat ocular infection." (ODNB).

Mann emigrated to Australia in 1949 and continued her medical and research career, travelling throughout Australasia and the Pacific to study eye diseases. "In recognition of Mann's many contributions to research, teaching, and clinical practice, she was appointed CBE (1950) and DBE (1980), as well as receiving honorary degrees, prizes, and medals from many countries (ODNB).



7. Muir-Wood, Helen. On the Morphology and Classification of the Brachiopod Suborder Chonetoidea. With Sixteen Plates and Twenty Four Figures in the Text. London: printed by order of the Trustees of the British Museum, May, 1962. Large octavo. Original grey cloth, titles to spine gilt, borders of boards blocked in blind. 16 plates from photographs, diagrams within the text. Faint ring mark to the upper board, a couple of small spots to the lower board. An excellent, fresh copy.

First edition of this culminating work by one of the world's leading experts on prehistoric brachiopods, a large phylum of marine bivalves valuable for their role in understanding and dating geological strata.

"Brachiopods are characteristic of shallow marine environments, and in some Palaeozoic rocks they are the main rock-forming component. Brachiopods are also particularly suitable for palaeoecological analyses. Influenced by such factors as water depth, salinity, oxygen levels and static lifestyle, the distribution patterns of fossil brachiopods provide a useful tool in deducing

the position of ancient shorelines and the past distribution of land and sea. Through the rapid evolution of some brachiopod lineages, they can be useful for understanding the relative ages of rock successions, and for correlation" ("Brachiopods: BSG Fossils and Geological Time", the British Geological Survey website).

Helen Muir-Wood (1896-1968) "spent her career at the British Museum of Natural History and became an authority on the fossil brachiopods of the British Isles, India, Malaysia, Iran, Iraq, Israel, Jordon, and Somalia... She pioneered the classification of Mesozoic forms on their internal structure and wrote a history of the study of these fossils. However, even though she was the recognized expert on the phylum Brachiopoda, she never attempted a synthetic work that would trace its evolution from the simplest shell-bearing phase to its state of near extinction today. She was an extremely careful scholar who refused to generalize when she was not sure that the evidence was totally certain—both a strength and a weakness. Muir-Wood was awarded the Lyell Fund by the Geological Society of London in 1930 and Lyell Medal in 1958 for her contributions to the study of Brachiopoda. When she retired from the Museum of Natural History, she was awarded the Order of the British Empire in recognition of her services to that great institution" (Ogilvie, Biographical Dictionary of Women in Science, p. 923).



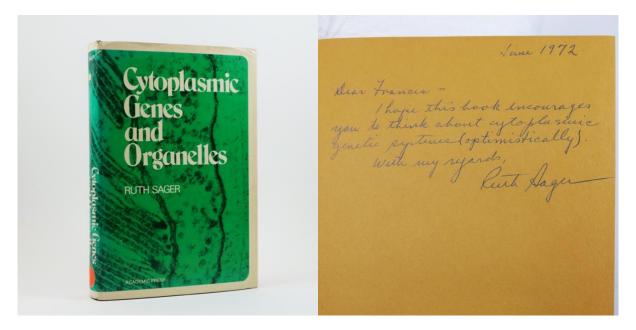
8. Pickford, Grace E. "Studies on the Digestive Enzymes of Spiders" [published in] Transactions of the Connecticut Academy of Arts and Sciences. Volume 35, December 1942, Pages 33-72.

New Haven, CT: Connecticut Academy of Arts and Sciences, Yale University Press, 1942. Octavo. Original grey wrappers printed in black. Contents unopened. Two mild, vertical creases to the upper wrapper, just a little faint toning along the edges of the wrappers. Excellent condition.

First edition, first printing. An uncommon offprint by noted endocrinologist Grace E. Pickford (1902-1986). An attractive and fresh copy, the contents unopened.

Pickford was educated at Cambridge and Yale, and taught at Albertus Magnus College, Yale, and Hiram College. Taking advantage of the Yale Peabody Museum's extensive natural history collections, she became an authority on cephalopod systematics and in 1951 joined the Galathea deep-sea expedition to study rare octopods in the Indo-Malayan region. During the 1940s she

began researching the killifish, and it became the organism "on which she established her outstanding work on fish endocrinology. She became interested in the growth rings on fish scales, and the examined effects of the newly developed growth hormone upon the endocrine system of the fish. In the process, she developed a number of techniques adapted from paediatric research and her earlier work on invertebrates. Pickford published a seminal monograph, The Physiology of the Pituitary Gland of Fishes (1957), which soon became the bible for scientists working on the endocrinology of lower vertebrates" (Ogilvie, *Biographical Dictionary of Women in Science*, p. 1021)).



INSCRIBED TO FRANCIS CRICK

9. Sager, Ruth. Cytoplasmic Genes and Organelles.

New York & London: Academic Press, 1972.

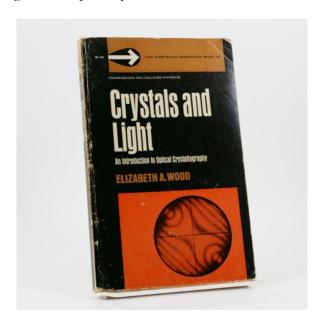
Octavo. Original green cloth, titles to spine gilt, publisher's device to upper board in blind, yellow endpapers. With the dust jacket. 8 double-sided plates from photomicrographs, diagrams and illustrations from photos throughout the text. Library card pocket on the front pastedown. Corners bumped, margins faintly toned. A very good copy in the rubbed and toned jacket with some ceasing and small chips at the edges.

First edition, first printing of this foundational work. Presentation copy inscribed by the author to Francis Crick, "Dear Francis - I hope this book encourages you to think about cytoplasmic genetic systems (optimistically). With my regards, Ruth Sager".

Ruth Sager (1918-1997) obtained her PhD under Barbara McClintock at Columbia and went on to become "renowned for her work on nonchromosomal genetics and cancer genetics" (Ogilvie, *Biographical Dictionary of Women in Science*, p. 1144). When she began this research in the 1950s, "the prevailing view stated that in eukaryotes (cells containing structures such as nuclei), the genes occur only in the nucleus on the chromosomes. While she was at the Rockefeller Institute, Sager began to suspect the existence of genetic material outside the nucleus" (Ogilvie). Using the Chlamydomonas genus of algae as her model organism, Sager carried out classical genetic experiments that allowed her map the nonchromosomal genes and show that they were especially stable. "She suggested that they represent a second genetic system that provide the organism with stability, and perhaps represented the existence of an earlier genetic system that existed before the chromosomes" (Ogilvie).

Sager also began to suspect that "an increasing number of human diseases resulted from mutations in genes in respiratory organelles, and turned her attention to human genetics, especially the genetics of cancer", becoming one of the first scientists to study the role of mutations in suppressor genes as a primary cause of tumours.

00718 £650



10. Wood, Elizabeth A. Crystals and Light. An Introduction to Optical Crystallography. Published for the Commission on College Physics.

Princeton, NJ: Van Nostrand Company, Inc., 1964.

Sextadecimo. Original wrappers in black and white with brown and orange highlights. 4 double-page colour plates. One blank leaf on which a piece of Polaroid film was previously taped as issued, but which is now lacking. Diagrams within the text. Ownership signature in turquoise ink to the half title. Wrappers rubbed and creased with a few small spots and marks, some spotting and tanning to the insides of the wrappers. Contents just a little toned. Very good condition.

First edition, first printing of this introduction to crystallography by the first female scientist at Bell Labs.

Elizabeth Wood (1912-2006) was educated at Bryn Mawr, where she became an instructor in geology. Following teaching stints at Barnard and Columbia she joined Bell Labs in 1942 and remained there for the next twenty-four years. Wood's interests "ranged from the growth of single crystals with useful semiconducting, lasing, magnetic or superconducting properties to the crystallographic investigation of new materials with unusual properties such as the exhibition of both ferromagnetism and piezoelectricity. She also worked on material phases that could be changed by the application of appropriately oriented electric fields and on the formation of new superconductors" (International Union of Crystallographers obituary).

Wood was a highly respected scientist, whose advice was often sought by colleagues. She was also a talented science writer, publishing books for both popular and professional audiences. "Her reputation for clearly written texts spread as a result of her *Rewarding Careers for Women in Physics* (1962) and *Pressing Needs in School Sciences* (1969) published by the American Institute of Physics (AIP) in 1962. It became wider still with the publication of her *Crystal Orientation Manual* in 1963, which expounded the art and science of preparing shaped pieces of large accurately oriented single crystals for technicians... Five years later, her *Science for the Airplane Passenger* was published and proved very successful, appearing for many years in airport bookstores

throughout the US and other countries. Her deep interest in improving the scientific understanding of the general public was recognized by the ACA's establishment of an Elizabeth A. Wood Science Writing Award" (International Union of Crystallographers obituary).

00713 **£20**