Cover

The compound microscope—that is, a microscope with an objective lens and an eyepiece—was invented in Holland about 400 years ago. Because this type of microscope has played such a central role in biology during the past 100 years, particularly in cell biology, one assumes it has been the mainstay of biologists from the earliest days. It is true that the first important microscopist, Robert Hooke, used a compound instrument for the observations he published in 1665, including the famous piece of cork (see covers for January 1992 and January 1993). However, most of the plates in Hooke's *Micrographia* depict objects at low magnification, less than about 50x. It was not the high magnification (by our standards) that won Hooke such instant acclaim, but the novelty of his observations, the depth of his interpretations, and above all the artistry of his finely engraved plates. When microscopists after Hooke experimented with ways to obtain higher magnifications, they soon learned (by experience, not theory) that a single small lens held close to the eye could magnify up to 200–300x and, more importantly, gave a clearer image than the same lens used as the objective in a compound microscope. Leeuwenhoek appreciated this fact at the end of the 17th century, as did most microscopists throughout the 18th century. Thus the single lens or simple microscope became the instrument of choice, the one with which most biological discoveries were made until well into the 19th century. As late as 1830 Robert Brown was still using a simple microscope when he discovered the cell nucleus and the incessant jiggling of microscopic particles we now know as "Brownian motion." Much confusion arises from equating simple in simple microscope with crude or imperfect; the distinction is between *simple*, having a single lens (which can be of very high quality), and *compound*, having two or more lenses. The cover shows two views of a typical 18th century simple microscope of the sort known as Wilson's screw-barrel microscope, in reference to its mode of construction and to the English manufacturer who popularized it. The lenses are shown separately in the upper half of the plate, numbered from 5 to 00 in decreasing size, and hence increasing magnification. Each lens had its own mount (b in the top figure, q in the lower) which, because of the short focal length, had to be placed very close to the specimen. Several specimens were mounted on a slider; once the desired specimen was in place, focusing was accomplished with a large screw that worked against a metal spring to move the specimen relative to the fixed lens. This illustration is from a book published in 1761–2 by M. F. Ledermüller entitled, * Mikroskopische Gemüths- und Augen-Ergützung* (Microscopical Delight for the Mind and Eye), which contained 150 hand-colored plates showing all manner of plant, animal, and inorganic objects seen through a simple microscope. Ledermüller also wrote a well-known treatise on sperm under the title *Physicalische Beobachtungen derer Saamenthiereins* (Physical Observations on Sperm Organisms). Further information on simple microscopes and their importance in early biological investigations can be found in Brian J. Ford's *Single Lens, the Story of the Simple Microscope* (Harper and Row, 1985).
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*Molecular Biology of the Cell*, the journal owned and published by the American Society for Cell Biology, will publish papers that describe and interpret results of original research concerning the molecular aspects of cell structure and function. Studies whose scope bridges several areas of biology are particularly encouraged, for example cell biology and genetics. The aim of the Journal is to publish papers describing substantial research progress in full: papers should include all previously unpublished data and methods essential to support the conclusions drawn. The Journal will not, in general, publish papers that are merely confirmatory, preliminary reports of partially completed or incompletely documented research, findings of as yet uncertain significance, or reports simply documenting well known processes in organisms or cell types not previously studied. Methodological studies will be considered only when some new result of biological significance has been achieved with the method.

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Manuscripts should be written in concise, logical, and grammatically correct English. The manuscript should be organized into Abstract, Introduction, Methods, Results, Discussion, Acknowledgments, References, Tables, and Figure Legends. Every effort should be made to be brief, short of skipping essential data or methods. The Title Page should include the authors’ full names and affiliations, a running title of less than 40 characters, and the phone and FAX numbers of the corresponding author. Each of the sections of a paper serves a different purpose. Therefore there is no reason to repeat in one section material described in another.

The Abstract should be short, no more than 200 words. The Introduction should summarize very briefly the background of the research to be reported, and should elaborate any theoretical background to the design of the experiments; it should not summarize the data. The Materials and Methods is an important part of a full paper. This section should contain the experimental protocols and describe the origin of any unusual or special materials, tissue, cell lines or organisms; genotypes should here be given in full. It is appropriate in this section to provide data to support the identity or purity of reagents (e.g. specificity of an antibody preparation), the reliability of methods (e.g. linearity of an assay), the sensitivity of an instrument, or the essential features of a genotype. Authors should seek to put most of the experimental detail into the Materials and Methods section, leaving the Results section for exposition of the experimental design and results.

The Results section should present, in a logical order, the experiments that support the conclusions to be drawn later in the Discussion. Particular care should be taken in the Results section to state results exactly; this is not the place for interpretations, extended lines of inference, arguments or speculations. The Discussion section, in contrast, is intended to allow the authors to propose their interpretation of their results, and to suggest what they might mean in a larger context. The view of the Editorial Board is that the Results section should conform to a high standard of rigor, but that an imaginative Discussion is the prerogative of the authors. The Results and Discussion sections may be subdivided further if subheadings give the manuscript more clarity.

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Authors must prepare all figures to the following specifications. *MBC* will notify authors of substandard figures at the time of the initial disposition of the manuscript, so that all figures can be brought up to standard by the authors before final acceptance of a paper.

Figures should be cited in numerical order in the text. Type legends double-spaced and consecutively on a separate sheet. Each legend should include a general figure title followed by explanation of specific parts. Arabic numerals should be used for figures and upper case letters for multiple parts of a single figure (e.g., Figures 1A and 2B).

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Papers submitted to MBC should be fully documented, original research papers. All data and methods essential to the conclusions should be provided. The reviewers will be specifically requested to certify that the central conclusions of each paper do not depend on unpublished work, data not shown, or preliminary
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The American Society for Cell Biology
Thirty-third Annual Meeting
New Orleans, Louisiana
Saturday, December 11 - Wednesday, December 15, 1993

Symposia Topics & Speakers

Symposium I: The Cell Biology of AIDS
Chair: Anthony S. Fauci, National Institute of Allergy & Infectious Diseases, NIH, Bethesda, MD
Speakers: Anthony S. Fauci, National Institute of Allergy & Infectious Diseases, NIH, Bethesda, MD
Flossie Wong-Staal, University of California, San Diego, CA
Ronald Desrosiers, Harvard Medical School, New England Regional Primate Research Center, Southborough, MA

Symposium II: Eukaryotic DNA Replication
Chair: Susan A. Gerbi, Brown University, Providence, RI
Speakers: Susan A. Gerbi, Brown University, Providence, RI
Bonita Brewer, University of Washington, Seattle, WA
Bruce Stillman, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY

Symposium III: Cellular Shape and Movement
Chair: James Spudich, Stanford University, Stanford, CA
Speakers: Elizabeth Luna, Worcester Foundation for Experimental Biology, Shrewsbury, MA
Lynn Cooley, Yale University School of Medicine, New Haven, CT
Bruce Patterson, Stanford University, Stanford, CA

Symposium IV: Probing Nuclear Organization: Structural, Genetic, and Cytological Approaches
Chair: Virginia Zakian, Fred Hutchinson Cancer Research Center, Seattle, WA
Speakers: Virginia Zakian, Fred Hutchinson Cancer Research Center, Seattle, WA
Jeanne Lawrence, University of Massachusetts, Worcester, MA
Thomas Stieitz, Yale University, New Haven, CT

Symposium V: Cell Biology of the Extracellular Matrix
Chair: Mina Bissell, Lawrence Berkeley Laboratory, Berkeley, CA
Speakers: Mina Bissell, Lawrence Berkeley Laboratory, Berkeley, CA
Lynn Sakai, Shriners Hospital, Portland, OR
Keith Roberts, John Innes Institute, Norwich, UK

Symposium VI: Cell Determination in Development
Chair: Douglas Melton, Harvard University, Cambridge, MA
Speakers: Douglas Melton, Harvard University, Cambridge, MA
Tom Jessell, Howard Hughes Medical Institute, Columbia University College of Physicians & Surgeons, New York, NY
Sarah Hake, Plant Gene Expression Center, University of California, Berkeley, Albany, CA

Symposium VII: Structure and Function in Transmembrane Complexes
Chair: Kenneth Miller, Brown University, Providence, RI
Speakers: Lily Y. Jan, University of California, San Francisco, CA
David Stokes, University of Virginia Health Sciences Center, Charlottesville, VA
Ron Milligan, The Scripps Research Institute, La Jolla, CA

Symposium VIII: Mitosis: Structures and Regulation
Chair: William Earnshaw, Johns Hopkins University Medical School, Baltimore, MD
Speakers: William Earnshaw, Johns Hopkins University School of Medicine, Baltimore, MD
John Carbon, University of California, Santa Barbara, CA
Andrew Murray, University of California, San Francisco, CA

Symposium IX: Intracellular Targeting
Chair: Ruth Lehmann, The Whitehead Institute for Biomedical Research, MIT, Cambridge, MA
Speakers: Ruth Lehmann, The Whitehead Institute for Biomedical Research, MIT, Cambridge, MA
Kenneth Keegstra, Michigan State University, East Lansing, MI
Larry Gerace, The Scripps Research Institute, La Jolla, CA

Important Dates

Preregistration
October 8

Hot Papers Submission
November 1

Placement Preregistration
November 1

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Molecular Biology of the Cell

Volume 4 Issue 9 September 1993

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