MARIA GOEPPERT-MAYER  1906-1972

• Worked in unofficial positions or volunteer positions at universities where her husband was a professor (Johns Hopkins 1931-39 and Columbia 1940-46) because she was unable to obtain a position herself

• Nobel Laureate in physics in 1963 for proposing the nuclear shell model of the atomic nucleus

• Worked out the theory of possible two-photon absorption by atoms which wasn’t proved experimentally until the development of lasers in the 1960s

• Mother of Maria Ann Wentzel and Peter Conrad
SARAH ANN HACKETT STEVENSON 1841-1909

• First female member of the American Medical Association in 1876

• Together with Lucy Flowers founded the Illinois Training School for Nurses

• Published *Boys and Girls in Biology* in 1874 and *The Physiology of Women* in 1880

• Appointed to the Illinois Board of Health in 1893, becoming the first woman to hold that position
Marie Curie 1867-1934

• First woman to earn a PhD in Europe

• Discovered plutonium and radium and coined the term “radioactivity”

• Nobel Laureate in Physics in 1903 and Chemistry in 1911

• Mother of two daughters, Irene and Eve
“You cannot hope to build a better world without improving the individuals. To that end each of us must work for his own improvement, and at the same time share a general responsibility for all humanity, our particular duty being to aid those to whom we think we can be most useful.”

- Marie Curie
ROSALIND FRANKLIN 1920-1958

- Decided to become a chemist at age 15 and attended college against the wishes of her family

- Research in gas-phase chromatography and X-ray crystallography

- Played a key and, until recently, unrecognized role in discovering the double helical structure of DNA
BARBARA McCCLINTOCK 1902-1992

• Leader in the development of maize cytogenetics during her PhD in botany at Cornell

• Elected as a member of the National Academy of Sciences in 1944

• Nobel Laureate in 1983 in Physiology or Medicine for the discovery of genetic transposition
“Women are the only oppressed group in our society that lives in intimate association with their oppressors.”

- Evelyn Cunningham
Elizabeth Blackwell was the first woman to graduate from medical school (first in her class in January, 1849) and a pioneer in educating women in medicine.

- Wanted to meet the needs of women who would prefer to consult with a woman about health problems.

- She said later, "The idea of winning a doctor's degree gradually assumed the aspect of a great moral struggle, and the moral fight possessed immense attraction for me."

- Mother to an adopted daughter Katherine
GERTRUDE B. ELION 1918-1999

• American biochemist and pharmacologist who received the Nobel Prize in Physiology or Medicine 1988.

• She is attributed with the discovery many drugs, the most significant one being the AIDS drug, AZT.

• She received the National Medal of Science in 1991 and the Lemelson-MIT Lifetime Achievement Award in 1997.

• She was inducted to the National Inventors Hall of Fame and was the first woman to receive this honor.

• 1983, Elion retired and became an advisor to the World Health Organization and the American Association for Cancer Research.
“You don't have to be anti-man to be pro-woman.”

-Jane Galvin Lewis
"Oxford Housewife wins Nobel" was the headline run by the Daily Mail when Dorothy Hodgkin won the Nobel prize for chemistry in 1964. The "housewife" was in fact one of the most outstanding scientists of the 20th Century.

She analyzed the molecular structure of complex chemicals including antibiotics (penicillin and cephalosporin C), cholesterol, vitamins (D and B12 used to treat anemia) and hormones.

The technique she used involves passing X-rays through crystals, which produces diffraction patterns on film from which the 3D structures can be deduced. It requires intuition, creativity and endless patience.

DOROTHY HODGKIN 1910-1994

Mother of 3 children, Luke, Elizabeth, and Toby
British Geneticist who made a notable contribution to the science and ethics of fertility treatment

Anne McLaren made fundamental advances in genetics which paved the way for the development of in vitro fertilization (IVF).

Working with John Biggers, she produced the first litter of mice grown from eggs that had developed in tissue culture and then been transferred to a surrogate mother, paving the way for embryo transfer in human IVF.

Mother of three children, Susan, Jonathan, and Caroline
“The history of all times, and of today especially, teaches that ... women will be forgotten if they forget to think about themselves.”

- Louise Otto
Florence Sabin

• One of fourteen women to enter Johns Hopkins Medical School in 1896

• Became the first woman faculty member at Johns Hopkins School of Medicine teaching embryology and histology in the department of Anatomy

• Studied the origins of the lymphatic system, blood vessels, and blood cells

• First woman elected president of the Association of American Anatomists

• First woman elected to membership in the National Academy of Sciences

• First woman full professor at Rockefeller Institute where she studied tuberculosis
MAXINE SINGER 1931-

• President of the Carnegie Institute of Washington from 1988-2002 where she championed women in science and improvements in science education

• Made important contributions to deciphering the genetic code and our understanding of DNA and RNA

• Organized the landmark 1975 Asilomar conference at which scientists agreed on restrictions to recombinant DNA research
“Remember, Ginger Rogers did everything Fred Astaire did, but she did it backwards and in high heels.”

- Faith Whittlesey
SARAH McNUTT

• Graduated from the Women’s Medical College of the New York Infirmary in 1877, and became a pediatrician, gynecologist, and pathologist

• Worked to improve educational opportunities for women by developing postgraduate education for nurses

• Instrumental in founding the New York Postgraduate Medical School and Hospital for male and female physicians

• The first woman to be elected into the American Neurologic Association (ANA) -1884
SALLY K. RIDE 1951- 

• 1983 - First woman in space on the shuttle Challenger (STS-7)

• 1986 - Created NASA’s “Office of Exploration” reporting on leadership and America’s Future in Space.

• 1989 – Director of the California Space Institute and Professor of Physics at University of California at SanDiego.

• Founded, “Sally ride Science” to provide support for all middle school girls who are interested in science, math and technology.

• 2003 – inducted into the Astronaut Hall of Fame at Kennedy Space Center
“I was taught that the way of progress is neither swift nor easy.”

-Marie Curie
**CAROL GREIDER** 1961-

- Co-discoverer of the enzyme telomerase and pioneer in the study of telomeres, structures at the ends of chromosomes

- Held a faculty position at Cold Spring Harbor Laboratory

- Director of the Molecular Biology and Genetics department at Johns Hopkins School of Medicine

- Recipient of the Lasker Award in 2006

- Nobel laureate in 2009 in Physiology or Medicine, together with Elizabeth Blackburn

- Mother of two children, Charles and Gwendolyn
Virginia Apgar
1909-1974

• Established the Apgar Score, a simple, rapid method for assessing newborn viability

• Leader in the emerging fields of anesthesiology (1940’s) and teratology, or the study of birth defects (1960’s)

• Became chief of the division of congenital malformations at the March of Dimes Foundation after obtaining a MPH from Johns Hopkins School of Public Health

• Worked to advance public understanding of the causes of birth defects
“I have frequently been questioned, especially by women, of how I could reconcile family life with a scientific career. Well, it has not been easy.”

- Marie Curie
RANICE CROSBY
1915-2007

• Became the first woman to head a department at the Johns Hopkins School of Medicine in 1943

• Served as head of the department of Art as Applied to Medicine for 40 years

• Founding member of the Association of Medical Illustrators

• Worked for the establishment and recognition of accredited graduate programs in medical illustration

Blood Flow in the Placenta
MAUD MENTEN
1879-1960

• Among the first women in Canada to earn a medical doctorate

• Completed her thesis work at the University of Chicago because women were not allowed to do research in Canada

• Worked on enzyme kinetics with Leonor Michaelis and developed the Michaelis-Menten equations which describe the relationship between enzymes and their substrates in biological systems

• Assistant and then full professor at the University of Pittsburgh

• Accomplished painter
GERTY CORI
1896-1957

• One of only a few female students to study medicine at the German Charles-Ferdinand University in Prague in 1914

• Studied how energy is produced and transmitted in the body with her husband Carl Cori

• Shared the Nobel Prize with her husband in 1947 for the discovery of how glycogen is broken down and resynthesized in the body as a store of energy

• Mother of one son, Carl (now CEO of Sigma-Aldrich)
Because I am a woman, I must make unusual efforts to succeed. If I fail, no one will say, "She doesn't have what it takes." They will say, "Women don't have what it takes."

- Clare Boothe Luce
RITA LEVI-MONTALCINI 1909-

• Decided to go to medical school despite the objections of her father after seeing a close family friend die of cancer

• Conducted experiments from a home laboratory during WWII, studying the growth of nerve fibers in chicken embryos

• Directed the Research Center of Neurobiology in Rome (1960-69) and the Laboratory of Cellular Biology (1969-1978)

• Nobel Laureate in 1986 in Physiology or Medicine for the discovery of Nerve Growth Factor (NGF)
MARY LASKER  
1900-1994

• Called “a matchmaker between science and society” Lasker advocated for basic science research in the US after WWII

• As a lobbyist and fundraiser, pushed for the expansion of the National Institutes of Health (NIH)

• Together with her husband, created the Lasker Foundation which gives prestigious awards for basic and clinical research and for medical journalism

• Served as director, chairman, or trustee of the American Cancer Society, the United Cerebral Palsy Research and Education Foundation, and The National Committee for Mental Hygiene
ADA LOVELACE 1815-1852

- regarded as the world’s first computer programmer
- renowned for her work with Charles Babbage on his analytical engine
- Babbage called her “the Enchantress of Numbers”
- daughter of the famous poet Lord Byron
Maria Mitchell 1818-1889

- first American woman to be a professional astronomer
- discovered the comet C/1847-T1
- first woman member of American Academy of Arts and Sciences and American Association for the Advancement of Science
- “We have a hunger of the mind. We ask for all of the knowledge around us and the more we get, the more we desire.” --Maria Mitchell
LISE MEITNER 1878-1968

- one of the discoverers of nuclear fission
- second woman to earn a doctorate in physics from the University of Vienna
- her omission from the 1944 Nobel Prize in Physics is thought to be one of the most glaring examples of downplaying women’s achievements in science
- element 109, meitnerium, is named for her
“Whatever women do they must do twice as well as men to be thought half as good. Luckily, this is not difficult.”

-Charlotte Whitton
GRACE MURRAY HOPPER 1906-1992

• Rear Admiral, US Navy
• earned a Ph.D. in mathematics from Yale
• went on to be a computer science pioneer, working on early computers such as the UNIVAC and helping to develop the COBOL language
• after a trapped moth interfered with one of her computers, coined the term “debugging”
AGNES POCKELS 1865-1932

• pioneer in surface chemistry
• prohibited from universities, she had her brother obtain scientific literature for her
• developed the Pockels trough to measure surface tension
• despite never having a formal scientific appointment and performing experiments in her kitchen, managed to publish in Nature