This guide to non-technical English-language materials is not meant to be a comprehensive or scholarly introduction to the complex topic of the role of women in astronomy. It is simply a resource for educators and students who wish to begin exploring the challenges and triumphs of women of the past and present. It’s also an opportunity to get to know the lives and work of some of the key women who have overcome prejudice and exclusion to make significant contributions to our field. We only include a representative selection of living women astronomers about whom non-technical material at the level of beginning astronomy students is easily available. Lack of inclusion in this introductory list is not meant to suggest any less importance. We also don’t include Wikipedia articles, although those are sometimes a good place for students to begin. Suggestions for additional non-technical listings are most welcome.

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1. Written Resources on the History of Women in Astronomy


Focuses on the work of Annie Cannon, Antonia Maury, and Wilhelmina Fleming in classifying and understanding stars.


James, C. “Edward and Mina” in Astronomy, July 2002, p. 46. Despite the title, this treats several women who worked at the Harvard Observatory.


McKenna-Lawlor, Susan Whatever Shines Should be Observed. 2003, Springer. The story of five 19th century women who made contributions to astronomy and science; too bad the price from the publisher is inappropriately high for a popular book.


Sobel, Dava The Glass Universe. 2016, Viking. Rich, deeply researched, marvelous book on the women who worked at Harvard at the start of the 20th century and changed the way we understood the stars.


2. Written Resources on Issues Facing Women


STATUS is the magazine of the Committee on the Status of Women of the American Astronomical Society (it is a treasure trove of materials, issues, personal stories): https://cswa.aas.org/STATUS.html

### 3. Web Resources on the History of Women in Astronomy

A far more comprehensive and scholarly bibliography, organized by last name, of written articles on women in astronomy. Ruth Freitag’s work was the early inspiration for the resource guide you are reading.

4000 Years of Women in Science: http://4kyws.ua.edu/
Maintained by two women astronomers, this site includes brief information on women from many fields of science, not just astronomy. For 20th century women scientists, see: http://4kyws.ua.edu/20th.century/20th.shtml

The Woman Astronomer: http://www.womanastro.com/
Debra Davis, a Colorado amateur astronomer, keeps this site and newsletter devoted to both amateurs and professionals.

Women at NASA: http://women.nasa.gov/
Profiles of women who work for the US Space Agency, including a number of astronomers and astrophysicists. The profiles include personal statements that can be quite moving and inspiring.

Jocelyn Bell Burnell (Oxford): “A Celebration of Women in Astronomy” (a talk in 2012 in Edinburgh; we only hear the audio, there is no video, but it is a fascinating public talk with profiles of specific women, including Caroline Herschel and Vera Rubin, and discussions of trends): http://www.youtube.com/watch?v=_50PyimUE5s

Emily Rice (City University of New York) gives a talk on contributions of women to astronomy (with many historical and contemporary examples and an analysis of modern trends): http://www.youtube.com/watch?v=5vMR7su4fi8

Beverly J. Smith (East Tennessee State U.) gives a powerpoint presentation on the history of women in astronomy and current statistics about their participation: https://www.youtube.com/watch?v=yAgCSUwEE

Video of a 2017 talk by Mia Bovill on “The Harvard Computers and the Classification of the Stars”: https://www.youtube.com/watch?v=dhF2bOrKWks (the talk starts at 16 min 30 sec into the video)

### 4. Web Resources on Issues Facing Women

American Astronomical Society Committee on the Status of Women: https://cswa.aas.org/
A rich site with back issues of the valuable “Status” newsletter, a database of living women astronomers, legal resources, conference proceedings, and discussion of issues related to the role of professional women in the field. For good resources from other fields they recommend, see: https://cswa.aas.org/resources.html

Seager, Sara “So Many Exoplanets, So Few Women Scientists” blog post at: https://www.huffpost.com/entry/women-in-science_b_2471980


Women at Work: A Meeting on the Status of Women in Astronomy:
http://www.stsci.edu/institute/conference/wia/
Proceedings of a pioneering 1992 meeting with useful local and national perspectives.

Women in Planetary Science: http://womeninplanetaryscience.wordpress.com/profiles/ (Profiles of more than 50 women active in studying the solar system, and a discussion of issues they face)
Women in Astronomy Blog (from the American Astronomical Society):
   http://womenninastronomy.blogspot.com/

Finkbeiner, Ann “Good Morning, Gentlemen and Meg: Astronomy, A Woman’s Choice” (an article
   compiling personal history and suggestions from interviews of 15 noted women astronomers):
   https://cswa.aas.org/status/2001/JANUARY2001/Finkbeiner.html

The Baltimore Charter (spelling out what can be done to help improve the status and working conditions
   of women in astronomy):
   https://cswa.aas.org/bc.html

Why So Few? Women in Science, Technology, Engineering, and Mathematics (2010 research report from
   the Association of University Women discusses key research findings on factors that block women’s
   participation and progress in science):

Women in Astronomy 2009 (a 3-minute video, made in conjunction with the 2009 meeting about women
   in astronomy. Concise framing of issues through interviews with leaders such as Vera Rubin, Meg
   Urry, and Dara Norman):
   http://www.youtube.com/watch?v=1QyMB0qagZs

Jocelyn Bell Burnell TED talk on “Reflections on Women in Science: Diversity and Discomfort” (a 15-
   minute talk with some of her personal history and statistics about women in astronomy):
   http://www.youtube.com/watch?v=jp7amRdr30Y

Meg Urry colloquium on “Women in Science: Why So Few?” (an hour-long illustrated talk on statistics
   and issues, not specifically about astronomy, but with many eye-opening ideas):
   http://vimeo.com/35730552

5. Material on Some Specific Women Astronomers of the Past

Cannon, Annie (1863-1941)

   has a chapter on Cannon.

Bok, Priscilla "Annie Jump Cannon 1863-1941" in Publications of the Astronomical Society of the Pacific,
   June 1941, vol. 53, p. 168. (Available on the Web at:
   http://adsabs.harvard.edu/abs/1941PASP...53..168B )

   teen readers is devoted to Canon’s life and work.

Emberlin, D. Science: Contributions of Women. 1977, Dillon Press. Includes a section on Cannon, pp. 7-27.

Greenstein, George "The Ladies of Observatory Hill" in American Scholar, Feb. 1993, p. 437. (Reprinted in


   (1942).

Sobel, Dava The Glass Universe. 2016, Viking. Includes a considerable amount of material on Cannon and
   her mentoring of other women.

Web Sites:
   Brief biography at ScienceWomen Site: http://www.sdsc.edu/ScienceWomen/cannon.html
   Annie Cannon pages at Wellesley College: http://academics.wellesley.edu/Astronomy/Annie/
   Part of a student project, but with good local historical information.
   Article on MacTutor: http://www-history.mcs.st-andrews.ac.uk/Biographies/Cannon.html
   Aceves, Ana: Annie Jump Cannon, Star Classifier (a short post on the Sky &Telescope website, 2016:
      http://www.skyandtelescope.com/astronomy-resources/annie-jump-cannon-star-classifier/
Obituary by H. A. Bruck in *The Observatory*, Vol. 64, p. 113-115 (1941):  
http://adsabs.harvard.edu/abs/1941Obs....64..113B (click on “full printable article PDF”)  
Information on video about Cannon’s life and work:  
http://cfa-www.harvard.edu/~alexg/ajc.html

Clerke, Agnes (1842-1907)

http://adsabs.harvard.edu/full/1994QJRAS..35...59B  
Bruck, Mary “Agnes Mary Clerke: Ever Popular Historian of Astronomy” in *Antiquarian Astronomer*, 2004, iss. #1, p. 3. On the web at:  
http://adsabs.harvard.edu/full/2004AntAs...1....3B  
Cliver, Edward “Agnes Mary Clerke: Real Time Historian of Astronomy” in *Astronomy & Geophysics (the magazine of the Royal Astronomical Society)*, June 2007, vol. 48, p. 3.25. (On the web at:  
McKenna-Lawlor, Susan *Whatever Shines Should be Observed*. 2003, Springer. The story of five 19th century women who made contributions to astronomy and science, including Clerke.  
https://academic.oup.com/astrogeo/article/57/3/3.16/1741860  

Web Sites:  
Brief biography from the Catholic Encyclopedia:  
http://www.newadvent.org/cathen/04051b.htm  
Biography at the History of Mathematics website:  
http://www-history.mcs.st-andrews.ac.uk/Biographies/Clerke.html  
1907 Obituary from the *Astrophysical Journal* by Margaret Huggins:  
http://adsabs.harvard.edu/abs/1907ApJ....25..226H (click on full article)  
Brief 1907 obituary in the *Times* of London:  
http://en.wikisource.org/wiki/The_Times/1907/Obituary/Agnes_Mary_Clerke  
Debakcsy, Dale: Agnes Mary Clerke: At the Nerve Center of 19th Century Astrophysics” at:  
http://womenyousshouldknow.net/agnes-mary-clerke-nerve-center-19th-century-astrophysics/

Fleming, Williamina (1857-1911)

https://harvardmagazine.com/2017/01/williamina-fleming  
Sobel, Dava The Glass Universe. 2016, Viking. Includes a considerable amount of material on Fleming’s life and work.

Web Sites:
Brief biography at Woman Astronomer site: http://www.womanastronomer.com/wfleming.htm
Short biographical article at the New England Historical Society:
http://www.newenglandhistoricalsociety.com/williamina-fleming-boston-maid-discovered-stars/
Fleming, Wilhelmina: Obituary (1911) by Annie Cannon from the Astrophysical Journal:
http://adsabs.harvard.edu/abs/1911ApJ....34..314C  (click on the PDF box at the end to see the article itself)
Her page at Project Continua: http://www.projectcontinua.org/williamina-paton-fleming/

Herschel, Caroline (1750-1848)

Alic, Margaret Hypatia’s Heritage: A History of Women in Science. 1986, Beacon Press. Chapter 9 has a good section on Herschel’s work.
Gould, Paula “Two Good Women, or Too Good to Be True?” (a 2002 essay from Science, considering how Caroline Herschel and Mary Somerville are treated by history, in contrast with men of their time): https://science.sciencemag.org/content/296/5574/1805.full
Hoskin, Michael, ed. Caroline Herschel’s Autobiographies. 2003, Science History Publications. Annotated versions of the autobiographies she wrote in her 70’s and 90’s.
Hoskin, Michael The Herschel Partnership, as Viewed by Caroline. 2003, Science History Publications. By a noted historian of astronomy. On the web at:


Web Sites:

Biography at MacTutor Site:
http://www-groups.dcs.st-and.ac.uk/~history/Biographies/Herschel_Caroline.html

Flanders, Tony “Following in Caroline Herschel’s Footsteps” (a guide to re-observing some of the objects she saw, for amateurs): http://www.skyandtelescope.com/observing/Caroline_Herschel_Objects.html

The full text of the 1879 (2nd) edition of the *Memoirs and Correspondence of Caroline Herschel* has been digitized and is freely available from Google Books at:
http://books.google.com/books?id=9kIBAAAQAQ

Nicholas, Siobhán: *Stella* (a play about Caroline Herschel):
http://www.guardian.co.uk/science/blog/2012/may/14/play-astronomer-caroline-herschel

March 2007 BBC radio program about her:

Obituary in *Monthly Notices of the RAS*:
http://adsbit.harvard.edu/full/seri/MNRAS/0008/0000066.000.html

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**Hoffleit, Dorrit (1907 - 2007)**


https://www.aavso.org/sites/default/files/jaavso/v40n1/44.pdf


Web Sites:

Brief Biography at AAVSO site: http://www.aavso.org/memoriam-dorrit-hoffleit

Brief Biography at the Connecticut Hall of Fame Site:
http://www.cwhf.org/inductees/science-health/dorrit-hoffleit

Brief Obituary from *Sky & Telescope*:
http://www.skyandtelescope.com/astronomy-news/dorrit-hoffleit-19072007/

DeVorkin, David “Interview with Dorrit Hoffleit” 1979, for the Center for the History of Physics; transcript at: https://www.aip.org/history-programs/niels-bohr-library/oral-histories/4677


July 2006 Interview with Pamela Gay (video):
Hogg, Helen Sawyer (1905-1993)


http://adsabs.harvard.edu//full/seri/JRASC/0087//0000351.000.html


http://adsabs.harvard.edu//full/seri/PASP./0105//0001369.000.html


Web Sites:

Obituary from the Journal of the AAVSO:
http://articles.adsabs.harvard.edu//full/1993JAVSO..22...83C/0000083.000.html

Brief Biography at Science Women Site: http://www.sdsc.edu/ScienceWomen/hogg.html

From the Canadian Encyclopedia: https://www.thecanadianencyclopedia.ca/en/article/helen-sawyer-hogg

Her career highlights summary at U. of Toronto: http://www.astro.utoronto.ca/about/history/helen-sawyer-hogg/

Brief Biography at Canada Under the Stars: http://astro-canada.ca/_en/a2206.html

DeBakesy, Dale “Before There Was Sagan: How Helen Sawyer Hogg Brought Astronomy to the People” at:
http://womenyoushouldknow.net/before-there-was-sagan-how-helen-sawyer-hogg-brought-astronomy-to-the-people/

Transcript of an Interview with David DeVorkin at the Center for the History of Physics:
https://www.aip.org/history-programs/niels-bohr-library/oral-histories/4679 (there is also a separate interview with Owen Gingerich at: https://www.aip.org/history-programs/niels-bohr-library/oral-histories/29928-1)

Video of lecture about the life and work Helen Hogg by Christine Clement:
https://www.youtube.com/watch?v=aJkryE_pDM

1981 Interview with Helen Hogg (sponsored by the RASC):
https://www.youtube.com/watch?v=pH5FGmrsZJ&i=453s

Huggins, Margaret (1848-1916)

Becker, Barbara “Dispelling the Myth of the Able Assistant: Margaret and William Huggins at Work in the Tulse Hill Observatory” in Helena Pycior, et al. eds., *Creative Couples in the Sciences.* 1996, Rutgers University Press. (On the web at:
http://faculty.humanities.uiuc.edu/bjbecker/ExploringtheCosmos/week7b.html; this is also part of a whole book on the Huggins’ at: http://faculty.humanities.uiuc.edu/bjbecker/huggins/)

Becker, Barbara “Margaret Huggins and Tulse Hill Observatory” in *Astronomy & Geophysics,* Vol. 57, Issue 2, 1 Apr. 2016, p. 2.13. On-line at:
https://academic.oup.com/astrogeo/article/57/2/2.13/2468644


Bruck, Mary *Agnes Mary Clerke & the Rise of Astrophysics.* 2002, Cambridge U. Press. See Chapter 5 and several other sections about Margaret Huggins’ work and relationship with Clerke.

Leavitt, Henrietta (1868-1921)


Ferguson, Kitty Measuring the Universe. 1999, Walker. Chronicle of how distances were found in the universe, with good discussions of contributions by individual astronomers.


Singh, Simon Big Bang. 2004, Harper. Chapter 3 has a nice section on her life and work.

Sobel, Dava The Glass Universe. 2016, Viking. Includes a considerable amount of material on Leavitt’s life and work.

Web Sites:
Brief Biography at Woman Astronomer Site: http://www.womanastronomer.com/hleavitt.htm
Very brief biography at PBS Science Odyssey: http://www.pbs.org/wgbh/aso/databank/entries/baleav.html
Biography on the Famous Scientists Website: https://www.famousscientists.org/henrietta-swan-leavitt/
Video of talk by George Johnson on his “Search for Miss Leavitt”: http://perimeterinstitute.ca/videos/search-miss-leavitt
Maury, Antonia (1866-1952)

Sobel, Dava The Glass Universe. 2016, Viking. Includes some material on Maury’s life and work.

Web Sites:
Vassar Encyclopedia Entry: http://vcencyclopedia.vassar.edu/alumni/antonia-maury.html
Short biography on the Woman Astronomer site: http://www.womanastronomer.com/amaury.htm
Short biography at Project Continua: http://www.projectcontinua.org/antonia-maury/
Short biography at Time magazine site: http://time.com/4262838/antonia-maury-

Mitchell, Maria (1818-1889)

Berglund, Renee Maria Mitchell and the Sexing of Science. 2008, Beacon Press. Story of her life and of the importance of her work and fame for women’s issues.


Wright, Helen *Sweeper in the Sky: The Life of Maria Mitchell.* 1950, Macmillan. (Recently updated and reprinted by College Avenue Press. The original edition is on the web at: [http://digital.library.upenn.edu/women/wright/sweeper/sweeper.html](http://digital.library.upenn.edu/women/wright/sweeper/sweeper.html)

**Web Sites:**

Maria Mitchell for Students (at the Maria Mitchell Association website; use the menu at left to find all the pages): [https://www.mariamitchell.org/research-and-collections/maria-mitchell/for-students](https://www.mariamitchell.org/research-and-collections/maria-mitchell/for-students) (This is part of a rich website with information, images, archival material: [https://www.mariamitchell.org/](https://www.mariamitchell.org/)


Brief biography at the Maria Mitchell House Preservation Web Site: [http://www.nps.gov/history/nr/travel/pwwmh/ma74.htm](http://www.nps.gov/history/nr/travel/pwwmh/ma74.htm)

Brief Biography at Unitarian/Universalist pages: [http://aadb.org/articles/mariamitchell.html](http://aadb.org/articles/mariamitchell.html)

Her Entry in the Vassar Encyclopedia: [http://vcencyclopedia.vassar.edu/index.php/Maria_Mitchell](http://vcencyclopedia.vassar.edu/index.php/Maria_Mitchell)

An 1881 Address by Mitchell about the Collegiate Education of Women: [https://iiif.lib.harvard.edu/manifests/view/drs:2575143$1i](https://iiif.lib.harvard.edu/manifests/view/drs:2575143$1i)


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**Payne-Gaposchkin, Cecilia** (1900-1979)


**Web Sites:**
Brief Obituary from the Quarterly Journal of the RAS by Owen Gingerich: http://adsabs.harvard.edu/abs/1982QJRAS..23..450G

Two excellent articles about her at the Harvard Square Library: http://www.harvardsquarelibrary.org/biographies/cecilia-payne-gaposchkin-3/

1968 Interview by Owen Gingerich at AIP: https://www.aip.org/history-programs/niels-bohr-library/oral-histories/4620

Hoffleit, Dorrit “Reminiscences of Cecilia Payne-Gaposchkin”: http://articles.adsabs.harvard.edu/cgi-bin/nph-article_query?2001stun.conf...87H&amp

Short biography at the American Assn of University Women Site: https://www.aauw.org/2013/10/02/a-veritable-star/


Stuart Clark’s article about her the day a company named a line of pants in her honor: https://www.theguardian.com/science/across-the-universe/2013/aug/23/cecilia-payne-gaposchkin-pants

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**Roberts, Dorothea Klumpke (1861-1942)**


**Web Sites:**
Biographical article by Don Stone: http://www.aanc-astronomy.org/articles/dorothea.html
About her Pioneering Balloon Flights: https://leonid.arc.nasa.gov/Klumpke.html and http://www.whiteoaks.com/jane/leonidklumpke/dorothea.txt

Brief biography at Linda Hall Library: https://www.lindahall.org/dorothea-klumpke-roberts/

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**Roman, Nancy (1925 - 2018)**


Web Sites:
“Mother of the Hubble Space Telescope” – a 10-min 2008 Interview: https://www.youtube.com/watch?v=b2movHF4NzA
Interview with David DeVorkin at the Center for the History of Physics from 1980: https://www.aip.org/history-programs/niels-bohr-library/oral-histories/4846
Searcy, Maureen “A Wider Scope” from the U. of Chicago: https://mag.uchicago.edu/science-medicine/wider-scope
Brief Interview at Women at NASA: https://women.nasa.gov/nancy-grace-roman-2/
5-minute video on her role in the history of the Hubble Space Telescope: https://www.youtube.com/watch?v=8PwJIeiZ_vI
Biographical article by Dale Debakcsy at Women You Should Know: http://womenyoushouldknow.net/nancy-roman-hubble-space-telescope/

Rubin, Vera (1928 - 2016)

Boslaugh, John Masters of Time: Cosmology at the End of Innocence. 1992, Addison-Wesley. Chapter 2 features Rubin’s life and work.
Rubin, Vera Bright Galaxies, Dark Matters. 1997, American Institute of Physics Press. A collection of her articles, including several personal reminiscences.
Schomaker, William “Interview with Vera Rubin” (very brief) in Astronomy, June 2003, p. 18.

Web Sites:
*Remembering Vera* website at the Carnegie Institution: https://dtm.carnegiescience.edu/remembering-vera
Sarah Scoles’ article on how she confirmed dark matter at *Astronomy* magazine site:
Joe Tenn’s Bruce Medalist Profile of her: http://www.phys-astro.sonoma.edu/BruceMedalists/Rubin/index.html
Lightman, Alan “Interview with Vera Rubin” 1989, for the Center for the History of Physics:
She receives an honorary degree and addresses the graduates of American University in 2011:
https://vimeo.com/23419815

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**Sitterly, Charlotte Moore** (1898-1990)


Web Sites:
Profile connected with the Bruce Medal:
http://www.phys-astro.sonoma.edu/BruceMedalists/Sitterly/index.html
DeVorkin, David “Interview with Charlotte Moore (Sitterly)” 1978, for the Center for the History of Physics: https://www.aip.org/history-programs/niels-bohr-library/oral-histories/4784


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Somerville, Mary (1780-1872)

Alic, Margaret Hypatia’s Heritage: A History of Women in Science. 1986, Beacon Press. Chapter 12 has a good section on her work.


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Web Sites:


Biography at Mac Tutor: [http://www-history.mcs.st-andrews.ac.uk/Biographies/Somerville.html](http://www-history.mcs.st-andrews.ac.uk/Biographies/Somerville.html)

From Biographies of Women Mathematicians: [http://www.agnesscott.edu/friddle/women/somer.htm](http://www.agnesscott.edu/friddle/women/somer.htm)

Brief Biography at Burntisland Site: [http://www.burntisland.net/mabon.htm](http://www.burntisland.net/mabon.htm)


Interesting essay by Paula Gould from Science, wondering if her life story (and Caroline Herschel’s) has been whitewashed by history: [http://www.sciencemag.org/cgi/content/full/sci;296/5574/1805](http://www.sciencemag.org/cgi/content/full/sci;296/5574/1805)

Kelly, Erin: “Mary Somerville: The Woman for Whom the Word ‘Scientist’ Was Made”: [http://all-that-is-interesting.com/mary-somerville](http://all-that-is-interesting.com/mary-somerville)


A book of recollections by her daughter, Personal Recollections, from Early Life to Old Age, of Mary Somerville is available on line from Project Gutenberg: [http://www.gutenberg.org/ebooks/27747](http://www.gutenberg.org/ebooks/27747)

An annotated version of her 1831 book Mechanism of the Heavens is on line at: [http://www.malaspina.com/etext/heavens.htm](http://www.malaspina.com/etext/heavens.htm)
Tinsley, Beatrice (1941-1981)


Overbye, Dennis Lonely Hearts of the Cosmos. 1992, HarperCollins. An introduction to modern cosmology; material on Tinsley is in Chapter 10.


Web Sites:

Biography at New Zealand Edge page: http://www.nzedge.com/legends/beatrice-tinsley/

Biography by Michele Nichols on Carleton College site:

Paper about her life and work by Margaret Turner:
http://freepages.misc.rootsweb.ancestry.com/~nturner/women/bmt.htm

Fu, Lara “This Astronomer Had to Make the Hardest Career Choice” at:
https://www.aaaw.org/2014/07/16/beatrice-tinsley/

Biography by J. Renee Fernanders: https://jvrf.wordpress.com/beatrice-tinsley-biography/

Brief video about Tinsley by U. of Nottingham astronomer Meghan Gray:
http://www.deepskyvideos.com/videos/other/beatrice_tinsley.html

American Institute of Physics oral interview by David DeVorkin: https://www.aip.org/history-programs/niels-bohr-library/oral-histories/4914

Hoar, Stuart (a New Zealand playwright): Bright Star (a play about the work and life of Tinsley): http://www.playmarket.org.nz/playwrights/stuart-hoar

6. Material on A Few Specific Living Astronomers who are Women

Batalha, Natalie (1966 –

Kaufman, Marc “The Very Influential Natalie Batalha”:

Interview with Susan Niebur on the Women in Planetary Science website:


2017 News Release on Her Being Named one of the 100 Most Influential People in the World: https://news.ucsc.edu/2017/06/batalha-natalie-time-100.html
Bell Burnell, Jocelyn (1943 -)


Levin, Janna Black Hole Blues and Other Songs from Outer Space. 2016, Knopf. Has a section of her work on pulsars.


Wade, N. "Discovery of Pulsars: A Graduate Student's Story" in Science, Aug. 1, 1975, p. 358. On line at: https://science.sciencemag.org/content/189/4200/358.long (but you will need privileges from your library to read the entire piece.)

Web Sites:

Interview on BBC with Jim Al-Khalili (30 min): http://www.bbc.co.uk/programmes/b016812j

Interview at the 2015 Edinburgh Science Festival by Andy Cohen: https://www.youtube.com/watch?v=DCPereT6XxU

Her TED talk, “Reflections on Women in Science”: https://www.youtube.com/watch?v=jp7amRdr30Y&t=33s

Podcasts of three talks she gave at Oxford: https://podcasts.ox.ac.uk/people/jocelyn-bell-burnell


BBC collection of video clips featuring her: https://www.bbc.co.uk/programmes/b00ry9jq/clips


1977 After-dinner Speech about her Discovery of Pulsars (text): http://www.bigear.org/vol1no1/burnell.htm

**Burbidge, Margaret** (1919 - )


Burbidge, Margaret “Watcher of the Skies” (an autobiographical article from *Annual Reviews* 1994; 37-page PDF): http://www.annualreviews.org/doi/pdf/10.1146/annurev.aa.32.090194.000245


Reed, J. "A Great Woman Astronomer Leaves England Again" in *Smithsonian,* Jan. 1974, p. 34.

Rubin, Vera "Margaret Burbidge: AAAS President-Elect" in *Science,* vol. 211, p. 915 (Feb. 27, 1981). On the web at: http://science.sciencemag.org/content/211/4485/915 (but you will need privileges from your library to access the piece beyond page 1.)


**Web Sites:**

Bruce Medal Profile: http://www.phys-astro.sonoma.edu/BruceMedalists/BurbidgeM/

Interview with David DeVorkin at the Center for the History of Physics from 1978: https://www.aip.org/history-programs/niels-bohr-library/oral-histories/25487


**Danly, Laura** (1958 - )


Videos at Roadtrip Nation: http://roadtripnation.com/leader/laura-danly


Her public interest video on soil health: http://www.merlofarminggroup.com/astronomer-dr-laura-danly-soil-health

“To Fathom the Frontier”: Post-eclipse talk (2017) from Jackson Hole: Video at: https://www.youtube.com/watch?v=sKDh81Xt1c04

Interview in the *Inspirational Women Talk to Teens* Series: https://www.youtube.com/watch?v=DZH9PQVIJose

**Faber, Sandra** (1944 - )
Dressler, Alan *Voyage to the Great Attractor*. 1994, Knopf. Story of how we learned to explore the large-scale structure of the realm of the galaxies, focusing on the astronomers who call themselves the “Seven Samurai” (of which Faber is one).


**Web Sites:**


Interview with Alan Lightman for the Center for the History of Physics 1988: [https://www.aip.org/history-programs/niels-bohr-library/oral-histories/33932](https://www.aip.org/history-programs/niels-bohr-library/oral-histories/33932)

Her page at the “Bruce Medalists” site: [http://www.phys-astro.sonoma.edu/BruceMedalists/Faber/index.html](http://www.phys-astro.sonoma.edu/BruceMedalists/Faber/index.html)


Her talk on “How Galaxies Were Cooked from the Primordial Soup” in the Silicon Valley Astronomy Lectures: [https://www.youtube.com/watch?v=wqNNCm7SNyw](https://www.youtube.com/watch?v=wqNNCm7SNyw)

2009 Interview at Annual Reviews Audio (transcription): [http://www.annualreviews.org/userimages/ContentEditor/1299600853298/SandraFaberInterviewTranscript.pdf](http://www.annualreviews.org/userimages/ContentEditor/1299600853298/SandraFaberInterviewTranscript.pdf)


Short video about her work on the Hubble: [https://www.youtube.com/watch?v=Goe8vRNxiIM](https://www.youtube.com/watch?v=Goe8vRNxiIM)


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**Fischer, Debra** (1953 - )


**Web Sites:**

Debra Fischer’s professional page at Yale: [http://exoplanets.astro.yale.edu/people/dfischer.php](http://exoplanets.astro.yale.edu/people/dfischer.php)


2016 *Wired* magazine article about her work: [https://www.wired.com/2016/10/meet-next-generation-exoplanet-hunters/](https://www.wired.com/2016/10/meet-next-generation-exoplanet-hunters/)

“Searching for Other Worlds” 2013 public lecture at Yale: [https://www.youtube.com/watch?v=fomk3IakRQ0](https://www.youtube.com/watch?v=fomk3IakRQ0)

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**Freedman, Wendy** (1957 - )

Ferguson, Kitty *Measuring the Universe.* 1999, Walker. Chronicle of how distances were found in the universe, with good discussions of contributions by individual astronomers.


Stephens, Sally “Hubble Warrior” in *Astronomy,* March 2000, p. 52. Profile of her work trying to find the Hubble constant and other cosmological parameters.

**Web Sites:**
Her faculty page at the U. of Chicago: https://astro.uchicago.edu/people/wendy-l-freedman.php#research-person


TED Talks Page: https://www.ted.com/speakers/wendy_freedman

Interview from April 2004, at the National Academy of Sciences (about her life and work): http://www.nasonline.org/news-and-multimedia/podcasts/interviews/wendy-l-freedman.html

Cosmologist Michael Turner interviews her for a TEDX Evening in 2016:
https://www.youtube.com/watch?v=LHS-L-M6Tz9g

2011 Interview with Michael Shara at the American Museum of Natural History:
https://www.youtube.com/watch?v=90lYIU1Stlo

Brief Profile for the 2009 Gruber Prize: http://gruber.yale.edu/cosmology/2009/wendy-l-freedman

Her page and contributions at *Huffington Post:* https://www.huffpost.com/author/wendy-l-freedman

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**Geller, Margaret (1947 - )**


Chaikin, Andrew “Surveyor of the Universe” in *Air & Space,* Aug/Sept. 1991; vol. 6, p. 84.


Greenstein, George *Portraits of Discovery.* 1998, John Wiley. Chapter 8 of this collection of biographical articles is about Margaret Geller and John Huchra.


Web Sites: 
Her web page at Smithsonian: http://cfa-www.harvard.edu/~mjg/ 
Her MacArthur Foundation “Genius Award” Page: https://www.macfound.org/fellows/394/ 
Text of her 1995 Phi Beta Kappa Address at Harvard “Sense of Wonder”: http://gos.sbc.edu/g/geller.html 
(Listed by NPR as one of the best commencement speeches ever: 
Her 2010 Chautauqua Lecture on astronomical photography “Click! The Universe”: https://www.youtube.com/watch?v=kTKGQzWa6yM 
2013 interview when she won the APS Lillienfeld Prize (6 min): 
http://www.youtube.com/watch?v=8c3lM8v68Hw 
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Ghez, Andrea (1965 - )


Web Sites: 
Her web page at UCLA: http://www.astro.ucla.edu/~ghez/ 
“The Monster Black Hole at the Center of the Milky Way,” her 2017 talk in the Silicon Valley Astronomy Lectures: https://www.youtube.com/watch?v=dv1igzEAx4&t=359s 
2017 UCLA Student Video where she is asked 37 questions in 6 minutes: https://www.youtube.com/watch?v=o-Tnc3CUshEM 
Her 2009 Lecture at TED: https://www.youtube.com/watch?v=c8re1U9rCo4 OR http://www.ted.com/talks/andrea_ghez_the_hunt_for_a_supermassive_black_hole.html 
“Andrea Ghez: Puzzle Solver” at StarDate’s black hole encyclopedia (interview): http://blackholes.stardate.org/research/ghez-interview.php.html 
Her MacArthur Foundation “Genius Prize” page: https://www.macfound.org/fellows/798/ 
Interview with her for the PBS TV Show NOVA in 2006: http://www.pbs.org/wgbh/nova/blackhole/explorer.html


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Hammel, Heidi (1960 - )


Web Site:
Her Planetary Society page with posts and radio show appearance: [http://www.planetary.org/about/board-of-directors/heidi-hammel.html](http://www.planetary.org/about/board-of-directors/heidi-hammel.html)
Her answers to frequently asked questions at the site for the kids’ book about her: [http://www.fredbortz.com/HammelBio/AstroFAQ.htm](http://www.fredbortz.com/HammelBio/AstroFAQ.htm)
An hour interview of Minnesota Public Radio about the successor telescope to the Hubble and her work: [http://minnesota.publicradio.org/display/web/2008/03/05/midmorning2/](http://minnesota.publicradio.org/display/web/2008/03/05/midmorning2/)
2016 Profile at AAAS website: [https://www.aaas.org/blog/member-spotlight/astronomer-pushes-science-forward-planetary-exploration](https://www.aaas.org/blog/member-spotlight/astronomer-pushes-science-forward-planetary-exploration)
Her page at the James Webb Space Telescope website: [https://jwst.nasa.gov/meet-hammel.html](https://jwst.nasa.gov/meet-hammel.html)

Luu, Jane (1963 - )

Davies, John Beyond Pluto: Exploring the Outer Limits of the Solar System. Chapter 4 features Luu’s life and work.

Web Site:
Interview from 2003 (with a lot of biographical information) at Imagiverse Site: [http://www.imagiverse.org/interviews/janeluu/jane_luu_21_03_03.htm](http://www.imagiverse.org/interviews/janeluu/jane_luu_21_03_03.htm)
Career profile at the Science magazine site: [http://www.sciencemag.org/careers/2012/10/no-starry-eyed-astronomer](http://www.sciencemag.org/careers/2012/10/no-starry-eyed-astronomer)
Transcript of her Kavli Prize talk: [http://www.kavliprize.org/sites/default/files/Jane_Luu_manuscript.pdf](http://www.kavliprize.org/sites/default/files/Jane_Luu_manuscript.pdf)
Brief 2012 video of her and David Jewitt’s Shaw Prize lecture: [https://www.youtube.com/watch?v=ypKWDKWRzyY](https://www.youtube.com/watch?v=ypKWDKWRzyY)
2012 Talk to the Rosalind Franklin Society on the Kuiper Belt (with some personal memories): [https://www.youtube.com/watch?v=I5pnR002y6k](https://www.youtube.com/watch?v=I5pnR002y6k)
Max, Claire (1946 - )

Her page at the University of California Observatories: [http://www.ucolick.org/~max/](http://www.ucolick.org/~max/)
Article on her receiving the 2004 E.O. Lawrence Award: [http://currents.ucsc.edu/04-05/09-27/max_award.asp](http://currents.ucsc.edu/04-05/09-27/max_award.asp)
3-minute video with Freeman Dyson describing her role in the rise of adaptive optics: [https://www.youtube.com/watch?v=4ntfOaqKHFU](https://www.youtube.com/watch?v=4ntfOaqKHFU)
2015 News Release on being appointed Director of the U. of California Observatories: [https://news.ucsc.edu/2015/08/uco-director.html](https://news.ucsc.edu/2015/08/uco-director.html)
Max, Claire: “A Sharper Image” talk in the Silicon Valley Astronomy Lectures: [https://www.youtube.com/watch?v=stAGLke6XDU&t=84s](https://www.youtube.com/watch?v=stAGLke6XDU&t=84s)

Porco, Carolyn (1953 - )


Web Sites:

Her biography at her own website: [http://carolynporco.com/about/biography/](http://carolynporco.com/about/biography/)
Her biography on the Edge website: [http://www.edge.org/3rd_culture/bios/porco.html](http://www.edge.org/3rd_culture/bios/porco.html)
Her talk on Cassini at the Silicon Valley Astronomy Lectures (2015): [https://www.youtube.com/watch?v=Vx135n8VFxY](https://www.youtube.com/watch?v=Vx135n8VFxY)

Sargent, Anneila (1942 - )

Goldsmith, Donald The Astronomers. 1991, St. Martin’s Press. See Chapter 12 of this book, which focuses on the work of a few astronomers at the frontiers of science.

Sommerville, Iain “From Burtisland to the Outer Limits: The Journey of Anneila Cassells [Sargent]” (mostly about her early life): http://www.burntisland.net/sargent.htm

Web sites:

Her page at Caltech: http://www.astro.caltech.edu/people/faculty/Anneila_Sargent.html
Her 2015 talk in Edinburgh on “Make it Happen: Women into Science” (with a bit about her own career): https://www.youtube.com/watch?v=TnAL1FVVyz8

Seager, Sara (1971 - )


Powell, Corey “Sara Seager’s Tenacious Drive to Discover Another Earth” in Smithsonian, May 2014. On the web at: https://www.smithsonianmag.com/science-nature/driven-make-most-her-time-planet-mit-astronomer-has-set-audacious-goal-180951174/

Seager, Sara “So Many Exoplanets, So Few Women Astronomers” (an article in the Huffington Post Jan. 2013 about the hardship that constant travel imposes on women scientists with small children): http://www.huffingtonpost.com/sara-seager/women-in-science_b_2471980.html


Web Sites:

Her website: https://www.saraseager.com/
Short Profile at AAAS website: http://membercentral.aaas.org/blogs/member-spotlight/sara-seagers-search-earth-planets

Brief 2017 Interview on Women in Astronomy site: http://womeninastronomy.blogspot.com/2017/01/meet-your-cswa-sara-seager.html

2017 Talk at Google “Mapping Nearby Stars for Habitable Exoplanets”: https://www.youtube.com/watch?v=jyfCukKVjC0

Her page at the MacArthur Foundation: https://www.macfound.org/fellows/903/


2015 TED Talk on the Search for Life on Other Earths: https://www.youtube.com/watch?v=qAYqK9lAxic

2013 TED Talk on the Search for Real Alien Life: https://www.youtube.com/watch?v=NnM4SgGc8R0

2015 Interview at MIT’s Infinite History Project (with reminiscences about her own life): https://www.youtube.com/watch?v=3O9nvqniLs
2016 Nature Video “Back to the Thesis” (asks her to review what events led to her thesis):
   https://www.youtube.com/watch?v=fk9VdAXeZiY

10 Tips for Undergraduate Women Science Students (from Astronomer Sara Seager):

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Shoemaker, Carolyn (1929 - )

Reeves, R. "Interview with Gene and Carolyn Shoemaker: Meteor Crater to Palomar” in Astronomy, June 1993, p. 13.

Web Sites:
Biography at USGS Page: https://astrogeology.usgs.gov/people/carolyn-shoemaker
1994 Article from New Scientist, with history and reactions to the discover of Comet Shoemaker-Levy 9: http://www.bibliotecapleyades.net/esp_shoemaker_a.htm
Brief Biography at the Harcourt School Site: http://www.harcourtschool.com/activity/biographies_science/shoemaker/
Her 1998 Essay from Science Magazine on Space Exploration (with some thoughts about her own life and work): http://www.sciencemag.org/cgi/content/full/282/5394/1637
2-min video with advice for young women going into astronomy: https://www.youtube.com/watch?v=_AADENDV2Z8
Page about here and her story about her husband at Story Corps: https://storycorps.org/stories/carolyn-shoemaker-and-phred-salazar-160708/

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Stofan, Ellen (1961 - )


Web Sites:
Her page when she was Chief Scientist at NASA: https://www.nasa.gov/offices/ocs/stofan_bio.html
Her 2013 Interview at SpaceNews: http://spacenews.com/37599/profile-ellen-stofan-nasa-chief-scientist/
Her talk on Mars Exploration at the Royal Institution: https://www.youtube.com/watch?v=20ufMGrhA2e0
Announcement of her becoming Director of the Air and Space Museum, 2018:  

“Lecture on Exploring Titan by Boat” (at the Denver Museum of Natural History 2012, 1 hr, 18 min):  
http://vimeo.com/44046816

JPL Podcast with Slides on YouTube (about lakes on Titan):  
http://www.youtube.com/watch?v=0PP5hSbwHXQ  (Transcript at:  

News announcement being named NASA Chief Scientist, July 2013:  
http://www.nasa.gov/press/2013/july/nasa-welcomes-new-chief-scientist/#.UfbSwo3CZ8E

Video where she explains a proposed mission to study the lakes of Titan; a bit technical (2011, 9 min):  
http://www.youtube.com/watch?v=xkYIdhvdyWU

Tarter, Jill (1944 - )


Hayes, Jacqui “Silent Witness (profile of Jill Tarter)” in Cosmos magazine, Apr. 2010. On web at:  


Web Sites:


2017 Interview on the KQED Forum program about her work:  

“Will the 21st Century be the Time we Discover Life Beyond Earth?” Her 2017 talk in the Silicon Valley Astronomy Lectures:  
https://www.youtube.com/watch?v=wYcM0BOYHyw

Interview at the U. of Washington in 2015 (37 min):  
https://www.youtube.com/watch?v=EszGlvRdgTE

Her TED Prize lecture (2009):  
https://www.youtube.com/watch?v=EszGlvRdgTE

Nov. 2007 Interview for the KQED TV show Quest:  
https://www.youtube.com/watch?v=QwEm3WHvNHI

The Search for Cosmic Company (her 2011 TEDX Talk at USC):  
https://www.youtube.com/watch?v=6DmpJoEmvZs

2012 Talk on “The World We Dream” :  
https://www.youtube.com/watch?v=4EABW8WVT0

2012 Interview at Space.com:  

2017 Interview on NPR’s Science Friday:  
Trimble, Virginia (1943 - )

Feder, Toni “Q&A: Virginia Trimble on Fifty Plus Years in Astronomy” for Physics Today, 2018:  

Scoles, Sara “The Woman Who Knows Everything about the Universe” in Wired magazine, 2018: 

Trimble, Virginia Visit to a Small Universe. 1992, American Institute of Physics Press. A collection of her articles, including several that bear on her own life and work.


Trimble, V. “Anybody But Hubble” (After-dinner talk on who discovered the expansion of the universe): 

Web Sites:
Her page at U. of California, Irvine: https://www.faculty.uci.edu/profile.cfm?faculty_id=3060
Interview on the “Science and Society” podcast: http://www.scienceandsociety.net/audio/trimble.mp3
Transcript of a brief interview about telescopes (with a bit about her life) on ABC: 
Her “Top 10” lists for the astronomy of the past and future: 
http://www.aps.org/publications/apsnews/200010/astronomy.cfm
Honors from the AAS and the IAU: https://aas.org/posts/news/2018/02/virginia-trimble-honored-aas-and-iau

Wolff, Sidney (1941 - )


Web Sites:
Wolff, Sidney “Cautions for Astronomy’s Golden Age” (partly autobiographical reflections, 1987): 
http://www.the-scientist.com/?articles.view/articleNo/9063/title/Cautions-for-Astronomy-s-Golden-Age/
Announcement of her AAS Education Prize: http://www.noao.edu/outreach/press/pr06/pr0605.html
Her speech for the 100th anniversary of the American Astronomical Society (pdf file): 
Oral History Interview at the American Institute of Physics: https://www.aip.org/history-programs/niels-bohr-library/oral-histories/23363-1
Announcement of a vista point at the Cerro Tololo Interamerican Observatory being named for her: 
Her 2013 talk at York High School, where she was once a student:  
https://www.youtube.com/watch?v=QftuoG4x4qY
7. **Sampling of Articles/Books/Webpages about Other Individual Women Astronomers**

A special issue of the on-line magazine *Sky’s Up* in Jan. 2018 was devoted to women in astronomy: [https://view.joomag.com/skys-up-january-february-2018/0999470001513909897](https://view.joomag.com/skys-up-january-february-2018/0999470001513909897)

Bagenal, Fran: Interview at NASA Science: [https://solarsystem.nasa.gov/people/1480/fran-bagenal/](https://solarsystem.nasa.gov/people/1480/fran-bagenal/)


Conklin, Nan Dieter: *Two Paths to Heaven’s Gate.* 2006, NRAO Archives, 520 Edgemont Rd., Charlottesville, VA 22903. A memoir by a pioneering radio astronomer. See also: DeVorkin, David “Interview with Nan Dieter-Conklin” 1977, for the Center for the History of Physics: [http://www.aip.org/history/ohilist/4573.html](http://www.aip.org/history/ohilist/4573.html)


Lopes, Rosaly (a brief biography and interview in *Volcano World*): [http://volcanoworld.wordpress.com/2011/12/19/rosaly-lopes/](http://volcanoworld.wordpress.com/2011/12/19/rosaly-lopes/)

Lopes, Rosaly: discusses her work on “Through the Eyes of Scientists” (3 min, 2011): [http://www.youtube.com/watch?v=ntCPur1SQ4Y](http://www.youtube.com/watch?v=ntCPur1SQ4Y)

Ma, Chung-Pei: talk on her work on monster black holes in the Silicon Valley Astronomy Lectures: [https://www.youtube.com/watch?v=LN9oYjNKbm8&t=2s](https://www.youtube.com/watch?v=LN9oYjNKbm8&t=2s)


Mainzer, Amy: her work with PBS to get young girls into science: [https://www.fastcompany.com/3056446/how-pbs-and-nasas-amy-mainzer-are-getting-more-girls-into-science](https://www.fastcompany.com/3056446/how-pbs-and-nasas-amy-mainzer-are-getting-more-girls-into-science)

Mayall, Margaret: Gingerich, Owen: Transcript of a 1986 Interview for the Center for the History of Physics: [https://www.aip.org/history-programs/niels-bohr-library/oral-histories/28323-1](https://www.aip.org/history-programs/niels-bohr-library/oral-histories/28323-1)
McFadden, Lucy: My Hero Project (short discussion of her work and how she got into astronomy):  
Meadows, Victoria: receives the Drake Award from the SETI Institute:  
Meech, Karen: TED Talk on Oumuamua:  
https://www.ted.com/talks/karen_j_meech_the_story_of_oumuamua_the_first_visitor_from_another_star_system
O’Halloran, Rose: Web article by Richard Taibi: http://www.usskyhistory.blogspot.com (scroll down to the 
July 18, 2012 entry in this blog; O’Halloran was an astronomer and educator in San Francisco in the 
late 19th and early 20th century and the first woman board member of the Astronomical Society of the 
Pacific).
Richards, Mercedes: Eshleman, Adams “Mercedes Richards: Stellar Detective” (Penn State University  
Speck, Angela: “You Can’t Take the Sky Away from Me” (profile article):  
https://unearthedmag.wordpress.com/2017/05/01/you-cant-take-the-sky-away-from-me-mu-astronomy-professor-angela-speck-says/
Urry, Meg: Essay at CNN site on her career and how bias holds women back:  
https://www.cnn.com/2012/10/01/opinion/urry-women-science/index.html
Weaver, Kimberly: Alumni Spotlight:  

Debra Fisher  
Jocelyn Bell Burnell  
Jane Luu  
Jill Tarter