

International Day of Women in Science 2021

DOUBT THOU THE STARS ARE FIRE *

HENRIETTA SWAN LEAVITT (1868/1921)
AND HER EPOCH MAKING DISCOVERY

Interdisciplinary project of astronomy,
contemporary art, video performance e poetry



« Harvard Computers » 1890

Henrietta Swan Leavitt, the third one on the left side,
with a magnifying glass; *Annie Jump Cannon* (1863–1941),
Williamina Fleming standing up (1857–1911), and
Antonia Maury (1866–1952).

American astronomer *Henrietta Swan Leavitt's* research gave the first proof of evidence that the universe is in expansion. It was *Hubble* himself to say that *Henrietta* would have merited to win the Nobel Prize for her discoveries, somebody tried to push her nomination in 1924, but unfortunately *Henrietta* had already died three years earlier. *Henrietta* revolutionized the history of astronomy, astrophysics and cosmology, and established the basis of modern astronomical methodology but for all her life she was only a "human computer" at the Harvard Astronomical Observatory directed by *Edward Pickering*. In 1890, thanks to the brilliant performance of about eighty employed women, *Pickering* prepared the first catalogue of more than 10.000 stars classified on the basis of their spectrum. *Henrietta* started to work at the Harvard Observatory in 1893. Her task was the same like the one of all the other women, to classify the stars according to the principle of luminosity.

Henrietta Swan Leavitt could not use the telescope (she was "only a woman" and this explains her limits of action) but she merited *Pickering's* attention for how she accomplished her work. As follows, he asked her to classify the so called variable stars that change their luminosity in the course of time. *Henrietta* controlled the images of thousands of stars in the Cloud of Magellan, but as a true Victorian girl, she did not limit herself to classify these, she also tried to understand if there were any kind of rule causing the variation of luminosity.

In 1912, after having studied 1777 vibrant stars, she finished with writing her conclusions and described the existing relationship between the period of a star and its luminosity: the logarithm of the period is directly correlated with the logarithm of the luminosity of a star, more precisely what modern astronomy calls the *Law of Leavitt*. A moon crater and the asteroid 5383 carry her name and at the cemetery of Cambridge where she is buried there is a little monument dedicated to her. Four years after her death Swedish mathematician *Mittag-Leffler* proposed *Henrietta Swan Leavitt* for the Nobel Prize, in reference to the formula of the relationship period-luminosity of the Cepheids. Anyway, it was too late.



Henrietta Swan Leavitt at the Harvard Observatory while cataloging the stars

Since 2013 *Design of the Universe* dedicates interdisciplinary projects to women and to an inquiry about their position in contemporary society, from the professional and personal point of view, by using the prism of contemporary art and culture. International Days represent particular occasions to reflect about ongoing problems of gender inequality that should be faced with political will and necessary resources. A parallel look back in history is an excellent means of backing women's cause. We should always remember the numerous missions accomplished by excellent women who stayed in the shadow, in various domains in the past, but also in the present. *Henrietta Swan Leavitt's* story, mostly forgotten, encourages us to follow this path and to project ourselves towards a future which takes advantage from the outstanding lessons of our predecessors.

According to our mission, the actual proposal is based on the collaboration of scientists and researchers with artists, musicians, performers, poets, actors. This process creates transversal and diachronic visions, a mosaic of fragments which go beyond biographical facts. *Henrietta* becomes the anaphor of a debate which makes transpire women's frustration as they do not always obtain the merited results in spite of their competence, the proof of leadership and competitiveness.

Similar to our previous project on mathematician *Ada Lovelace Byron*, the story of *Henrietta Swan Leavitt* divulgates in a more detailed manner historical facts connected with the evolution of science, but without losing its semiotic matrix stressed by the choice of the project's title, leading back to *William Shakespeare* and his drama *Hamlet*, second act, second scene: "Doubt thou the stars are fire..." *Shakespeare* is on the side of science. This is astronomer *Peter Usher's* opinion, The Pennsylvania State University, who considers *Shakespeare* a predecessor of the new universal order and Man's position in this system.

The project is planned in two contemporaneous versions. In order to reconnect with the public, *Galleria Immaginaria* and *Libreria Punto Einaudi*, Florence, open their Inner Court Yard and the exhibition space on Thursday February 11th (International Day of Women in Science) – in security, according to the Anti-Covid rules in vigor, only with reservation – and will receive small groups of visitors in the presence of *Elisabeth Vermeer*, curator and concept designer of the entire project. In the art gallery visitors may also watch the conferences, the poetic reading, the live performances and artworks on several screens put on disposal inside the exhibition.

The online events are on display in the shape of a multimedia video catalogue containing all the scientific and cultural contributions dedicated to *Henrietta Swan Leavitt*. The diffusion will take place on the Youtube Channel of Design of the Universe and through social media like Facebook, Instagram e Pinterest. Curator Elisabeth Vermeer collected numerous interventions like the conference of astrophysicist *Francesca Matteucci*, University of Trieste, who is frequently engaged, beyond her research, in the challenge of women in the field of astronomy; *Ginevra Trinchieri*, INAF Astronomical Observatory Brera, Milan; *Mick Finch*, British artist, London; *Eric Nicholson*, dramatist and actor NYU and Syracuse University, Florence; *Marilena Faraci*, artist and psychotherapist, Frankfurt; *Patrizia Battaglia*, artist, Teatro Carlo Felice, Genoa; *Cri Eco*, scenographer and live-performer, Genoa; *Laura Cecilia Garavaglia*,

President House of Poetry, Como; Director of the Festival “Europa in Versi”; *Milena Buzzoni*, writer, Genoa; *Serena Vestene*, artist and poet, Verona; *Marisa Tomicelli*, poet and writer, Verona; *Uri De Beer*, artist and architect, Tel Aviv; *Silvia Bibbo*, artist, Mar De Plata/Island of Ischia; *Silvia Zambarbieri*, designer, Milan/Florence; *Claire Jeanine Satin*, artist, Dania Beach, Miami; *Farzaneh Rostami*, artist, Teheran/Ontario; *Rossana Damianelli* soprano and *Paolo Fabbroni*, basso, a cappella singers of antique music, Loro Ciuffenna; photographers of the Cultural Association *FotoPoesia* Genoa: *Carlo Accerboni*; *Fabrizio Cillo*; *Antonio Di Pace*; *Riccardo Grezar*; *Rossella Sommariva*; *Gianluigi Suman*.

The project takes advantage of the promotion offered by the University of Trieste and several Italian astronomical observatories like *INAF Observatory*, Trieste; *Planetarium of Bari*; *Astronomical Observatory of Genoa*, *Astrofili di Montelupo*; *Casa delle Donne del Mediterraneo* and *MATRIA Puglia*; *Deutsches Institut*, Florence; *GiULiA* journalists, Rome and *Circolo della Stampa*, Trieste. Public Relations *Calliope Bureau*. The project coordinated and produced by *Design of the Universe* is reinforced by the presence of *Donne Inquiete/Women in Movement* engaged since 2012 in the realization of projects connected with women’s position in the field of science and arts.

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Patronage and collaboration



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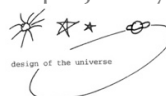


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<https://www.units.it/news/la-profssa-francesca-matteucci-narra-henrietta-swan-lewitt>

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