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Cecilia Payne-Gaposchkin: A Stellar Pioneer (The Dorritt Hoffleit Lecture)

KATHERINE HARAMUNDANIS

In a world of Newtonian mechanics and Darwinian evolution, we also have Paynian composition of the stars and universe. While Payne, later Payne-Gaposchkin, did not extend her data and conclusions to the universe, her 1925 monograph, described by Otto Struve as “the most brilliant PhD thesis ever written in astronomy,” is a pioneering landmark that for the first time combined astronomical observations of stellar spectra with the then new atomic theories of Bohr and Saha. Her conclusions were suppressed by her advisor, H.N. Russell, but she wisely published her data with a disclaimer. Though facing overt gender discrimination throughout her career, and suffering the “pink paycheck” so well known to many women, she persevered and, towards the end of her working lifetime at Harvard University, became Chairman of the Department of Astronomy, a department she had helped to establish with the exuberant director Harlow Shapley in the 1920s and 1930s. One colleague, who called her “An Astronomer’s Astronomer,” admired her as a person of great kindness, graciousness, humor and humility, who conveyed her love for the science “lucidly and enthusiastically.” She never lost her love and ardor for astronomy and astrophysics and made innumerable contributions to these sciences. Her work continues to inspire and provoke those working in the field, and she remains a model for all scientists to follow.