HAZLETT, Olive C. October 27, 1890–March 8, 1974.

Olive Clio Hazlett was born in Cincinnati, Ohio, the only child of Olive Leonora (Binkley) (1866–1954) and Robert Hazlett (b. 1862), both natives of Ohio. Her parents married in November 1888. Around the time of Olive C. Hazlett's birth in 1890, her father was a postal clerk for the Railway Mail Service in Cincinnati. In 1898 her mother graduated from the Laura Memorial Woman's Medical College in Cincinnati (after several mergers, now the University of Cincinnati College of Medicine) and was licensed to practice in Ohio and in Massachusetts. The following year, Olive Clio Hazlett moved with her mother to the Boston area. In 1900 her mother was a physician at the Reformatory Prison for Women in Sherborn, Massachusetts, while her father, a postal clerk, was enumerated with his family in Zanesville, Ohio. Robert Hazlett was deceased by March 1905.

Olive C. Hazlett attended public schools in Massachusetts, including Maldin High School 1904–05. She and her mother spent September 1905 through August 1906 traveling in France and England, and then she attended Dorchester High School in Boston 1906–09. After graduating in 1909, she entered Radcliffe College. At Radcliffe, she specialized in mathematics and had advanced courses with Harvard professors W. E. Byerly, B. O. Peirce, and W. F. Osgood. She was elected to Phi Beta Kappa and graduated magna cum laude in 1912. A letter written January 18, 1916, indicates that Hazlett spoke of herself as having "done mathematics ever since she was a child" (M. Carey Thomas to Charlotte A. Scott, Thomas Papers, Microfilm Edition, Reel 134).

During 1912–15 Hazlett did graduate work in mathematics and mathematical astronomy at the University of Chicago. She held a graduate scholarship from Chicago the first year and received her master's degree in 1913. The next two years she held a graduate fellowship from Chicago, and during her final year she also held a Boston alumnae fellowship awarded by the Boston branch of the Association of Collegiate Alumnae (later the American Association of University Women). She received her PhD magna cum laude in 1915. The majority of her courses were with E. H. Moore and L. E. Dickson in mathematics and with F. R. Moulton in astronomy. Both her master's thesis and her doctoral dissertation concerned the characterization of certain types of algebras and were directed by Dickson. Hazlett was Dickson's second female doctoral student, following by two years Mildred Leonora Sanderson, who died in October 1914 after one semester as an instructor at Wisconsin.

In 1915–16, the year after she received her PhD, Hazlett was an Alice Freeman Palmer memorial fellow of Wellesley College for postdoctoral study at Harvard University. By 1916 she had published three papers about linear associative algebras and was later to become the most prolific of the women working in pure mathematics among those who earned PhD's in mathematics before 1940. Her later work concerned modular invariants and covariants.

In February 1916, Hazlett was offered a two-year appointment as an associate in mathematics at Bryn Mawr College. Hazlett was not reappointed in 1918, but was hired by Mount Holyoke College in South Hadley, Massachusetts. At the same time, Anna J. Pell (Wheeler) moved from Mount Holyoke to Bryn Mawr as associate professor. At Mount Holyoke, Hazlett was assistant professor 1918–24 and associate professor 1924–25. During most of her time at Mount Holyoke, Hazlett

and her mother, who was experiencing some health problems, were living in the nearby town of Holyoke, Massachusetts. In addition to her regular classroom teaching responsibilities at Mount Holyoke, Hazlett directed much of the work of the mathematics honors students.

Hazlett's years at Mount Holyoke were to be some of her most productive research years, and her accomplishments were acknowledged by the mathematics community. In 1920 she was awarded $100 by the American Association for the Advancement of Science "in support of her work in the theory of hypercomplex numbers and invariants" (*Bull. Amer. Math. Soc.* 26:467); she also published half a dozen major research papers while at Mount Holyoke. Her work in invariants and modular analysis was recognized by O. D. Kellogg in his 1921 article, "A decade of American mathematics," in *Science*. In addition, her long tenure as cooperating editor (also called associate editor) of the *Transactions* of the AMS began with the January 1923 issue. In short, she was a major figure in algebra in the United States.

By late winter in 1925 Hazlett was looking for another position. She indicated in a letter to E. J. Townsend, the department chair at Illinois, on April 10, 1925, that her only reason for considering leaving Mount Holyoke was so she would have better research opportunities, namely, a better library and contact with other mathematicians doing research. A letter of March 5, 1925, to Townsend from the American College Bureau had inquired whether they would consider hiring a woman for the following year and had noted that Dickson had written that she is "one of the two most noted women in America in the field of Mathematics" (Personnel file, University of Illinois Department of Mathematics records).

Hazlett had written to Townsend earlier describing her many academic achievements. On March 18, 1925, she noted that she had read at least one paper a year before the AMS since 1915 and attended meetings on the average of twice a year. She also noted her participation in the 1924 International Congress of Mathematicians in Toronto, as well as her position on the editorial committee of the *Transactions* of the AMS. She mentioned, too, that she was a member of committee G of AAUP, which she described as concerned with "increasing the intellectual interest and raising the intellectual standards of the undergraduate" (Personnel file, University of Illinois Department of Mathematics records).

L. E. Dickson wrote to Townsend on her behalf on March 30, 1925. Among his comments are those concerning her mathematics, teaching, and certain aspects of her character and personal life.

> . . . She has shown more independence in research than any of our Doctors for [the] past ten years – and has published perhaps a dozen excellent papers in several branches of algebra showing real originality and the ability to attack successfully quite fundamental problems. Her tested ability and her continued eagerness for research make it certain she will have a very successful career in research. . . .
>
> Miss H. has been a bit unhappy at times, partly on acct of very poor math library at her school, & partly because her taking care of her mother has made it hard for her to make ends meet on a modest salary. . . .
>
> During the 2 years or more that Miss H. was here, I always found her to be quite a normal person, easy to get on with. . . . The

> drawback that she has been at times a bit unhappy (for reasons cited) would I am sure be completely remedied by her transfer to a place like U. Ill., since she is so eager to get to a live place with a real library. . . .
>
> I am sure she would have the greatest respect & consideration for her colleagues in your dept. Also that she would be most conscientious in her teaching & in carrying out the wishes of the head of her dept.
>
> I think it certain you couldn't find so competent a research person as she without calling a full professor (& not <u>many</u> of latter are her equal.) Her circumstances require a salary of at least $3000 – & she is <u>worth</u> much more. . . .
>
> A person of such high math. ability deserves a post in a leading math. dept. Since she is most kind hearted & considerate, I would fear no difficulty in her relations to colleagues & students. (Personnel file, University of Illinois Department of Mathematics records)

In 1925 Hazlett took a demotion in rank to join the faculty at the University of Illinois, and on January 1, 1926, she was elected to a three-year term as a member of the council of the AMS. She was promoted to associate professor in 1929 and was associate professor emeritus after her formal retirement from Illinois in 1959. In 1927 she was "starred" for mathematics in *American Men of Science*, one of only two women "starred" in that field before 1940 (Charlotte Scott had been "starred" for mathematics in 1903 and Christine Ladd-Franklin for psychology in 1906).

In addition to her other teaching, Hazlett taught a graduate course in the theory of numbers during the academic year 1927–28. In January 1928 she requested a leave from the University of Illinois for study in Europe and received a Guggenheim fellowship for 1928–29 "for the study of the arithmetics of linear associative algebras together with their application and interpretation in other lines of mathematics, especially the theory of numbers" (*Bull. Amer. Math. Soc.* 34:388). She sailed from New York to Genoa in June 1928 and spent the summer in the Italian Alps with her mother. On September 1, 1928, Hazlett arrived in Bologna where she presented a paper at the International Congress of Mathematicians. Following a tour of Florence and other Italian towns, she arrived in Rome on September 22 and remained there for most of the year except for a few weeks in Zurich. She had hoped to meet with Emmy Noether in Göttingen to discuss their work, but learned that Noether was in Moscow in the winter of 1928–29. Realizing that she would not be able to accomplish everything she wanted by September 1929, Hazlett applied for and received a one year renewal of her Guggenheim "for continuation of studies of the arithmetics of linear associative algebras" (*Bull. Amer. Math. Soc.* 35:743). She also received a second leave of absence from Illinois under the condition that she promise to return to the University and with a commitment for a promotion to associate professor with an increase in salary. During her second year in Europe she also studied in Göttingen.

When Hazlett resumed her work at Illinois, she received the promised promotion and raise, but her teaching was less satisfying, since she wanted more work with advanced students and less with elementary students. At this time her research productivity diminished.

Hazlett's mother had broken her leg during the summer and remained in Rome after Hazlett returned to Illinois. R. D. Carmichael, the department head at this time, wrote to Olive B. Hazlett in early January 1931 informing her that her daughter had not been very well since her return to Illinois in September and that she had not had energy for her research, but that she seemed to be improving. During the following few years Hazlett remained in her position at Illinois. However, in a letter on December 11, 1936, Arthur B. Coble, the head of the mathematics department, wrote to A. C. Willard, the university president that he was "very sorry to report that Professor Olive C. Hazlett has suffered a nervous breakdown and that her physician ... says that in all likelihood she will not be able to resume her duties before June" (Personnel file, University of Illinois Department of Mathematics records). Hazlett was granted a leave of absence for illness December 1, 1936, through August 1937; the leave was with pay, but her salary was reduced to cover expenses for her replacements. After about a week in the university hospital, she was taken to Rogers Memorial Sanitarium in Oconomowoc, Wisconsin, where she remained for several months before spending some time in Chicago. In spring 1937 she asked to extend the leave of absence until September 1938, and the leave was granted. In May 1937 a blow to Hazlett was the death of Herbert Slaught, the University of Chicago mathematics professor in whose home Hazlett had lived her last two years at Chicago. Although Hazlett had asked for and received a leave without pay, she found herself with financial troubles in autumn 1937, largely because she needed to contribute to the support of her mother.

Hazlett spent most of the year 1937–38 in Colorado, first in Denver and then in Estes Park. Although Hazlett had no official doctoral students, during the period that she was on leave Donald Meeker Brown finished his dissertation, *Arithmetics of Rational Generalized Quaternion Division Algebras*, under the direction of Henry R. Brahana but wrote in the "Acknowledgments" of his "appreciation of the guidance furnished by Professor Olive C. Hazlett in preparing [him] for the solution of the problem considered in this dissertation."

Hazlett returned to work at Illinois in September 1938. After a few years, however, she was committed by court order on November 20, 1944, to the Neuropsychiatric Institute of the University of Illinois in Chicago. At some point she was given a conditional parole but was committed by the Champaign County Court on March 13, 1945, to the Kankakee State Hospital in Kankakee, Illinois. She was on a temporary disability leave with pay until May 1945, after which she was on permanent disability leave until her retirement in the late 1950s.

In 1953, with the help of a Kankakee physician and attorney, Hazlett petitioned for her own release from the state hospital. A petition for a writ of habeas corpus was filed on September 23, 1953, and after a hearing and evidence, the court found the "petitioner not mentally ill and therefore illegally restrained of her liberties" (Record 55, p. 344, filed October 2, 1953, Clerk of the Circuit Court, Kankakee County). She was discharged from custody after which she moved to her cabin, Timeless Lodge, in Peterborough, New Hampshire. Her mother died in Boston less than a year later.

Olive C. Hazlett was described by Lucretia Levy, a former colleague and office mate for a year, as a kind and gentle lady and a pleasant office mate who seemed very much alone. Hazlett's interests were varied. In 1937 she described them as "rock climbing especially above timberline and when the technique is pressure climbing;

landscape photography, especially working across the light or into the light; Oriental rugs and other" (Owens questionnaire). In about 1940 Hazlett described herself as a Socialist and as an Anglo-Catholic. After Hazlett moved to New Hampshire, she was befriended by several local Discalced Carmelite brothers and was deeply involved as a lay woman in the order. At the time of her death she was a member of the Carmelite Third Order, an organization of lay people known as Tertiaries.

After living in Peterborough for nearly two decades, Hazlett spent some months in a Keene, New Hampshire, nursing home before her death there at eighty-three in 1974. She was buried in Peterborough. In 1984 Olive C. Hazlett was one of three mathematicians whose lives were celebrated in Case-of-the-Month, "Commemorating American Mathematics," exhibited in the Smithsonian Institution's National Museum of American History.

Organizational affiliations: AMS, MAA, Circ. Mat. di Palermo, Deutsch. Mat.-Verein., Edinburgh Math. Soc., London Math. Soc., AAAS (fellow), Phi Beta Kappa, Sigma Xi, Sigma Delta Epsilon, Pi Mu Epsilon.

Thesis and dissertation:
1913 Invariants which characterize linear associative algebras of a small number of units. MS thesis, University of Chicago, directed by Leonard Eugene Dickson. Typescript. See also **1914**.
1915 On the classification and invariantive characterization of nilpotent algebras. PhD dissertation, University of Chicago, directed by Leonard Eugene Dickson. Printed version, 1916, reprinted from *Amer. J. Math.* 38:109–38.

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Other sources: MS thesis vita 1913; PhD dissertation vita 1916; Owens questionnaire 1937; conversations with former colleagues Josephine Chanler on 24 Mar 1983, J. L. Doob on 25 Mar 1983, P. W. Ketchum on 23 Mar 1983, Lucretia Levy on 24 Mar 1983, in Urbana, IL; Bryn Mawr College Archives (M. Carey Thomas Papers, Microfilm Edition); University of Chicago Archives (E. H. Moore Papers); University of Illinois Archives; Smithsonian Institution Archives (National Museum of American History, Division of Physical Sciences and Mathematics, Records); University of Illinois Department of Mathematics records; Circuit Court of Kankakee County, IL; communications with Cincinnati Medical Heritage Center, Massachusetts Document Retrieval, and with Clerk of the Circuit Court of Champaign County, IL; "Fellowship Awards for this Year," extracts from letter from Miss Maltby in "Report of the Committee on Fellowships," *J. Assoc. Coll. Alum.* 9 (1916): 35; O. D. Kellogg, "A decade of American mathematics," *Science* n.s., 53 (1921): 541–48; Maltby, *History of the Fellowships*; Bell, "Fifty Years of Algebra in America, 1888–1938"; Jeanne LaDuke, "The Study of Linear Associative Algebras in the United States, 1870–1927" in *Emmy Noether in Bryn Mawr*, eds. Bhama Srinivasan and Judith Sally, 147–59, (New York: Springer-Verlag, 1983); Green and LaDuke, "Contributors to American Mathematics"; Massachusetts Death Record Abstract (Olive B. Hazlett); US Census 1900 OH, 1900, 1910 MA; SSDI.

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