

2018 Albert Leon Whiteman Prize

KAREN HUNGER PARSHALL was awarded the 2018 Albert Leon Whiteman Memorial Prize at the 124th Annual Meeting of the AMS in San Diego, California, in January 2018.



Karen Hunger Parshall

Citation

The 2018 Albert Leon Whiteman Prize of the American Mathematical Society is awarded to Karen Hunger Parshall of the University of Virginia for her outstanding work in the history of mathematics, and in particular, for her work on the evolution of mathematics in the United States and on the history of algebra, as well as for her substantial contribution to the international life of her discipline through students, editorial work, and conferences.

Professor Parshall has a long and distinguished publishing record in the history of mathematics: four seminal books, one monograph, four coedited volumes, more than fifty research papers, and a great number of reviews and papers directed at wider audiences. She has particularly studied two themes: the evolution of mathematics in the United States and the history of algebra. Concerning the first theme, she coauthored with D. Rowe *The Emergence of the American Mathematical Research Community (1876–1900)* (AMS, 1994). She subsequently extended that work to the year 1950 in numerous research papers. As for her second research focus, the history of algebra, she has produced decisive works in the history of the theory of algebras, of invariant theory, and of the theory of finite groups, as well as a synthesis, coauthored with V. Katz, *Taming the Unknown: A History of Algebra from Antiquity to the Early Twentieth Century* (Princeton University Press, 2014). At the intersection of these two themes, she devoted two major books to the towering figure of British mathematician James Joseph Sylvester (1814–1897), his mathematical research as well as his role in the creation of the Mathematics Department at the Johns Hopkins University and the founding of the *American Journal of Mathematics*.

Parshall unites approaches long thought to be contradictory. She masters impressive amounts of archival evidence, applies utmost scrutiny and competence in analyzing both mathematical content and institutional

contexts, and establishes links between local mathematical environments and the appreciation of particular mathematical objects within those environments. Examples include her fine comparison of German and Anglo-American approaches to invariant theory in the nineteenth century and her analysis of the way in which Sylvester applied his combinatorial and algebraic work to chemistry. She has also reflected on issues linking mathematics and society, for instance, the internationalization of mathematics and the place of women in mathematics.

Parshall excels in exposition. She gave a plenary lecture at the hundredth anniversary celebration of the Mathematical Association of America in 2015 and was an invited speaker at the International Congress of Mathematicians in Zürich in 1994, as well as at the Joint Mathematics Meetings in 1995, 2000, and 2008. She served on the editorial boards of the *American Mathematical Monthly* (1996–2006) and of *The Mathematical Intelligencer* (1989–1992) and has written articles for the large audiences of these journals, in particular on the history of mathematical education. She has played a key role in developing the history of mathematics into a professional discipline in the United States. Several former doctoral students of hers are now professors and researchers. As managing editor (1994–1996) and then editor (1996–1999) of *Historia Mathematica*, chair of the International Commission for History of Mathematics for eight consecutive years, and co-organizer of several international conferences, she has also shaped the domain beyond national borders. The depth and variety of her contributions, historical and mathematical, make her a natural and notable recipient of the Whiteman Prize.

Biographical Sketch

Karen Hunger Parshall is Commonwealth Professor of History and Mathematics at the University of Virginia. She earned her BA in French and mathematics, as well as her MS in mathematics, at Virginia before pursuing her graduate work at the University of Chicago. She earned her PhD in history there in 1982, working under the supervision of I. N. Herstein in mathematics and Allen G. Debus in the history of science.

She followed her first job, in the mathematics department at Sweet Briar College (1982–1987), with a year in the mathematics department at the University of Illinois at Urbana-Champaign. Since 1988, she has been on the faculty at the University of Virginia, where she has a joint appointment in the Departments of History and Mathematics, teaching the history of science in the history department and mathematics and the history of mathematics in the mathematics department. This dual commitment has been reflected in her professional service. She has been actively involved with *Historia Mathematica*, an international journal for the history of mathematics, since the 1990s, serving as its editor-in-chief from 1996 to 1999. She also served as a member of the Councils of the American Mathematical Society (1998–2001) and of the History of Science Society (2001–2004). In 2002 and then again in 2006, she was elected to four-year terms as chair of the International Commission. She has been privileged to lecture on her research in many venues, among them as an invited hour speaker at the International Congress of Mathematicians in Zürich (1994), as a plenary lecturer at the Joint Mathematics Meetings in San Francisco (1995), in Washington, DC (2000), in San Diego, California (2008), and as one of the MAA's Centennial Speakers in Washington, DC (2013). She was particularly honored that her research was supported in 1996–1997 by both the John Simon Guggenheim Foundation and the National Science Foundation's Program for Visiting Professorships for Women and that it was recognized by her election (in 2002) as a corresponding member of the Académie Internationale d'Histoire des Sciences and (in 2012) as an inaugural Fellow of the American Mathematical Society.

Her most recent books are *Taming the Unknown: A History of Algebra from Antiquity to the Early Twentieth Century* (coauthored with Victor Katz) (2014) and *Bridging Traditions: Alchemy, Chemistry, and Paracelsian Practices in the Early Modern Era: Essays in Honor of Allen G. Debus* (coedited with Michael T. Walton and Bruce Moran) (2015). She is currently at work on a book-length study of the American mathematical research community, 1920 to 1950.

Response from Karen Hunger Parshall

I am deeply honored and profoundly humbled to be named the 2018 recipient of the Albert Leon Whiteman Memorial Prize in the history of mathematics.

Although the history of mathematics has a long history, going back in the Western intellectual tradition at least to the work of Eudemus of Rhodes in the fourth century BCE, its recognition and institutionalization in the modern academy has by no means been automatic. Is it history? Is it mathematics? Is it somehow both? Is it somehow neither? These questions have had different answers as the history of mathematics has sought a niche in the intellectual continuum.

When I was an undergraduate at the University of Virginia trying to decide whether to go to graduate school in mathematics or in French, I had never heard of the history of science, much less the history of mathematics. Those

subjects just were not offered at UVA. Indeed, they were not offered at most colleges and universities. In my junior year, though, I had an amazing stroke of good fortune. My French advisor and mentor, Bob Denomme, convinced me that I was ready to dive into the graduate offerings, and he particularly steered me into the course, ostensibly on eighteenth-century French literature, offered that fall by the university's visiting professor from France. Little did I realize when I walked into that classroom that the course was really going to be one on the history of eighteenth-century French science and that my professor, Jacques Roger, was one of the leading historians of science in France. By the end of that semester, I had discovered a whole new field and was being encouraged to choose it for graduate school. I would not have to decide between French and mathematics!

As a historian of science, I would need all of my languages, and, by working on the history of mathematics, I would need all of the mathematics I had had and more. But how would it work? Would I be able to get a job as a historian of mathematics? At a time before the Internet, I sent off letters to a dozen historians and philosophers of science whose names I found in the library by looking up and reading their books. They did not know this UVA undergraduate from Adam, and several of them never answered or answered perfunctorily. One, though, the philosopher of science Abner Shimony, at Boston University, wrote me back a long and thoughtful letter with what in retrospect may have been idealistic advice. Still, it was just the advice that this idealistic undergraduate needed to hear: if you work hard at it, things will fall into place.

The first thing that fell into place was my admission to the University of Chicago's Morris Fishbein Center for the History of Science and Medicine in the Department of History. On my first visit to the campus after receiving my letter of acceptance, I met with two of the faculty members associated with the center, its director and ultimately my history of science advisor, mentor, and friend, Allen Debus, and Saunders Mac Lane. When I showed up at Mac Lane's office door and talked to him about my interests in the history of nineteenth- and twentieth-century algebra, he told me that we needed to go down the hall so that I could meet his colleague, Yitz Herstein. When I told Herstein what I wanted to work on, he said in an uncharacteristically Rhett Butleresque way, "My dear, I have been waiting for you to walk through my door for fifteen years." From that moment on, I had an advisor in mathematics and, thanks to Chicago's interdisciplinarity, ended up taking half of the courses for my PhD in history in the mathematics department with Yitz, Irving Kaplansky, Jon Alperin, and Mac Lane. The dissertation that I subsequently produced on Wedderburn's contributions to the history of the theory of algebras was written under their steady mathematical gazes, as well as with the benefit of the incisive historical critique of Allen Debus and my other professors in the history of science, especially Bob Richards and Noel Swerdlow. In working together to work with me, these mathematicians and historians of science gave me an answer to the question "What is the history of

FROM THE AMS SECRETARY

mathematics?” They showed me that it could and should be both history and mathematics, at the same time that it intimately intertwines the two.

Since 1988, when its then dean of the faculty, the physicist Hugh Kelly, made possible a completely unheard of fifty-fifty joint appointment for me in history and mathematics, the University of Virginia has provided a challenging but supportive environment. There, I have pursued my research, trained graduate students in the history of mathematics, and introduced undergraduates to the amazingly rich histories of science and mathematics. I have continually benefited from my daily bouncing back and forth between conversations with colleagues in both of my departments. Two in particular—my colleague in history, Joe Kett, and my colleague in mathematics, my husband, Brian Parshall—have, through their respective insights, helped me become a better historian of mathematics. And the same is true of my PhD students—Della Dumbaugh, Patti Hunter, Sloan Despeaux, Deborah Kent, and Laura Martini—while they were working on their dissertations and in the years since.

I also came to realize that even though it may have seemed like I had to carve, with much help, my own academic niche, I was by no means alone. I came, through the Joint Mathematics Meetings and the efforts initially of Victor Katz and Fred Rickey, to realize that there was a vibrant community of historians of mathematics in the United States, as well as internationally. Joe Dauben at the City University of New York and the fourth Whiteman Memorial Prize winner has been a constant source of professional inspiration throughout my career, as was the noted English historian of mathematics, Ivor Grat-tan-Guinness. Another friend and colleague, Albert Lewis, opened for me the treasure trove that is the Archive of American Mathematics. My debts to other colleagues and collaborators in the United States, Great Britain, France, the Netherlands, Germany, Spain, Italy, Mexico, Brazil, Australia, China, and elsewhere are simply too numerous to detail. Their work and the give-and-take in which we engage here at the Joint Mathematics Meetings, as well as at meetings and less formal encounters around the world, have helped us all to grow as historians of mathematics and the field to develop as a discipline at the interface between history and mathematics.

I extend my most heartfelt thanks to all of these colleagues, as well as to the AMS’s selection committee. My thanks also go to Sally Whiteman. She made the Alfred Leon Whiteman Memorial Prize possible and, in so doing, prominently recognized research in the history of mathematics within the broader mathematical research community.

About the Prize

The Whiteman Prize is awarded every three years to recognize notable exposition and exceptional scholarship in the history of mathematics. The prize was established in 1998 using funds donated by Mrs. Sally Whiteman in memory of her husband, the late Albert Leon Whiteman. The prize carries a cash award of US\$5,000.

The Whiteman Prize is awarded by the AMS Council acting on the recommendation of a selection committee. The members of the 2018 prize selection committee were:

- Umberto Bottazzini
- James W. Cannon
- Catherine Goldstein (Chair)

A list of previous recipients of the Whiteman Prize may be found on the AMS website at www.ams.org/profession/prizes-awards/pabrowse?url=jpbm-comm-award#prize=Albert%20Leon%20Whiteman%20Memorial%20Prize.

Photo Credit

Photo of Karen Parshall Hunger by Bryan Parsons.

