

Clarence F. Stephens (1917–2018)

Johnny L. Houston



“More than fifty years ago, I arrived at the conclusion that every college student who desired to learn mathematics could do so. I spent my entire professional life believing that this was the case.”—Clarence Stephens, June 20, 1997

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Honors Received by Clarence Stephens

PhD in mathematics (ninth African American, 1943)

Ford Fellowship at the Institute for Advanced Study in Princeton, where he worked alongside Albert Einstein (1953)

Honored for distinguished service to education by Governor J. Millard Tawes of Maryland (1962) and by Governor Mario Cuomo of New York (1987)

Inducted into the National Museum of American History at the Smithsonian Institution (1983)

Three honorary doctorates: from Johnson C. Smith University (1954), Chicago State University (1990), and SUNY (1996)

Seaway Section of MAA names their teaching award after Stephens (2003)

National Association of Mathematicians Lifetime Achievement Award (1998)

MAA Gung and Hu Award for Distinguished Service to Mathematics (2003)

100th birthday symposium at SUNY Potsdam (2017)

NAM Centenarian Award and naming of Stephens annual teaching award in his honor (2018)

Clarence F. Stephens was a nationally acclaimed master teacher of collegiate mathematics and creator of the Morgan-Potsdam Model and the “Potsdam Miracle”: for several years in the 1980s, while Stephens was mathematics department chair at SUNY Potsdam, over 20 percent of all graduates were mathematics majors (as compared to the national average of about 1 percent), without sacrificing rigor. In 1985, over 25 percent of all graduates and over 40 percent of the honors students were mathematics majors [1–5].

Clarence Francis Stephens, Sr., was the fifth of six children (three girls and three boys) born to Sam Stephens (a chef and railroad worker) and Jeannette Morehead Stephens in Gaffney, South Carolina, on July 24, 1917. Sadly,

his mother died when Clarence was two, his father died when he was eight, and all six children went to live with their maternal grandmother, who died when Clarence was ten. The three boys went to Harbinger Institute, a boarding school in Immo, South Carolina, where they worked on the farm in summer to pay for their schooling in winter. All three boys attended Johnson C. Smith University and majored in math. Clarence graduated in 1938 and began graduate study in mathematics that fall at the University of Michigan. Stephens received his MS in 1939 and his PhD in 1943 on nonlinear difference equations.

After a tour as a teaching specialist in the US Navy (1942–1946), he joined the faculty of Prairie View A&M University. In 1947, the President of Morgan State University sent Stephens an invitation to join Morgan’s math faculty. One of Stephens’ main reasons for going to Morgan was that he would be near John Hopkins University, a major research institution. Stephens’ focus at that time was on research. Research articles by Stephens had been printed in AMS publications while he was at Morgan, prior to his going to Princeton to study.

While at Morgan, Stephens became appalled at what a poor job was being done, in general, to teach and inspire students to learn mathematics. He then completely changed his focus to that of being a master teacher. He remained at Morgan until 1962. Prior to his arrival at Morgan, no student from Morgan had earned a graduate degree in the mathematical sciences. Many of his students went on to earn doctoral degrees in the mathematical sciences, including Earl Barnes, Vassily Cateforis, Earl Embree, Gloria Ford Gilmer, Arthur Grainger, Charles Moore, Sylvester Reese, Robert Smith, and Scott Williams.

In 1962 Stephens accepted an appointment as professor of mathematics and department chair at the State University of New York (SUNY) at Geneseo, and in 1969 he joined SUNY at Potsdam, serving as professor and department

chair until his retirement in 1987. During his tenure at Potsdam the department became nationally known as a model of teaching excellence. For several years, the program was among the top producers of undergraduate mathematics majors in the country.

Stephens discovered at a very early age that he could learn mathematics with very little help from his teachers. This ability to read mathematics with understanding and to enjoy it for its intrinsic beauty accounts for much of his success in becoming a mathematician. His teaching techniques consisted mainly of developing these abilities in students. He realized that a student who can study independently and find joy in discovering new ideas already has much of what is required for success in mathematics. Stephens recognized that this is not an easy task. He stated [2, p. 297]:

From my experiences at Morgan and Potsdam I knew that it was difficult to establish favorable academic environments, so that any college student who desired to do so could learn and enjoy learning mathematics. To establish a successful program depended on *creative thinking, time, and place*.

In his passionate work with students, Clarence Stephens showed us all what is possible with the right combination of these ingredients.

References

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- [5] ARMOND SPENCER, On attracting and retaining mathematics majors—don’t cancel the human factor, *Notices Amer. Math. Soc.* 42 (1995), 859–862, www.ams.org/journals/notices/199508/spencer.pdf.

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Clarence Stephens Aphorisms [5]

Believe in your students—everyone CAN do mathematics, philosophy, art, literature, etc.

Know your students—their names, what they know, their hopes and fears.

Don’t say *this is easy*, or *this is trivial*.

Go fast slowly (most teachers go slow fast).

It is very difficult to learn how to solve problems by watching someone else do it or by reading a book; the best method to learn to solve problems is by solving a lot of problems yourself.

High standards do not mean having unrealistic expectations so students feel that they have failed.

Write tests carefully—know what your average student can do and what your best student can do.

And most of all—teach the students you have, not the ones you wish you had.