MEMORIAL TRIBUTE

James A. Donaldson—Black Mathematician, Advocate, Gentleman (1941–2019)

Fern Y. Hunt, Robin T. Wilson, and Daniel A. Williams

Introduction

In reviewing the participation and contribution of African Americans to the US mathematical community, the achievements of the last 100 years present a stunning contrast to the previous 300 years. Indeed, the institutions of slavery in the Western Hemisphere and the century of segregation and discrimination that plagued African Americans after the Civil War posed insurmountable barriers to most individuals of talent and inclination. Thus, it is interesting to note that much of the progress towards greater diversity and inclusion that we have seen until now in the American mathematical community can be tied to the African American mathematicians who came of age in the 1940s, 1950s, and 1960s. Using the moral energy and political opening created by the civil rights movement, these men and women established programs that made space for younger African Americans to join the mathematics community and have their efforts better recognized and rewarded. Among the leaders of this generation, 6 foot 5 James Ashley Donaldson stands tall. In 1969, he helped start the National Association of Mathematicians (NAM), whose goal was to end the shameful collusion and direct acts of discrimination against Black mathematicians and other mathematicians of color so common in the 1940s, 1950s, and even 1960s [Don89a, Kas19, Lor94, NGRS80]. Donaldson continued his support and leadership of NAM by serving as the first editor of the NAM newsletter and the director of communications. He also was a member of its Board of Directors in the years 1984–1994.

His signal achievement however was the establishment of a mathematics PhD program at Howard University, the first such program at a historically Black university. As he recounted in his HistoryMakers interview [HMV], the idea originated with James Cheek, then president of Howard, who embarked on an ambitious plan to bolster science and engineering at the university. In his years as chair (1972–1990), Donaldson recruited and hired young PhDs from leading universities to create what is now a flourishing mathematics department. During the last two decades the department has produced an average of 2.5 PhDs per year and in 2019 they graduated seven students.[1]

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[1] *From Professor Dennis Davenport, the Director of Graduate Studies for the Howard Mathematics Department.*

Donaldson became the third African American (David Blackwell and J. Ernest Wilkins being the first and second) elected to the AMS Council. He was also elected second vice president of the Mathematical Association of America [NGRS80]. From the earliest days of his career, Donaldson had a broad interest in and connection to the mathematical community in the African diaspora. This came to the fore in 1974 when he and American University statistician Mary Gray waged a successful campaign to derail a proposed reciprocal relationship between the AMS and the apartheid-era South African Mathematical Society [Pit88].

In the 1990s Donaldson's academic career entered a new phase as he took on major administrative responsibilities. An active alumnus of Lincoln University and member of its Board of Trustees, Donaldson was recruited to serve as acting president of the university during 1998–1999 and then returned to Howard to serve as Dean of the College of Liberal Arts and Sciences in 1999–2012. During Donaldson's tenure as Dean, a group led by a Howard University team of scientists, anthropologists, and archeologists wrote a report on the excavation, analysis, and history of the prerevolutionary New York African burial ground, the oldest and largest urban gravesite of free and enslaved Africans in the country. This project, which was of deep national significance, was made possible as a result of the financial and administrative support that Donaldson obtained from Howard University.

Early Years

James A. Donaldson was born in 1941 to Oliver and Audrey Donaldson, the 8th of 11 children, on a farm in Madison County near Tallahassee, Florida. He was taught by his uncle Enoch Donaldson to read, write, and calculate long before entering elementary school. He was educated in a segregated school system in Madison County, where his first eight years of education took place in a rural two-room school house with grades one through four in one room and grades five through eight in the other. The Supreme Court struck down segregated public schools in 1954, when Donaldson was in the 10th grade. Despite the ruling, many questions remained regarding the fate of the segregated educational system, and after high school Donaldson was encouraged by a teacher to leave the south and go north for his college education. Donaldson followed this advice and entered Lincoln University in Pennsylvania in 1957, graduating with a BA in mathematics in 1961. He went on to do graduate work in mathematics at the University of Illinois in Urbana-Champaigne, and obtained a PhD in 1965 in partial differential equations. Upon graduation from UIUC, he held a series of faculty positions

Figure 1. James Donaldson with his brothers. From left to right: Joseph, Clarence, James, Albert, Enoch, Chandler, Rufus, and Oliver on the Donaldson Farm in Madison County, Florida, in the 1970s.

starting at Howard University, then the University of Illinois at Chicago, and the University of New Mexico, before returning to Howard University in 1971 [Don].

In the rest of this article we will hear from a number of people touched during his rich and distinguished career. We begin with Mary Gray, founder of the Association for Women in Mathematics and its first president. We next hear from Chandler Davis, Professor Emeritus of the University of Toronto, who shares remembrances from his early activist years, and then follow with a contribution from Donaldson's former Howard colleague Professor Isom Herron of Rensselaer Polytechnic Institute, and then Daniel Williams, Associate Professor at Howard University. Donaldson was a skilled and devoted teacher and mentor. Contributions from his former PhD student Sean Brooks of Coppin State University and from Fern Hunt (scientist emeritus) of the National Institute of Standards and Technology complete this brief portrait of a truly impactful life.

Sometimes You Just Need to Do Something

Mary Gray

Jim Donaldson was a force for activism for human rights and an inspiration and fellow agitator with many of us of his generation. Back in the 1970s we decided to organize to challenge discriminatory practices in the mathematical community. The National Association of Mathematicians

(NAM) and the Association for Women in Mathematics (AWM) were founded with the idea of encouraging and assisting minorities and women to study mathematics and to consider and prepare for a career in the field. It was apparent certainly to Jim and to me that the reigning superstructure was probably not going to do much, so we decided that more people interested in progress on this and other progressive fronts needed to be elected to the AMS Council to provide some institutional support and action. With lots of assistance from supporters of diverse backgrounds such as Jim, I was fortunate to be elected to the Council and subsequently as Vice President.

At the Council, my ideas were often not well received. So, when the issue of the reciprocity agreement with the South African Mathematical Society came up, no one was surprised when I suggested that such an agreement with an organization which was a part of official apartheid should be turned down; nor was I surprised at the opposition this encountered. The South African government enforced a rigid and brutal regime of racial separation and subjugation known as apartheid. It treated nonwhites as if they were not human beings entitled to rights, a situation which was similar to what had taken place in the past in the US and is still echoed in spots around the world today.

The question of whether individual members of a math society should be held responsible for the policies of their government was raised of course. Did we want to be accountable for US government policies (remember Vietnam and the still existing widespread discrimination here)? At least we should be held responsible for not agitating against them and working to improve the situation, but some cases can be so abhorrent—as with apartheid—that personal responsibility must be assigned as part of massive international condemnation. We argued that action must be taken, even if it is as minor as denying reciprocity membership. Even if we cannot do much, we cannot do nothing when that might be considered as tacit endorsement of these policies. We needed to make clear that no matter how committed we might be to the principles of the participation of individuals in the worldwide community of mathematics, the situation in South Africa was beyond what could be tolerated. Sometimes principles of encouraging participation may conflict with principles of condemnation, and the time had come to condemn apartheid.

But the battle at the AMS Council would have been lost were it not for Jim's eloquence when invited to address the Council. For me, the resulting victory established an alliance that lasted nearly 50 years, and in the mathematical community spurred awareness of ethical responsibilities of mathematicians in the US and in countries around the world who faced violations of their human rights. As a result of this battle, council-mandated policies improved in a number of ways.

Figure 2. From left to right: Wilbur Smith, Gerald Chachere, Evelyn Green, Rogers Newman, Robert Bozeman, Ulysses Bail, and James Donaldson at a NAM meeting at Elizabeth City State University.

Jim and I often joined forces on local issues on which we were both working. Among these occasions were gatherings of the AWM within larger mathematics conferences. Lots of men were supporters of the AWM, some openly and some more clandestinely except perhaps at the AWM parties that became a feature of AMS meetings. Jim was always with us, not only on opening up mathematics to more minorities and women at all levels, but on other matters of ethical concern like military collaboration. Through the years, when some of my minority PhD students felt discouraged by the difficulties they still faced, I pointed them to Jim, who was always willing to engage, helping them persevere to eventual success. Thanks, Jim, for all that you have done.

Donaldson Steps Up

Chandler Davis

Jim Donaldson told a story of a turning point in his youth. As a student (and student athlete) he was walking home one afternoon after a few beers, when a car passing on the street slowed down, and some young White guys hollered insults. Jim answered clearly and audibly, "So's your mother." The car had been speeding on, but instead it stopped in front of him and the passengers got out. It happened that Jim was carrying a substantial length of 2-by-4 for some repair project. He stood his ground, hefting the lumber thoughtfully. The White guys, seeing that he might

be hard to subdue and anyway would likely dent their car before they did, got back in the car and drove away. Jim reflected on this. He decided, "Hey, that was not good. They could have followed me in the car, found out where I live, and made all sorts of trouble." And he said to himself, "If I had not had those beers, I wouldn't have said that." He instantly became a teetotaler. It wasn't many years after that that I got to know Jim, and he had clearly built a personality fitting with that. He didn't give an inch in his beliefs, but he was not one to waste his passion on needless confrontation.

Some of us mathematicians had been dedicated activists against the war in Vietnam, and although few of us did this style of mathematics we flippantly called ourselves the Bourbaki Brigade, named after the then popular style of abstract mathematics. Now Jim Donaldson was one of the most visible spokespeople for the Bourbaki Brigade, and let me point out that among those few he was the only African-American and the only one without academic tenure. But calm. Despite the outwardly lighthearted tone of the young group, the late 1960s were ominous.

By 1968, public support for the war collapsed and, because of the draft, most college-aged men faced the threat of being forced into the military and into the ongoing carnage in Southeast Asia. The Bourbaki Brigade briefly participated in an anti-war demonstration in Chicago at the 1968 Democratic convention on its first day before going on to an AMS meeting in Madison, Wisconsin. The events that transpired in Chicago in the days after they left were a turning point in the history of the Democratic Party and of the country. We refer you to the many books and films about this time.

How did the anti-war math contingent carry on after Chicago? With a motion to the Business Meeting at the AMS Winter Meeting in New Orleans. According to its schedule, the AMS was to hold its 1969 Summer Meeting in Chicago. In protest against the city government's violent repression of anti-war protests in 1968, our motion was to cancel the reservation and hold the Summer Meeting in Cincinnati instead. Not the sort of last-minute reconsideration the officers could readily accept. There was a floor fight, and some hard feelings; but our side won, and Cincinnati it was.

In the margins of the New Orleans Meeting, some of the anti-war activists got together and brought into existence a new organization, the Mathematicians Action Group (MAG). An auspicious debut, with that nontrivial victory in the Business Meeting. I missed the New Orleans excitement, but I was part of all the subsequent history of MAG, as was Jim Donaldson. Amorphous though the group was, it had a philosophy and an identity, and we tried to stick

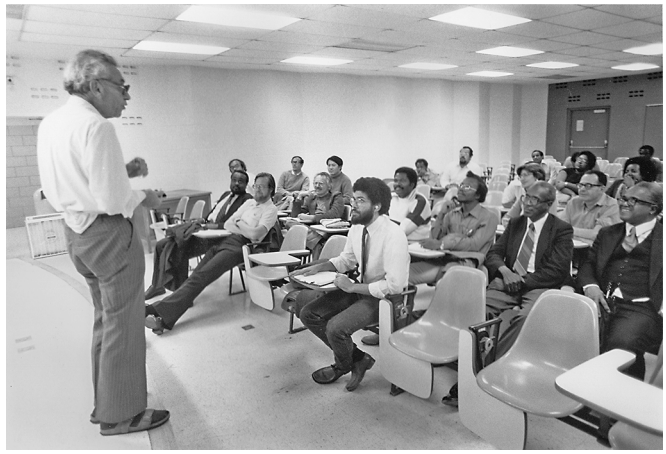

Figure 3. Paul Erdős delivers colloquium talk to the mathematics department. Erdős visited Howard at the invitation of his collaborator Neil Hindman (seated in front row, second from the left). Jim Donaldson is on the extreme left.

together. Resistance to the Vietnam War, and appeals to the profession not to put itself in the service of the warmakers, continued, along with other issues. Our resistance to racism was often centered in NAM, in which Jim played a major part.

Jim sometimes saw the way to unity when others didn't, but he didn't dictate it; sometimes he saw sensible solutions which we learned only when we asked him for them. Let me just share one incident from the MAG years. Two of our most active comrades, with many (figurative) hash marks for past service to the cause, were much respected and appreciated by all of us, except by each other. We were distressed every so often by the way they would lash out. After one such set-to, Jim Donaldson smiled at them and said gently, "What's with you two? Come on! You know you're both going to heaven." In other words, the issue dividing them was one that didn't need to be settled. Couldn't have been said better. I speak for many in saying "Thank you, Jim."

Jim Donaldson: A Remembrance

Isom Herron

I first met Jim in 1973 while, as a postdoctoral fellow in applied mathematics at Caltech, I began looking for a tenure track position. One of the places I visited on that application tour was Howard University. Jim was chair of the mathematics department. We met in his office in a WWII-era, seemingly temporary, building. It was made clear to

me that though a permanent position was not inevitable, I would be given a fair shot at Howard. That was one of the hallmarks of his character; Jim was a man of his word.

He had been tasked with building a PhD program at Howard and he envisioned me as contributing to the applied wing of that effort. My training was in asymptotic and perturbation methods. I was impressed then that he brought an analytical strength to his work. I saw that he had a copy of the classic *A Course of Modern Analysis* by Whittaker and Watson [WW96], which was an underpinning of much of the work I did. He was also involved in the application of semigroup methods in partial differential equations. He often gave tribute to Einar Hille for this, as well as for the personal mentorship he had showed to Jim. I believe Jim met Hille while they both were at the University of New Mexico; one a recent PhD, the other a recently retired senior Professor.

Though the PhD program of Howard was still to be finally approved, the awarding of Masters degrees had gone on for generations. Jim had a prospective Masters student, Peter Philip, whom he turned over to me. That was a tough act to follow. Jim had taught Peter Philip, and though I myself had no direct experience of Jim's teaching, this young man was a living example of its success, someone who had already achieved a very strong Bachelors degree. Anecdotally, he told me that Jim could arrive in the classroom with just a stick of chalk and develop important theory, for example about differential equations, in a cogent and dependable way. Peter Philip went on to write his Masters thesis, entitled *Green's Function for a Singular Boundary Value Problem* in 1975, making use of work by Natterer. The main result was a necessary and sufficient condition for the Green's matrix to exist for a singular system of ordinary differential equations with a singular boundary condition. We could not find this in any books at the time.

Later in my career, I was asked to organize a workshop for underrepresented minority students at the SIAM Annual Meeting in Portland, Oregon, in 2004. The occasion was called Diversity Day. Jim, on his own dime, attended to help mentor these students. He gave a talk at the closing dinner entitled "Some exceptional mathematical scientists I have known." Indeed, Jim could say this because he knew, besides those mathematicians I have already mentioned, most of the living African Americans to receive a PhD in mathematics. I remember well the day when at the Department of Mathematics at Howard University, he arranged for J. Ernest Wilkins and David Blackwell to both be in attendance at a dedicatory event for Dr. Elbert Cox, the first African American to receive a PhD in mathematics. His interest in the history of African American mathematics continued and in his later years he wrote about the

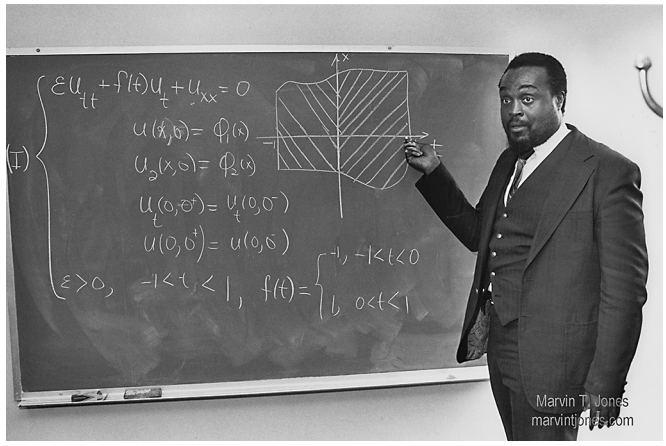

Figure 4. James Donaldson at the chalkboard.

place of African Americans in the growth of mathematics [Don89b].

Being in middle management, as a department chair, Jim faced the inevitable pressures of his position. This has given one of my former colleagues there to remark: He avoided offending people by harsh word or by jarring deed. His ideal was that of a surgeon skillfully cutting a patient so that there was no expression of pain, and that was for the patient's well-being and benefit. Jim asked me to act as chair for a couple of semesters when he was on leave. Since he asked the second time, I know I had fulfilled some of his expectations.

To the outside world of mathematics, his monumental accomplishment was in establishing the PhD program in the Howard University Department of Mathematics. Clearly such an achievement took the vision and commitment of Dr. James Cheek, then the president of Howard. Still it lay with Jim to encourage implementation, generating administration support in the recruitment of faculty and students, building seminars, promoting conferences, obtaining clerical support, and all the while supervising the mathematics education needed for students from premed to engineering.

In summary, the legacy of Jim Donaldson is undying. In his intellectual interactions with his colleagues, he freely shared his ideas, and succeeded in several productive collaborations. He readily encouraged his colleagues in their research pursuits, and he was a beacon to students who looked at mathematics as a possible career.

A Mathematician and Leader

Daniel A. Williams III

The chair of a department at Howard University is by no means a figurehead post. Despite the fact that his most productive years appeared to coincide with his early years as chair of the mathematics department, I cannot help but believe that his mathematical productivity had to have suffered from the relentless difficult-to-delegate administrative tasks that fell in his lap on a daily basis. I suspect however that he recognized that his leadership abilities were too greatly needed by the communities he served, and he accepted the price it exacted. The same statement can be repeated regarding his stint as acting president of Lincoln University (he refused to be considered for the position permanently), and even more so as dean of the College of Arts and Sciences at Howard. Nevertheless he had a string of mathematical papers refereed in some of the most highly regarded journals during his years as chair of the Howard mathematics department. A MathSciNet search shows that Donaldson authored or co-authored 20 publications during the years 1967–2004. The years that I worked with him mathematically were during the eight-year hiatus he had from administration between the chairmanship and deanship.

Donaldson invited me to work with him on a problem in the theory of water waves that I believe was originally suggested to him by Avner Friedman. Although this subject fell broadly within my area of interest then, I was not specifically knowledgeable about it at the time. Most of his papers were single authored, but he also had a few collaborators over the years, so I believe he also enjoyed working on mathematics with others. I considered it my good fortune to be invited to work with him, because I certainly enjoyed the time we worked together. We would get together once or twice a week to discuss the progress each had made. We shared the chore of writing it up in TEX as we progressed.

If you assume the depth of the water in a domain Ω_B, where B is a function describing the boundary (8), (9) and the amplitude relative to the wavelength of surface waves is small, we get the following model. We are required to find the velocity potential $\Phi(x, y, t)$ satisfying the boundary-value problem

$$\Phi_{xx} + \Phi_{yy} = 0 \quad \text{in } \Omega_B \times \mathbb{R}^+, \tag{1}$$

$$\frac{\partial \Phi}{\partial n} = 0 \quad \text{on } \Gamma_B, \tag{2}$$

$$\Phi_y = \eta_t, \qquad \Phi_t + \eta = 0 \text{ on } \Gamma \times \mathbb{R}^+, \tag{3}$$

or equivalently

$$\Phi_y + \Phi_{tt} = 0 \quad \text{on } \Gamma \times \mathbb{R}^+, \tag{4}$$

$$\Phi(x, 0, 0) = F_0(x) \quad \text{on } \Gamma, \tag{5}$$

$$\Phi_t(x, 0, 0) = F_1(x) \quad \text{on } \Gamma, \tag{6}$$

and where $y = \eta(x, t)$ is the equation of the free surface,

$$\Gamma = \{(x, 0) : x \in \mathbb{R}\}, \tag{7}$$

$$\Gamma_B = \{(x, y) : y = -\epsilon B(x)\}, \tag{8}$$

$$\Omega_B = \{(x, y) : -\epsilon B(x) < y < 0, x \in \mathbb{R}\}. \tag{9}$$

The initial conditions (5), (6) result from specifying the initial surface elevation $\eta(x, 0)$ and the initial velocity potential $\Phi(x, y, 0)$. Some other assumptions made are that $\epsilon > 0$ in (8) and (9) is small, and both the density of the fluid and acceleration due to gravity are constants equated to one.

In the linear theory of shallow water, the hyperbolic initial-value problem plays a crucial role:

$$W^0_{tt} - \epsilon(BW^0_x)_x = 0, \tag{10}$$

$$W^0(x, 0) = F_0(x), \qquad W^0_t(x, 0) = F_1(x). \tag{11}$$

The partial differential equation in the system above is called the "shallow water" equation. Analogous to (3), we can define the free surface of this system by $\eta^0(x, t) = -W^0_t(x, t)$. A fundamental problem in the shallow water theory is to determine in terms of ϵ a bound for the error which results when η^0 is used to approximate η. This is the mathematical justification to which the title of the paper refers in [DW93], under less restrictive conditions than had previously been achieved.

This problem had been studied and solved in the simple harmonic case by Marvin Shinbrot. Later others (see the references in [DW93]) contributed to this question under a variety of other limiting conditions. Our contribution was to address the problem in a Sobolev space where the region of the fluid has finite depth and the bottom is not horizontal.

Our first paper inspired a second shorter paper in which we considered a Dirichlet-Neumann problem for Laplace's equation over a region that is a horizontal slab. This led to an investigation and results for an abstract version of a Dirichlet-Neumann operator that had been introduced and studied by W. Craig and H. Yosihara about a decade earlier. We tied the results back to the justification of the shallow water theory.

Understandably to those who knew him, he would frequently publicly joke that his administrative position was a step down from being a professor. At ceremonial occasions such as commencement, where he was obliged to give speeches to a wide audience, he loved to insert a mathematics problem at the beginning of his speech for

Figure 5. James Donaldson (right; chair of the Howard Department of Mathematics, 1972–1990) strolls the college yard with David Blackwell (left; chair of the Howard Department of Mathematics, 1947–1954).

students to ponder during the (nonmathematical!) talk, and then present his solution (invariably something that did not require any mathematical machinery, but rather a clever use of geometry or logic to solve elegantly) by way of closing his speech.

His impact and influence as a leader was so immense in the mathematical and nonmathematical communities, locally at Howard and broadly in his political activities, that it overshadowed the recognition of his mathematical contributions. Nevertheless his research was respected by prominent mathematicians and I am certain he would be disappointed if his mathematical contributions were not acknowledged. I am honored to have been allowed to contribute to this aspect of this memorial tribute.

Jim Donaldson, a Black American Master

Sean Brooks

James Ashley Donaldson was my friend and mentor. As a towering figure, both literally and figuratively, he was a beautiful Black Man, and he was larger than life. Dr. Donaldson was a significant mathematical analyst and applied mathematician. He was a multidimensional humanitarian, a spiritual man, and a standing member of the African Methodist Episcopal Church. He was also a mathematician and educator who understood the buzz words "achievement gap" and "underrepresented minorities" and defied them both through his teaching, mentoring, and research.

I arrived at Howard University in the Fall of 1995, as a graduate student in mathematics. My mentor from Coppin State University, Dr. Genevieve Knight, informed Dr. Donaldson that I was there. Shortly after, a faculty member said to me "Professor Donaldson is looking for you." I started asking other graduate students, "How does he look? Who should I be looking for?" The students described him as a big man. Still, this description did not fully prepare me for his presence. Well above average height, he was muscular, and had a complexion as perfectly dark brown as mine. Until that moment, I had never met a mathematician that possessed these physical attributes. Soon after our introduction, I was a student in his Partial Differential Equations course. He achieved completely coherent lectures as effortlessly as Charlie Parker played the saxophone. I had seen many good lectures in mathematics, but never so engaging, coherent, and comprehensive mathematical lectures, including proofs, without notes or text. I knew I was witnessing a true Black American mathematician. His uncompromisingly excellent teaching was inspirational and he provided an impeccable role model for all of his students, especially those who were underrepresented.

Naturally, as one of my thesis advisors, Professor Donaldson became my mentor. He believed in the whole person. He was a consumer of the arts, a producer and curator of history, and a purveyor of vocational skills. This gave him the ability to see a solution to a problem through many prisms. Indeed, he was a first-rate mathematical analyst who believed in the fundamentals, but effectively employed abstraction. Donaldson understood that in the fundamentals lie innovation and creativity, and there is no bridge to an achievement gap without them. This was on display countless times as he interacted with students. I recall when one of the undergrads was going to Carnegie Mellon for graduate school, Donaldson noticed some gaps in his knowledge and immediately set up meetings with the student to address the issue. The student went on to earn his PhD from Carnegie Mellon. A great mentor garners trust, and Donaldson sustained that trust through his strong sense of empathy.

The first person I ever heard refer to Professor James A. Donaldson as a "master" was his colleague, friend, and collaborator Dr. Daniel A. Williams III. One of the research areas I collaborated with Dr. Donaldson on was the linear shallow water theory. Our research around shallow water waves led to many expected and unexpected ideas and techniques. The solitary wave was one idea derived from our research that was so fascinating, I made the sensitive request to change the problem. In pure master mentor fashion, Professor Donaldson's response was easy and continuous. Not only did he ask can he help out, but we also stepped

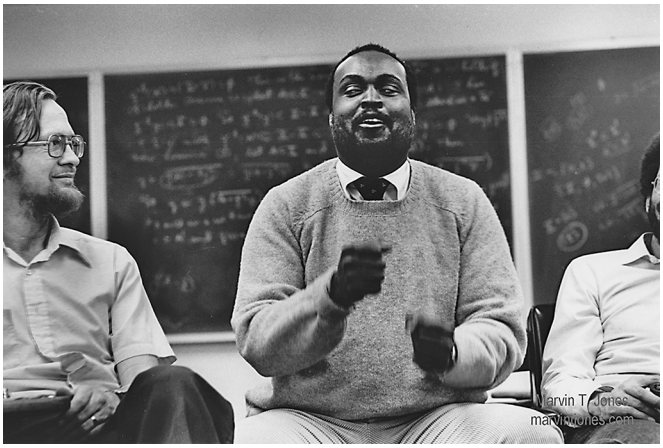

Figure 6. During a student-faculty party James Donaldson gives Neil Hindman (left) a merry side eye. David James is seated at the right.

away from water waves altogether and started research on optical solitons where we published our first and only article together [BMD04]. Another Donaldson graduate student, Dr. Amatalelah A. Hummel Al-hoori, also wrote a dissertation related to the same subject.

How do you mourn this multidimensional giant? We pay homage to him by honoring his best examples. When I see a researcher who makes a special effort to be an exemplary teacher; when I see a busy administrator who takes the time to mentor and see a person through a rough spot using their time, resources, and efforts; when I see a master teacher who is a first-rate researcher, I am reminded of Dr. James A. Donaldson and feel his presence.

James Donaldson as Activist and Administrator

Fern Y. Hunt

In 1974, while I was a graduate student at the Courant Institute, I attended the International Congress of Mathematicians held in Vancouver, British Columbia. The trip was a reward to myself for having passed the oral preliminary examination the previous year. While there, I met Jim Donaldson, the first African American mathematician I met in person. But I was puzzled. His conversational style, slow and deliberate, was disconcerting at first to my New York City ear. He would often begin with a sly observation, then grab your attention as his voice rolled forward to a witty and/or hilarious ending punctuated by loud laughter. His tone was wry and ironic, but always humane. Puzzlement soon turned to admiration and respect. As it turned out, the next year Donaldson was a visiting professor at Courant but we rarely met. However, near the end of his term, he talked to me about the new PhD program at Howard and that if I was looking for an academic position after finishing my degree, I should look him up. At the time, I felt too far away from finishing to do more than put this idea aside. But as fate would have it, it came in handy.

By the time I arrived at Howard in the fall semester of 1978, Donaldson had hired a lively and diverse group of younger faculty eager to do research and innovative teaching. This was greatly encouraging to me. Although my early work involved singular perturbations of differential and parabolic partial differential equations, our mathematical interests could not be farther apart. I was then very interested in applications to population genetics and ecology and there were very few connections with his interests aside from the theory of semigroups. Moreover, I was a new researcher in mathematical biology, a field that was still relatively new with few conferences, journals, and colleagues. Despite this, Donaldson was extremely supportive of my work and of the future of the field itself. Indeed, there are several researchers at Howard working in that area today. His greatest impact as a mentor however was a consequence of his superb administrative skills. Whether it was threading NSF proposals through the university bureaucracy or helping me secure funds allowing time off to do research at NIH and later at the National Institutes of Standards and Technology (NIST), he was calm, sagacious, and inventive. I illustrate with one of many examples. In 1980, I got a visiting research position at NIH for a year. The costs would be paid largely by NIH. A month before I was scheduled to begin, NIH announced that due to budget cuts only six-months salary would be paid. By then, Howard had approved an entire academic year of leave. Because of the change in NIH policy we were forced to start the application process all over again with less time to complete it. Jim helped me secure a cost-matching agreement between NIH and Howard that allowed me to take the position as planned.

Donaldson's work with the National Association of Mathematicians and the MAA are mentioned elsewhere but during the 1980s he was also a board member of TransAfrica, the premier US organization engaged in the global movement against apartheid in South Africa. This work was a reflection of his deep connection and concern for mathematicians and mathematics in the African diaspora.

I remember sitting with Jim during lunchtime in the Howard faculty lounge, sometime around 1986. South Africa had declared (yet another) state of emergency, and Nelson Mandela was still in jail. I commented on how hopeless the situation was as the South African

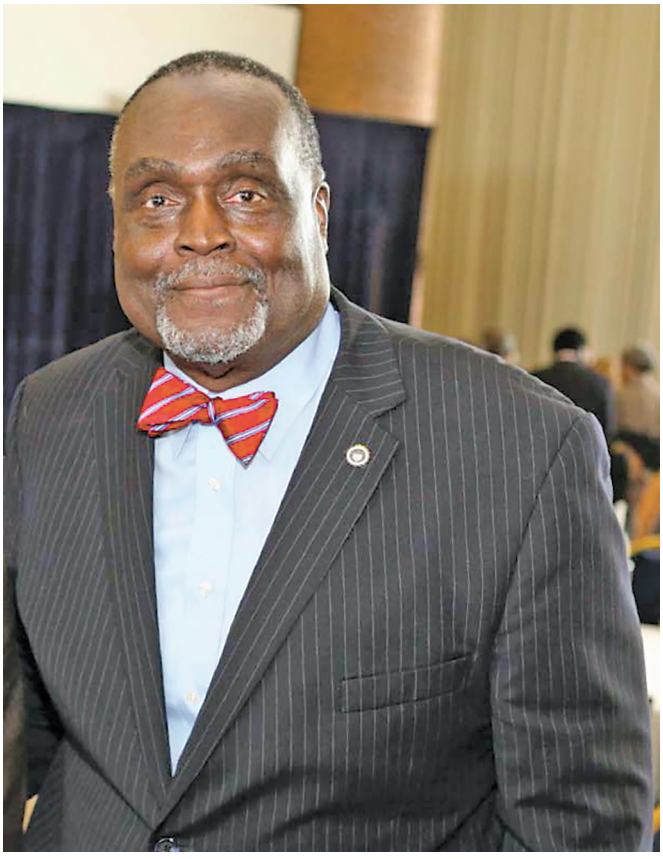

Figure 7. James Ashley Donaldson at his retirement as Dean of the College of Liberal Arts and Sciences.

government and its Afrikaner supporters would never yield. To my shock, he said he thought that in fact things might turn out much better than commonly believed and then said, "I think you might like the result." To this day, I am not sure what he knew or how he came to this conclusion, but perhaps his work with TransAfrica offers a clue.

Jim Donaldson was not my teacher and mentor in a traditional sense. Here was a man of towering intellect and personality who held power and made mistakes yes, but who committed acts of kindness, humility, and on occasion self-sacrifice. He did these with humor and sympathy over and over again. He inspired me to show up at my best as a mathematician and as a human being. Thank you, Jim.

James Donaldson died on October 18, 2019, of heart disease.

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References

[BMD04] Sean D. Brooks, M. F. Mahmood, and J. A. Donaldson, *Numerical modeling of solitons in a low birefringent optical fiber*, J. Math. Model. Algorithms **3** (2004), no. 1, 19–29. MR2231436

[Don89a] J. A. Donaldson, *Black Americans in mathematics*, A century of mathematics in America, Part III, American Mathematical Society, Providence, RI, 1989. MR1025358

[Don89b] J. A. Donaldson, *Black Americans in mathematics*, A century of mathematics in America, Part III, American Mathematical Society, Providence, RI, 1989, pp. 449–469. MR1025358

[Don] James Ashley Donaldson, *Mathematics Association of America SUMMA Archival Record*, retrieved from `https://www.maa.org/james-ashley-donaldson`.

[DW93] J. A. Donaldson and D. A. Williams, *The linear shallow water theory: A mathematical justification*, SIAM J. Math. Anal. **24** (1993), 892–910.

[HMV] *The HistoryMakers® Video Oral History Interview with James Donaldson* (2013).

[Kas19] J. L. Kass, *Segregation and its impact of mathematics*, Notices of the AMS **67** (2019), no. 2, 192–200.

[Lor94] L. Lorch, *The painful path to inclusiveness (talk given by professor Lee Lorch at the AMS meeting in Cincinnati, January 1994)*, A century of mathematical meetings, 1994, accessed 8/4/20 at `https://www.math.umd.edu/~rlj/Lorch.html`.

[NGRS80] Virginia K. Newell, Joella H. Gipson, L. Waldo Rich, and Beauregard Stubblefield (eds.), *Black mathematicians and their works*, Dorrance & Co., Ardmore, Pa., 1980. MR573909

[Pit88] Everett Pitcher, *South African Mathematical Society: A history of the second fifty years, American Mathematical Society 1939–1988*, American Mathematical Society, Providence, RI, 1988.

[WW96] E. T. Whittaker and G. N. Watson, *A course of modern analysis: An introduction to the general theory of infinite processes and of analytic functions; with an account of the principal transcendental functions*, Cambridge Mathematical Library, Cambridge University Press, Cambridge, 1996. Reprint of the fourth (1927) edition. MR1424469

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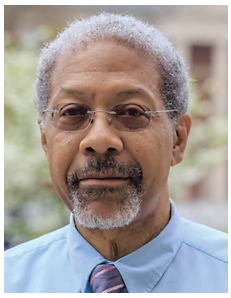

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