Doris Howes Calloway, PhD, trained and nurtured nearly 40 graduate students during her extraordinary career as a nutrition scientist at University of California, Berkeley (UCB). Although Dr Calloway was not the first person at UCB to study nutrition in human subjects, her work was very significant in the advancement of nutrition as a science. Notable before her was Dr Agnes Fay Morgan, a chemist known for examining the effects of pantothenic acid (vitamin B5) on adrenal gland function. From 1916 to 1954, she chaired or cochaired the Department of Home Economics and worked to establish dietetics as a profession, not a service industry, and for whom the Nutritional Science’s building was named.

Dr Ruth Okey, a pioneering chemist in cholesterol and lipid metabolism, was with the Department of Household Science from 1919 (except 1921), until 1961. She chaired the new Department of Nutritional Sciences from 1954 to 1961. During Dr Calloway’s era, Sheldon Margen, MD, worked with her to create the “Penthouse” to study human nutrition and metabolism. He was an expert in endocrinology, biochemistry, and bioethics and became known in the public health field as “wellness.” Dr Margen’s laboratory conducted much of the analyses for the Penthouse, and he and Dr Calloway were on the same panels of most of the doctoral students in human nutrition at that time. There were also others during her time not mentioned.

This article summarizes personal tributes of Dr Calloway’s students, postdoctoral fellows, colleagues, visiting scientists, and associates conveying the reverence they feel as they share their stories of this pioneering “woman behind the science.” They describe Dr Calloway’s personal attributes, her holistic approach to mentoring and nurturing future leaders, lessons learned, and a life dedicated to social justice, diversity, equity, inclusion, and belonging. Dr Calloway believed that nutrition research should be relevant, actionable, and considerate of the needs of all people. Building on her belief, her students have continued her legacy in research and practice with vulnerable groups.

THE WOMAN BEHIND THE SCIENCE

Dr Calloway is remembered by her students for her endearing personality, commitment, compassion, role modeling, and mentoring and for her impact on their families and careers. She was a warm, caring, and no-nonsense
person presenting an imposing professional stature who sought the best academic performance and quality of life for her budding scientists. She exhibited innate qualities to which people easily responded and respected.

**COMPASSIONATE AND RESPECTFUL**

Previous articles in this *Nutrition Today* series have referenced Dr Calloway's stature in the universe of nutrition and health.1-8 Her work inspired appreciation and admiration among many. She personified the word “respect” in interactions with students, staff, colleagues, and others. She demanded excellence from her mentees but acknowledged individual aspirations, unique needs, and family responsibilities. Dr Jean Pennington (1973) always found her kind, supportive, and professional, saying, “She taught me the importance of creativity, integrity, hard work, and compassion in my career.”

Dr Calloway demonstrated respect in unforgettable ways. When Dr Calloway was Provost, Dr Kathleen Mulligan (1989) recalled meeting with her when the University Chancellor “popped” into her office. Seeming to ignore Mulligan's presence, he initiated a conversation. Dr Calloway very quietly but firmly said, “I’m with a student.”

Dr Mary Blackburn (1974) described Dr Calloway as brilliant, warm, and amazingly sensitive. One of the 5 members of her qualifying committee was against her advancement to candidacy and was openly negative during the oral examination. Dr Calloway’s eye contact and nods kept her focused and offered comfort afterward as she leaned against the wall in the hallway with her knees buckled. Dr Blackburn wrote, “I can still feel the warmth of her comforting hug saying, ‘You passed with honors!’”

Dr Calloway met people where they were, engendering appreciation, support, and collaboration. Dr Harriet Kuhnlein’s (1976) research focusing on the Hopi people required understanding and Dr Calloway’s careful negotiations. The research team found the Hopi partners tolerant, hospitable, and accepting of what a Hopi gentleman called the team’s “Scientificality.” Dr Kuhnlein takes pride in the long-standing, respectful collaborations and friendships on the Hopi reservation that are still active today.

**RESPECT FOR FAMILY**

Some of Dr Calloway's doctoral students started families and reared young children just as Dr Calloway had.2 Dr Jean Pennington (1973) said that Dr Calloway did more than guide her research; she saw her through her marriage, her husband's tour in Vietnam as a medic with the Marines, pregnancy, and childbirth. She wrote, “My orals were 2 days before the birth of my child, and I finished my thesis with a bassinet next to my desk in the graduate room.”

While a single mother with 4 small children, Dr Mary Blackburn (1974) walked in adolescents and mature pregnant women. Dr Harriet Kuhnlein (1976), pregnant while conducting research on the Hopi reservation, remembers Dr Calloway saying her new baby and preteen children would enrich her studies. Dr Olivier Receveur (1993) had a 6-month-old child when he began his studies on the effects of marginal malnutrition in Kenya, Egypt, and Mexico. Dr Minnie Ruffin started her studies with a 3-week-old infant and conducted 3 rat, 1 pig, and 1 human studies on nutritional status.

**CONFIDENCE AND FORTITUDE**

Dr Calloway was a symbol of confidence—bold, courageous, and resilient—and faced formidable challenges without hesitation. She faced the challenges of graduate study, marriage, a family, and a research career with an inner confidence of her capabilities. Later in life, she suffered from Parkinson's disease and yet continued to address national and international nutrition issues—another test of her courage and fortitude.

**HOLISTIC MENTORING**

The social, emotional, and professional lens through which Dr Calloway viewed her mission was complex and necessary to navigate the muddy waters of academia and social unrest at that time. She was astute, perceptive, sensitive, and compassionate. Nurturing and seeing her young scientists' advances gave her great professional satisfaction, personal pride, and joy. Dr Mary Blackburn (1974) walked...
into Dr Calloway’s office disappointed, after being told she needed a 4.0 GPA to enter the DrPH (doctorate of public health) program in Berkeley School of Public Health. Hearing her story, Dr Calloway immediately became a social justice benefactor, taking her on as a graduate student—Blackburn describes it as the “Impossible Mission.”

Dr Molly Kretsch, postdoctoral student (1976-1977), said, “Dr Calloway knew what each student needed and individualized their mentoring to strengthen their scientific and leadership abilities.” Dr Catherine Geissler (1975-1976) remembers that long-distance mentoring and guidance were not easy when she studied lactation failure in Iran. Dr Calloway advised her through an exchange of letters and made one supervisory visit—this was before the email.

Dr Lorrene Ritchie (Masters, 1990) said Dr Calloway was her first “female” mentor—brilliant, precise, hardworking, and efficient. She demanded that she and her students never put off for later, what could be done today. She wrote, “Dr Calloway demonstrated that women can excel as scientists... she knew I needed to ‘toughen up’ and made sure I succeeded.”

Dr Olivier Receveur (1993) was Dr Calloway’s last and only male graduate student. One correspondent familiar with the landscape of the Nutritional Sciences Department at UCB in the 1970s estimates that approximately half of the full-time faculty were female, and the graduate students were predominantly female. UCB had a National Institutes of Health training grant for dietitians to pursue PhDs, and approximately 95% of registered dietitians were female. The male students with undergraduate biochemistry degrees had opportunities to pursue medicine, a pathway open to very few women in the late 60s and 70s. Over 25 to 30 years, the closing of the UCB metabolic unit (the Penthouse) and reorienting the department’s focus to nutrition and toxicology transformed the research emphases. Thus, the field of study became more appealing to male students.

Dr Receveur was a male nutritionist seeking graduate training, but the professor under which he had hoped to study was not accepting new students. Dr Calloway had moved into the provost position and limited her acceptance of graduate students. Dr Receveur said he was searching for an answer when he wrote an article for a graduate seminar on integrating agricultural projects into nutrition research, an issue he encountered while working in Asia. Dr Calloway liked the article and suggested that he pursue doctoral studies with her on the functional effects of marginal malnutrition in Kenya, Egypt, and Mexico as part of the Nutrition Collaborative Research Support Program. She also suggested that Receveur pursue an MPH in epidemiology and biostatistics concurrently with the PhD. Dr Receveur said he hated his undergraduate coursework in statistics that seemed to be a tool for “bending reality.” However, in his studies with Dr Calloway, he found joy in working with numbers as he described in his poetic, emotional, and inspiring tribute quoted below.

**Box 3. Holistic Mentoring**

“She was timeless and invited us to spare no time in the pursuit of truth, while knowing that truth is not the only thing that exists, yet it is worth pursuing for its sake, for the great pleasure of its quest, and for the joy it can engender. What I remember is beauty, the beauty of numbers, whole or decimals, when they come together and start talking! If your heart is pure and silence surrounds you, you can hear it. Dr Calloway was showing us how to listen by line by line, table after table, keeping our heads sharp and our hearts open. She was a scientist and an artist. Tough and kind as need be, a special agent for peace and justice—a bird and a tree… She was, and is, all that a prof can be.” (Dr Olivier Receveur, 1993)

**ROLE MODELING AT ITS BEST**

Dr Calloway exemplified the attributes of great role models: dynamic, focused, dedicated, widely connected, responsible, respectful, and preeminent, while demonstrating impeccable integrity and an unmatched command of knowledge. She epitomized scholarly productivity, perpetual enlightenment, and effective multitasking. Dr Leonard Bjeldanes, professor emeritus and colleague, said “She was one of the greats! I was in awe of her abilities! Many contemporaries in the world of nutrition and wellness hold Dr Doris Howes Calloway in highest respect, admiration, and appreciation.”

**MASTERFUL COMMUNICATOR**

When Dr Calloway spoke, people listened. She perfected effective communication in words, impressions, demonstrations, and implications, and at times, humor was used to set the tone. Madonna Maharin, a retired dietitian, was one of the first 4 students with Blackburn in the UCB School of Public Health combined 1963-1965 MPH/dietetic internship program directed by Dr Ruth Huenemann. She remembers a panel discussion on obesity where Dr Calloway said, “As someone who has lost 100 pounds (a collective gasp) the same 5 pounds at least 20 times.” The audience erupted in laughter.

Dr Calloway’s writings were sharp, crisp, and clear. Lorrene Ritchie (1990) believed she knew how to write. She was shocked to see detailed edits in the margins of her master’s thesis draft. Dr Blackburn (1974) used her first research manuscript draft with Dr Calloway’s red ink and pencil edits as a guide in drafting her dissertation—her committee made 2 minor edits.

**THE LESSONS LEARNED**

Dr Calloway felt that nutrition research should have actionable value for people worldwide. Students and colleagues...
spoke of her professional principles, research ethics, and how she prioritized critical research based on national and global needs. Dr Allison Yates (1974) said, “Her many contributions served as the basis of much of today’s knowledge of human nutrient requirements and how they translate into food and dietary choices worldwide.”

**PRECISION, RIGOR, AND ATTENTION TO DETAILS**

Dr Kathleen Mulligan (1989) believes that attention to details is a topic in the narratives of most of Dr Calloway’s students, saying, “She had an uncanny ability to look at a spreadsheet and pick out the one number that did not look right.” Dr Suzanne Murphy (1984) said the most important lesson she learned was that science must be rigorous: “She had no patience for superficial thinking, and certainly not for sloppy research.”

Dr Calloway insisted that her students think like scientists. As a new doctoral student, Dr Allison Yates (1974) was quizzed on human studies on sulfur amino acid requirements, approaches, calculations, and conclusions. When she faltered on specific details, Dr Calloway advised her, “Go read them again as a scientist—not a new graduate student.”

Dr Nancy Butte (1980) said, “Dr Calloway, a formidable, brilliant professor, insisted on scientific rigor, was intolerant of poor performance and inattentiveness.” When she felt discouraged, she drew on Dr Calloway’s exemplary performance worldwide to improve nutritional well-being.

**RELEVANCY AND QUALITY**

Dominique Garrel, MD, a visiting scientist (1980-1982), appreciated his unique opportunity to work in the Penthouse metabolic unit and to study human volunteers in a controlled environment. Beyond the human nutrition knowledge acquired, he learned how to conduct rigorous and useful research that advanced his career. He said, “I take pride in the fact that a study of energy intake during the menstrual cycle became one of Dr Calloway’s most cited papers. Good research stands the test of time.”

**WIDE SCOPE OF INFLUENCE**

Dr Calloway’s footsteps echo across the global stage. She was well-rounded—no one was better prepared with knowledge, perspective, understanding, and grounding in reality. Dr Leonard Bjeldanes, professor emeritus and colleague, UCB, spoke of her greatness: “Professor Calloway was a superbly trained, highly respected scientist with great courage about the mission she accepted. ...Her ‘Penthouse’ studies 1964-1981, provided the basis for the Recommended Dietary Allowances (RDAs). Her initial scientific studies of human nutrition strongly influenced most subsequent studies of diet, nutrition, and health in humans.”

**NURTURING FUTURE LEADERS**

One need only review the achievements of the contributors to this series to appreciate the powerful impact Dr Calloway had on their careers. She personally trained them on the demands of quality research and frequently provided recommendations and professional connections to advance their careers. She nurtured them as they made local, national, and international contributions advancing nutrition and health.

**SHOWING THEM THE WAY**

Dr Janet King (1972), professor emerita, Department of Nutritional Sciences and Toxicology, UCB, followed Dr Calloway’s footsteps as a UCB faculty member, scientific colleague on national and international committees, and leader in academic nutrition programs. She served as professor of nutrition and department chair at UCB, director of the US Department of Agriculture (USDA) Western Human Nutrition Research Center, and executive director of the Children’s Hospital Oakland Research Institute. She was the chair of the Food and Nutrition Board of the Institute of Medicine (IOM), elected to the IOM (now the National Academy of Medicine), and chaired the USDA/US Department of Health and Human Services Dietary Guidelines for Americans Advisory Committee.

Dr Calloway involved Dr Nancy Butte (1980) in the development of the US Agency for International Development project to examine the functional consequences of malnutrition in developing countries. Dr Butte later followed Dr Calloway’s footsteps on committees of the Food and Nutrition Board of the National Academy of Sciences, the Food and Agriculture Organization (FAO), and World Health Organization.

**MAKING CAREER CONNECTIONS**

Dr Suzanne Murphy (1984) said Dr Calloway provided the scaffold on which her nutrition career was built and served as a springboard for success, connecting her with nutrition “legends” of the day like Drs. Vernon Young and Nevin Scrimshaw, eminent nutrition scientists at Massachusetts Institute of Technology. She worked with the well-known nutritionists Drs Charlotte Neumann and Lindsay Allen in the Collaborative Research Support Program nutrition project and continues with some relationships today. She wrote, “I still think of Dr Calloway almost every day. I was very fortunate to have her encouragement and support, and memories of her continue to brighten my life.”

Despite Dr Calloway’s influence and connections, she faced formidable challenges at UCB promoting the careers of some of her students. Dr Calloway groomed Dr
Blackburn (1974) for a new assistant professorship at the School of Public Health, which combined nutrition, health administration, and planning. Dr Blackburn was the only person with this combination of doctoral training, her dissertation having met the requirements for both a PhD in nutrition and a DrPH. Dr Blackburn (1974) was not invited to interview, and she said this repudiation created a permanent rift between Dr Calloway and a long-time colleague—a "lack of will to do right." The Honorable Ronald V. Dellums, member of US House of Representatives, asked the UCB Chancellor to review the process, and the search was subsequently terminated.

In 1990, Dr Calloway again recommended Dr Blackburn (1974) as a Cooperative Extension Advisor in Health and Nutrition for the University of California. The search committee found her "overqualified" and "not a good fit." An Affirmative Action review prevailed. She said, "Without Dr Calloway's support and guidance over the years, I would have collapsed under the weight of the continuous struggle."

PROFESSIONAL RECOMMENDATIONS

Based on Dr Calloway's recommendation, Dr Allison Yates (1974) was appointed to a Food and Nutrition Board committee to evaluate the Department of Defense nutrition research programs. Dr Yates subsequently became professor of nutrition and dean of the College of Health and Human Sciences at the University of Southern Mississippi. After appointment as the director of the Food and Nutrition Board of the IOM in Washington, Dr Yates led the effort to develop the DRI (Dietary Reference Intakes) to replace the RDAs. She later was appointed director of the Beltsville Human Nutrition Research Center of USDA's Agricultural Research Service (ARS).

Dr Calloway recommended Dr Jean Pennington (1973) to Helen Church (coauthor, Bowes and Church Food Values) to serve as coauthor; Dr Pennington subsequently developed editions 13 to 19 of this classic reference. Later, she held Food and Drug Administration positions working with national food consumption data—leading to 30 years of the Food and Drug Administration and National Institutes of Health work on dietary assessment, surveillance, and public health nutrition education. Dr Pennington said, "I feel so truly grateful to Dr Calloway for advancing my career."

Dr Calloway trained Dr Molly Kretsch (1976-1977 doctoral student) on the design, protocols, and methodologies of human metabolic research. In 1980, Dr Kretsch was appointed director of the Metabolic Research Unit and research scientist, USDA ARS Western Human Nutrition Research Center in San Francisco. Then, USDA, ARS, and National Program Leader for Human Nutrition and thereafter held 2 positions concurrently in Washington, DC, with USDA: ARS Deputy Administrator for Nutrition, Food Safety, and Food Quality, and senior advisor for Nutrition in the Secretary of Agriculture's Office of the Chief Scientist. She represented the USDA in formulating the First Lady Michelle Obama's Childhood Obesity Program, "Let's Move!" During some public policy meetings, she was the only person with human nutrition training and expressed gratitude for Dr Calloway's mentorship.

Dr Calloway wrote letters of recommendation to scientists in the United Kingdom for Dr Catherine Geissler (1975). She was appointed lecturer in nutrition planning, Queen Elizabeth College, University of London, now incorporated into King's College, London. She became professor of human nutrition; head of the Department of Nutrition and Dietetics, Division of Health Sciences; and director of the UK Higher Education Academy, Centre for Health Science and Practice. She held advisory roles in United Kingdom's Food and Health Organizations: Food Advisory Committee of the Ministry of Agriculture, Fisheries, and Food, the World Cancer Research Fund Grant Review Panel, and consulted with 16 countries.

IGNITING INTERNATIONAL INTEREST

Dr Harriet Kuhnlein (1976) studied the traditional foods of the Hopi people and later indigenous people in Canada and other countries. Dr Calloway's mid-1970s sabbatical with the FAO in Rome increased her interest in international work. After the FAO developed the international repository of nutrient composition data, Dr Kuhnlein completed a 2001 sabbatical there and conducted other international studies. She collaborates with Dr Mindy Kurzer (1984), University of Minnesota, to convene Nutrition Conferences for Native Americans.

SUPPORTING EACH OTHER

Over the years, Dr Calloway has created a family of primarily female scientists who share experience and expertise and support each other's work. Dr Murphy (1984) said Dr Pennington (1973) was her role model in graduate school and colleague in the world of food composition. Dr King (1972) was on her dissertation committee, sponsored her dietetic internship, and nominated her for the IOM. Dr Yates (1974) facilitated appointments of Dr Murphy to IOM committees, chairing revisions to the Women Infants and Children Program, Child and Adult Care Food Program, and later chaired the Food and Nutrition Board. Dr King's letter of reciprocity to the Georgia State Professional Standards Division satisfied course requirements for Dr Ruffin's (1974) doctoral-level teaching certificate.

A LIFE OF PURPOSE

Dr Calloway's extraordinary life was woven across the American landscape through turbulent times: reared by a single mother from age 3, the Great Depression, high school valedictorian at 16 interested in medicine, a college
degree in nutrition at 20, completing a dietetic internship at 21, and a doctoral student at the University of Chicago at 22. In 1946, at 23, she married Nathaniel Oglesby Calloway, PhD, MD, born in Tuskegee, Alabama, the son of a formerly enslaved person, author, physician, Civil Rights Activist, and pioneer in organic chemistry. She started a family, earned a PhD, was divorced in 1956, and launched a pioneering career leading to the UCB in 1963.1 She served as faculty member, department chair, and provost. In 1981, she married Robert Olaf Nesheim, PhD, nutritionist and vice president for science and technology, Quaker Oats Company,9 and it lasted until her death in 2001.

SOCIAL JUSTICE

A “Hunger Is Violence” poster in Dr Calloway’s office could sum up her perspective on social justice. Dr Kretsch (1976-1977 doctoral student) called her a “real person” who participated in the social issues of the day and translated them into her professional work. Dr Kuhnlein (1976) said she and Dr Calloway shared similar perspectives on social justice and women’s unique views and capacities with nutritionally disadvantaged people.

The period of 1968-1970 was the productive years of social justice activities for Dr Calloway and Dr Blackburn. They provided nutritional counsel to the Black Panthers’ Free Breakfast Program in the San Francisco Bay Area, which highlighted the critical need. Blackburn and pediatric intern conducted assessments at the Free Breakfast Program sites and made referrals to Mount Zion Hospital and Medical Center Pediatric Clinic. (The School Breakfast Program is now a national USDA-funded program.) They also developed a “subsistence diet” food prescription with cost analysis for infants and small children diagnosed as “failure to thrive” in Mount Zion Hospital’s pediatric clinic. The concept is now called “food as medicine.”

DIVERSITY AND EQUITY

Dr Kretsch (1976-1977 postdoctoral student) said, “Knowing her own struggles, Dr Calloway selected strong women and prepared them for the road ahead.” She advised 2 of 3 Black women completing the UCB nutrition doctoral program.

Dr Minnie Ruffin (1974, Virginia) and Dr Mary Blackburn (1974, Alabama) came from sharecropping families with 12 and 13 children, respectively. Mr Delroy Brown, the only Black laboratory assistant in the Department of Nutritional Sciences at Berkeley, came with Dr Calloway from the Stanford Research Institute. Dr Calloway’s experiences, perspectives, understanding, and sensitivity to complex issues of race and culture enabled her extraordinary ability to walk comfortably in the shoes of others.

CONCLUSION

Dr Doris Howes Calloway, a trailblazing nutrition scientist, is remembered for her substantive contributions to human nutrition, her lasting legacy as an exceptional mentor, commitment to social and distributive justice and diversity, unquestionable research ethics, humanitarian spirit, and amazing compassion and understanding. Many treasure the memories of “the woman behind the science,” and her students take pride in following her footsteps. Her life of purpose may be summed up by Ralph Waldo Emerson: “The purpose of life is not only to be happy, it is to be useful, to be honorable, to be compassionate, and to make some difference that you have lived and lived well.”

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CAPTIONS FOR PHOTOS
1. Authors left to right: Dr Janet King, Dr Allison Yates, Dr Mary L. Blackburn, Dr Molly Kretsch, Dr Suzanne Murphy, and Dr Judi Morrill, Editor. Missing: Dr Nancy Butte. October 14, 2022.

2. Dr Calloway at her home in Berkeley, California, with Felicitas Ruffin and Minnie Ruffin.


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