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BILL PETERS AND ENTOMOLOGY AT FLORIDA A&M UNIVERSITY

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Fig. 1. William L. Peters

Dr. William Lee "Bill" Peters (Fig. 1) was the second entomologist at Florida A&M University (FAMU), Tallahassee, FL; Dr. Margaret Strickland Collins was the first. Bill arrived at FAMU 12 years after Margaret Collins left the institution. Margaret Collins (1922-1997), originally from West Virginia, finished high school at the age of 14 and subsequently earned Bachelor's and Master's degrees from the University of West Virginia. While her husband was serving in the military during WWII, she used his dependency allowance to attend the University of Chicago where she developed a lifelong interest in termites. She earned a Ph.D. in 1949 under Dr. Alfred E. Emerson and taught for 2 years at Howard University in Washington, D.C., before moving to FAMU in 1952. For the next 4 years, she served as chairperson of the Department of Biology at FAMU. She later returned to Washington, D.C., where she taught at Howard University and at Federal City College until retiring in 1983. Following retirement, she donated her time and energy as a Research Associate with the National Museum of Natural History to curate the National Isoptera (termite) collection and conduct research on termites of the Caribbean Islands and Guyana, where she was fondly known to many as the "Termite Lady." She was honored posthumously by the Entomological Society of

America in Dec 1997 with a symposium entitled "A tribute to Margaret Collins, a biologist with a passion for termites," recognizing her as "the first black female entomologist in the U.S." The symposium was organized by Dr. Eric Reddick, one of her former students. Other former students are still associated with FAMU, and one told of her undergraduate experience chopping up logs behind the Biology Building to collect termites. Among dedicatory works from her many friends was a paper by Drs. Nan-Yao Su, Paul Ban, and Rudolf Scheffrahn remarking on her endless passion for termitology and her contagious humor (Su et al. 2000).

Bill was born in 1939 at Leavenworth, Kansas and, as a child during WWII, moved with his family to New Orleans, Louisiana, where his father, an electrical engineer, worked on military aircraft. After WWII, Bill and his family moved to Kansas City, Kansas. One of Bill's passions was freshwater fishing, which led to his interest in mayflies and a research project on mayflies for his high school science club. Bill then earned a Bachelor's degree from the University of Kansas, taking classes from Dr. George Byers. For his M.S. and Ph.D. degrees, he moved to the University of Utah in Salt Lake City where he studied mayfly (Ephemeroptera) taxonomy under Dr. George F. Edmunds, Jr. Research in Dr. Edmunds' laboratory sponsored by the National Science Foundation (NSF) funded 2 foreign collecting trips as part of Bill's education, first to Peru and Jamaica and some years later to New Guinea, Thailand, and India. He loved traveling and collecting. The trip to New Guinea occurred shortly after he and I were married and we traveled together on this and all subsequent trips. Our daughter, Rae Ellen, accompanied us until she was grown (Fig. 2). Following graduation from the University of Utah in 1966, Bill obtained a teaching position as an Associate Professor in the College of Agriculture at FAMU, and was promoted to Professor in 1974. He remained in this position until his untimely passing in the summer of 2000. This Pioneer Lecture, delivered at the annual meeting of the Florida Entomological Society in 2009, covers some of those 34 years, emphasizing programs that continue to the present.

Florida is the only state with 2 Land-Grant institutions offering programs dedicated to entomology, one at the University of Florida (UF) and the other at FAMU. FAMU became a Land-Grant University in 1890 following the passage of the

¹Pioneer Lecture delivered at the 2009 annual meeting of the Florida Entomological Society.



Fig. 2. Peters family in Bohemia. Bill (left), daughter Rae Ellen (center), and Jan (right).

Second Morrill Act, but it differed from UF in that it received no Land-Grant research funds. Thus, Bill was employed only to teach entomology and related courses. Soon, however, he obtained NSF funding to support 1 graduate student, Philip T. P. Tsui, through a joint appointment at Florida State University. Then, in 1967, the first federal research funds were allocated to the 17 Historically Black (1890) Land-Grant Institutions, a total of \$263,000 per year divided among the 17 schools, with \$14,946 going to FAMU. After this first award, the amount of formula funding increased dramatically, so that by 1972 the total annual allocation to all 1890 schools was \$8,600,000 with FAMU receiving more than \$300,000. The year 1972 also marked the beginning of the Biennial Research Symposia under the Association of Research Directors (ARD). Bill later received the Morrison-Evans Outstanding Scientist Award from this Association in 1976. In addition to his faculty position, Bill served part-time as Research Director prior to 1984 and was active in organizing the first ARD Research Symposium. At the 12th Biennial Symposium in 2000, he received a Distinguished Service Award as one of the founding research coordinators.

Bill was instrumental in adding Mr. Reuben Capelouto to the FAMU faculty. Reuben owned a pest control business in Tallahassee and expanded the undergraduate curriculum by exposing the students to business-related entomology. He thought that many of the students would enjoy careers in the pest control industry. He had been a student of Dr. John Creighton at UF before going into business (Pioneer Lecture, Wright 2004). Reuben was an excellent teacher and also started the annual pest control Field Days in

1978, which became the Annual Field Day and Workshop in 1980. These workshops provide regional pest control training and recertification, and one of Capelouto's former students, John Dukes III, is the current Chairman of the Advisory Council. Among Mr. Dukes' responsibilities are leadership in developing these workshops with input from many advisors in Florida and the Southeast. Following the passing of Mr. Capelouto in 1980, a scholarship fund was established in his name, which annually provides financial support to undergraduate and graduate entomology students at FAMU.

Bill liked Tallahassee, FAMU, and Florida, not only for the abundant insects and the collegiate atmosphere, but also for the proximity of another expert on mayflies, Dr. Lewis Berner at UF (Fig. 3). Dr. Berner was active in the Florida Entomological Society (FES), a Past President (1961), and editor of the Society journal *The Florida Entomologist*, as it was then named, for 14 years. Bill became active in the Florida Entomological Society and his second graduate student, Manuel L. Pescador, worked closely with Dr. Berner on local mayfly ecology and mayflies as indicators of water quality. Dr. Pescador continued in this same research capacity as a faculty member at FAMU. Bill's first Ph.D. graduate, Dr. Tsui, had a career in environmental assessment with Mobil Oil of Canada, and has now retired from ExxonMobil in Houston, Texas. Bill's other Ph.D. graduate students include Harry M. Savage (Center for Disease Control, Fort Collins, Colorado), Thomas J. Fink (Eastern Carolina University, Greenville, North Carolina), Michael D. Hubbard (Emeritus Professor, FAMU), and Peter M. Grant (Southwestern Oklahoma State University, Weatherford). Bill was co-major professor for 3 other Ph.D. graduates. Two at FAMU were Guillermo Wibmer, who worked with Dr. Charles O'Brien, and John Epler III, who worked with Dr. Annelle Sponis; and 1 Ph.D. graduate at the University of Maine was Steve Burian, who worked with Dr. K. E. Gibbs. Students earning M.S. degrees include Jerome Jones (now with Homeland Security, San Diego, California), Danielle Barriner Brown (Department of Environmental Protection, Tallahassee, Florida), and Lois Swoboda who went on to earn a Ph.D. from Virginia Tech. One other M.S. student merits special recognition, Dr. Oscar Liburd, Department of Entomology and Nematology, UF, and past-president of the Florida Entomological Society (2009). He received his B.S. and M.S. degrees from FAMU before attending the University of Rhode Island for his Ph.D. Dr. Liburd has been honored with the FAMU, College of Engineering Sciences, Technology and Agriculture, Distinguished Young Alumnus Award.

I tend to date Bill's involvement with FES from his introduction to the Society by Dr. Berner in about 1968. Bill held several offices in the Society and served as president in 1982. Highlights of his time in office were the establishment of the Past-



Fig. 3. In Winnipeg with Fred Ide (left), Bill, Lewis Berner and Manuel Pescador.

President's Breakfast, and more important from a financial point of view, the hiring of a salaried Business Manager-Treasurer. Norm Leppla (UF, Entomology and Nematology Department) and Ernest Delfosse (Michigan State University, Entomology Department) were the last voluntary Business Managers and they recommended that the position be salaried. FES still has a Past President's Breakfast at the annual meeting and a paid Treasurer/Business Manager, Teresa DuChene.

Dr. Berner also was indirectly responsible for FAMU's affiliation with the Florida Department of Agriculture and Consumer Services, Division of Plant Industry (DPI), Bureau of Entomology, Florida State Collection of Arthropods in Gainesville. Dr. Berner's original surveys of mayflies were donated to the DPI and, in 1977, through a memorandum of understanding between the Bureau and FAMU, FAMU became an affiliate of DPI with responsibility for aquatic groups, particularly mayflies and Chironomidae. This affiliation later led to the donation of part of the Edmunds and Traver collections to DPI and an enhancement grant from NSF devoted to upgrading these collections.

In the 1990s, university presidents Fred Humphries (FAMU) and John Lombardi (UF) proposed a Cooperative Ph.D. program between

the 2 universities. This was approved in 1996, but not implemented until some years later. The first joint Ph.D. graduate was Andrew Rasmussen in 2004, who earned his degree under Dr. Manuel Pescador. Following the passing of Bill Peters, Manuel Pescador acted as interim Entomology Program chair for 3 years until the arrival of Dr. Lambert Kanga in 2003.

With a core of outstanding students and faculty members, the Entomology Program grew and became affiliated with 3 research centers in what is now known as the FAMU College of Engineering Sciences, Technology and Agriculture (CESTA). The John A. Mulrennan Sr. Public Health Entomology Research and Education Center (PHEREC) in Panama City is under the leadership of Dr. John Smith. It is charged with basic and applied research to develop and test formulations, application techniques, and procedures for the control of arthropods and to support mosquito control districts, counties and municipalities. PHEREC was transferred by legislative action from the Department of Health and Rehabilitative Services to FAMU in 1992. The Center for Biological Control is under the direction of Dr. Moses Kairo. It was initiated by Dr. Charles O'Brien and formalized in 1998 by an agreement between the United States Department of Agri-

culture, Agricultural Research Service (ARS), and the Animal and Plant Health Inspection Service (APHIS). Scientists from these 2 agencies are located in Tallahassee and actively cooperate with the Center for Biological Control in graduate student research and activities. In a reorganization of research at CESTA in 1998, a third center was added, the Center for Water and Air Quality. It is responsible for research on protecting and conserving Florida's water resources. Under the direction of Dr. Sunil Panchoy, this Center includes a component on biological assessment of water quality led by Dr. Pescador.

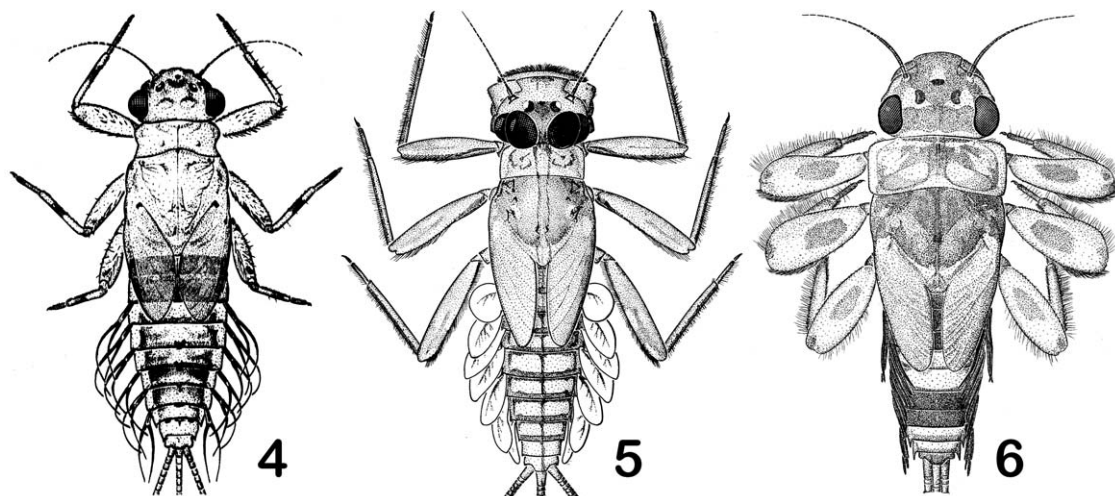
Bill was involved in many entomological activities in addition to FES, including Chair of the Entomological Society of America Subsection for Aquatic Insects, Vice Chair of the University of Kansas Alumni Advisory Board, member of the editorial board for the journal *Aquatic Insects*, board member of the Center for Systematic Entomology, honorary memberships in the Florida Pest Management Association and Alabama Pest Control Association, external examiner for several graduate students in other countries, and a grant and manuscript reviewer. Among visiting faculty members and students who worked with Bill in Tallahassee were Dr. David Towns (New Zealand), Dr. K. G. Sivaramakrishnan (India), Drs. Vladimir Landa and Tomas Soldán (Czech Republic), Dr. Ingrid Müller-Liebenau (Germany), Dr. Eduardo Domínguez (Argentina), and Dr. Jarmila Kukalová-Peck (Canada). Many more of Bill's colleagues and friends who made shorter visits or collaborated on research projects could not be listed in this brief paper.

Bill strongly supported international collaboration and this has been continued by FAMU faculty and staff members. The pleasure of helping younger taxonomists gave him a wonderful assortment of friends in many countries. While at the University of Utah, he had met Dr. Vladimir Landa of the Czech Academy of Sciences, and during the XIIIth International Congress of Entomology in Moscow, Dr. Landa and Prof. Dr. Joachim Illies of the Max-Planck Institute in Germany persuaded him to initiate an international meeting of mayfly workers. FAMU agreed to serve as the host site for the First International Conference on Ephemeroptera in 1970, and also provided some support for foreign guests. At this meeting, 8 countries were represented in person and another 3 submitted papers, which were added to the Proceedings. Among highlights of this first conference were long evening discussions on the "new" Hennig system of cladistics between George Edmunds, Herbert Ross, and Lars Brundin. Having started at FAMU, the Conferences now are held every 3-4 years, most recently in Germany (12th International Conference, 2008) where at least 20 countries were represented. Part of this growth is due to the excellent

programs but the success of the Conferences also can be attributed to stipends and fellowships given to students. Bill was instrumental in establishing an ongoing scholarship fund following the 3rd International Conference, and each subsequent convener has successfully found supplemental funding.

In 1972, Bill received funding from the National Geographic Society to collect aquatic insects in New Caledonia, accompanied by his family, George Edmunds, and the chironomid expert William M. Beck, Jr. Most aquatic groups were sent to other experts, while Bill concentrated for many years on the taxonomy and evolution of the mayfly family Leptophlebiidae on this remnant continental fragment. With the exception of 2 widely distributed members of another family which are probably recent introductions, all mayflies belong to this 1 family, and all genera and species are endemic. Based on analyses of the relatively conservative adults, zoogeographic relationships are primarily with New Zealand and secondarily with Chile and Australia. In contrast, the nymphs have evolved to fill niches of the absent families and represent an exciting example of convergent evolution, "Darwin's Finches" in mayflies.

Bill also studied the ecology of the rare sand-burrowing mayfly *Dolania americana* Edmunds & Traver (Behningiidae). This strange species is one of the last survivors of a family severely impacted by declining water quality in lowland Holarctic and Oriental rivers. The egg stage requires a short year to develop and the nymphal stage lasts another year. In contrast, the adult averages about an hour, ranging from 5 min to at most 2 h, depending on sex, aggressive predators, and color morph. On many occasions and almost every May, we spent several weeks at a station associated with the Florida Fish and Wildlife Conservation Commission filling in details of this predaceous mayfly's biology, as did graduate students, post-docs, and visitors. Major contributions have come from about 15 colleagues working through FAMU or the Stroud Water Research Center, so that *Dolania* is probably now the best studied mayfly in Florida. A summary is posted on the FES website under Hardwood Forests (http://www.flaentsoc.org/arthropdiversity/temperate_hardwood_forests.htm). Major portions of 2 Ph.D. research projects have concentrated on *Dolania*, including that of Tom Fink on ovariole resorption, and that of Laurence Ruffieux (University of Lausanne) on bioenergetics. Dr. Ruffieux found that the two color forms of females were related to different levels of lipids. The light-bodied females with low lipid levels emerge, mate, and oviposit within minutes, while the dark-bodied females with high lipid levels emerge, mate, and fly away to colonize new habitats. All males have the same coloration. An obituary by Michael Hubbard (2003) gives a list of Bill's publications. Some mayfly nymphs from New Caledonia that Bill worked on are illustrated in Figs. 4-6.



Figs. 4-6. Some mayfly nymphs from New Caledonia: 4, *Tenagophila brinoni* Peters et al.; 5, *Lepegenia lineata* Peters et al.; 6, **new genus, new species**.

The choice of Bill Peters as a pioneer would have been a great surprise to him. Whatever he accomplished was only part of a career he enjoyed. As Bill often said, "it was never boring." Nevertheless, I know he would be most honored and appreciative of this recognition by the Society.

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