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## A DIFFERENCE OF DEGREES AND THE INFLUENCE OF DR. L. A. HETRICK

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Pioneer Lecture presented at the

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When I was first approached by the organizing committee to present the Pioneer Lecture to honor Dr. Lawrence A. Hetrick, I flatly said "No". There was certainly no lack of respect on my part for his well-deserved honor, but more because I felt others were better acquainted with him, and would be more logical choices to present the lecture.

Because this is called the Pioneer Lecture series, I decided to see how the term was defined. I was hesitant to believe that both Dr. Hetrick and I could be "pioneers". My thoughts were only of covered Conestoga wagons, Lewis and Clark, Daniel Boone, and Indian attacks. However, after reading the following definition, we both qualify on several grounds:

Pioneer. Noun: One who ventures into unknown or unclaimed territory to settle. An innovator in a particular field. Verb: To initiate or participate in the development of. To explore or open up (a region). French: Originally a foot soldier sent out to clear the way.

During a meeting with Dr. Joe Funderburk and Dr. Norm Leppla, it was emphasized that the lecture was to honor Dr. Hetrick, but the subject of the lecture could be almost any theme. Although Dr. Hetrick was my Ph.D. advisor, I never took any of his courses. I was assigned to him by Dr. John T. Creighton, head of the Entomology Department; I often wondered if this was perhaps as punishment (for Hetrick). Apparently I was his first Ph.D. student. We had been friends for several years, since my arrival in Florida in 1958. However, I felt like I barely knew the man, who always seemed reserved and shy. When preparing this lecture I discovered that few of his colleagues really knew him either. Even the vital statistics of his tenure and research were difficult to retrieve. Archives and history of the UF Entomology and Nematology Department seem to have disappeared over the years, due in part to physical relocations.

Although he had received many honors from the Florida Entomological Society, including the Presidency in 1968, and election to Honorary Membership in 1975, I could find no published memorial in the Florida Entomologist. In 2002, the Entomology Department dedicated one of the Lecture Rooms (1015) to him. A painting by Dr. Reuben Gambrell was also unveiled and was commissioned by a former student (James H. Pruitt,

Sr.), and an annual \$1000 scholarship fund was established in his name for undergraduate students in Entomology and Nematology. I was aware of all these honors, but still had reservations about choosing an appropriate lecture topic to honor him. Given the freedom assured by the committee, I eventually succumbed to the "friendly persuasion" and humbly submit the following remarks. Dr. Hetrick was instrumental in shaping my career by his encouragement and high expectations.

Although they tell little about "the man", a few basic statistics are in order. He was born in 1910 at Harrisburg, Pennsylvania, receiving his B.S. from American University in 1931, and Masters at Louisiana State University in 1932. He received his Ph.D. from Ohio State University in 1951. His employment included a teaching fellowship at LSU (1931-1934), an entomology inspector and technician position at the Louisiana Department of Agriculture (1934-1938), an Assistant Entomologist, Virginia Agricultural Experiment Station (1938-1946), and Research Assistant, Ohio State University (1946-1947). He apparently was hired by the University of Florida from 1947 to 1951 as an Assistant Professor, prior to receiving his Ph.D. at Ohio State in 1951. [Howard Weems assures me he was on the staff at UF when he arrived in 1946]. From 1951 to 1959 he was Associate Professor, and he served as full Professor from 1959 until retirement in 1972.

During this time period, grants were much easier to obtain than currently. Although he published scientific papers on various subjects (e.g., sawflies, moths, termites, cockroaches, walking stick variation, and lovebug life history), Dr. Hetrick emphasized teaching as his forte. He taught in the classroom, but was more comfortable in the field. His courses ranged from insect identification (with high standards expected) to ecology, insect control, insect techniques, and forest entomology. He (and another professor) were criticized for lack of research proposals, which of course would bring additional funds to the Department. He considered himself a "Naturalist" of the old school, investigating any intriguing organism (plant or animal) that came to his attention (more on this later). He did not have a true "specialty", although his interests leaned toward Forest Entomology. I recall fondly attending several Southern Forest Insect Workshops with him,

Dr. Bob Wilkinson, and Wally Dekle. There were many more memorable discussions en route than at the conferences.

Dr. Hetrick was always congenial and helpful to both students and those seeking his expertise. He provided species identifications on request from DPI (SPB) for termites and bark beetles. He was somewhat of an entrepreneur by developing an insect repellent called "STOP" which he had manufactured in a bright yellow talcum type tin can. The dust was proprietary, but its effectiveness against chiggers and ticks suggested it contained some sulfur. This he proudly gave away at nearly all faculty social events, and I rather doubt that he ever made much money from it.

After retirement in 1972, he continued his "Naturalist" direction by volunteering at Morningside Nature Center in Gainesville, where he led field trips for youngsters. His efforts were recognized posthumously in their newsletter (<http://www.afn.org/-fom/l/pine1.htm>). The students were always shown exciting new things and challenged to search out and explain phenomena. Although my specialty is systematics of Scarab beetles, I too consider myself a "Naturalist", and it was probably this diversity of interests that created a special bond between us. Such interests appear to be innate, and natural science careers seem inevitable for those so chosen. The renowned Miriam Rothschild, who's expertise on fleas resulted in over 300 publications during a 75 year career, stated unequivocally (Scientific American, Aug., 1990:116) that she was "... convinced that naturalists were born and not made", and later listed such qualities as "... curiosity, a keen eye, a good memory, and boundless delight and enjoyment of the plant and animal world, with perhaps a little intuition thrown in". These she claimed do not make a scientist, because that also "... requires self-discipline, hard training, perseverance, energy, determination, judgement and a goal". By this she believed that a scientist can be made, but a naturalist is born; combining the two you get the best of both worlds.

Never one to show favoritism, Dr. Hetrick often leaned heavily on those from whom he expected the most. Some would consider this unfriendly, but I accepted it as a challenge. No better example can be made than the questions he asked on my qualifying exam, as Chairman of my Ph.D. committee (1967). He insisted that all answers must be hand written. The first of my written questions (open book) was to "Discuss the role of water in formation of the Grand Canyon". Everyone knows water formed it, but how extensive and detailed should the answer be? My answer was long, but I never knew if it was satisfactory. I discovered later that he had just read the book in the Time-Life Nature series on the Grand Canyon! Another tough question on the oral exam was "Discuss insect blood". I was sure that this was to

prove my inadequacy in Physiology, for which I was required to take the Department's course under Dr. Jim Nation (current Florida Entomologist editor).

My title for this lecture was chosen long after I had prepared most of my notes for the lecture. It is meant to reflect some of the differences between a graduate degree then (1958 on my arrival) and now (2006). It allowed me the joy to reminisce, compare, and place things in perspective. My professional career and personal experiences have been extremely rewarding, but we can only go back through our memories. It is my intent to describe some of the more memorable events, and to do so requires revisiting that time, nearly 50 years ago. Many of the technological changes are progressive, but some changes and differences are lamentable. In science, progress is based on research, with the knowledge gained being passed on and assimilated through publication. This is the discipline of a scientist and an obligation to the next generation of researchers.

In an effort to put things in perspective I have listed below some of the differences in degree requirements (based on my personal experiences) over the past 50 years, and to compare resources then (1958) and now (2006).

Then, there were no computers, internet, e-mail, cell phones, FAX machines, CDs, DVDs, Camcorders, Videotapes, Videogames, answering machines, SEM, Automontage, Xerox (dry) copy machines, photo offset printing, or I-Pods. We had no Disney World, Space Center at Cape Canaveral, Interstate 75, Turnpike, Gatorade, GPS readers, love bugs, fire ants, and no Silent Spring (1962) or Lacey Act restrictions. The Entomology Department was on the 3rd floor of McCarty Hall & DPI was on the 5th floor of the Seagle Building in downtown Gainesville. The Florida State Collection of Arthropods (FSCA) was only an idea and the Research Associate program came about later.

Then, there was a dirt road (NW 34th St.) on west side of campus (now the busiest N/S, 6-lane street), and the huge shopping area of Butler Plaza on Archer Rd. was an abandoned WW II airbase (Stengel Field). We had DDT, Chlordane, Heptachlor, Aldrin, Parathion, and others, but DEET was still experimental. We were beat into Space by Russia's Sputnik. Castro had overthrown Batista. Dissertations were to be typed error free and recorded on microfilm.

Now: We could not live without all our electronic marvels (including this PowerPoint presentation). We send messages instantly, correct manuscripts easily, talk incessantly on cell phones, enjoy stereo music on our headphones or I-Pods. We can store fantastic quantities of data on discs, and access them almost instantaneously. Bibliographic searches, library access with scanners, and copy machines have simplified re-

search. On-line searches gave me information for this talk, as well as many other links. We have superhighways, huge shopping malls, few insecticides, and continued insect problems. All offices and cars are normally air-conditioned. The Entomology Department is in a relatively new building near DPI, which is in the Doyle Conner Building; both on ground level! FSCA is world renowned and the Research Associate program has over 300 collaborators. Disney World attracts many thousands, Cubans have left Castro and thrive in Miami (where Spanish is the main language), and we just sent astronauts to the space station (operated with the Russians). Dissertations can be composed on a computer and are published on the worldwide web!

Then: On a personal level, I came to Gainesville in 1958 to join the staff of 4 other taxonomists at the State Plant Board (SPB, now Division of Plant Industry, Florida Dept. of Agriculture and Consumer Services), headquartered in the Seagle Building (Gainesville's only 10 story "sky scraper"). Our 5th floor location had no air conditioning, except the occasional breeze through our open windows, and fans. It is now inconceivable that we were able to work in such an atmosphere, and even more remarkable that the museum specimens survived. Even our vehicles were not permitted to be air-conditioned (that was reserved for the Commissioner of the State Plant Board). Later, of course it was recognized that there was no trade-in value for cars without air conditioning, so ours were eventually equipped.

I was invited to become a member of the taxonomic unit because of my interest in Coleoptera and Orthoptera. I was previously employed at the Kentucky State Health Department in Louisville as a medical entomologist. There was little hesitation in my decision to move, although it meant a \$1000 cut in salary (from \$5800 to \$4800, per year!). I was assured that I could soon pursue my graduate training at the University of Florida, while still at SPB. The chance to collect insects in Florida was also a great attraction. We purchased a 3 bedroom, 1 bath house, near my colleagues Denmark, Weems, and Mead in the NE section of Gainesville. Our down payment of \$3000 was stretched over 3 years on "land contract", which meant we must save \$1000 each year from the \$4800 salary. Our monthly payments (on a 4.25% loan) were \$67.00 per month! None of this seems real today.

I distinctly recall gas wars, in which prices were 16-18¢ per gallon, with the average 24¢. Unreal sounding prices of goods in 1958 include a new Ford car for \$3,929, bread was 19¢/ loaf, and 1<sup>st</sup> class postage was 4¢! Popular songs included "At the Hop" and "The Purple People Eater", Seven of the top 10 TV programs were Westerns. In literature, Lolita was not only popular (and banned some places), but it was written by an en-

tomologist, Vladimir Nabokov. The Nobel Prize In Physiology or Medicine was awarded to 3 scientists for discoveries that genes act by regulating definite chemical events and discoveries of genetic recombinations and the organization of genetic material in bacteria.

However, 2 of the most memorable events were the invention of the hoola hoop (still popular some places today) and introduction of the Barbie Doll (my daughter still has one of the first), although in reality, the invention of the modem and integrated circuits might be more significant.

Graduate work then: My graduate training was different from most at the time. I had left Ohio State (for financial reasons) after 1 semester of graduate school. When I arrived in Florida, I intended to pursue a Masters degree in Entomology. However, my job involved traveling to all parts of Florida, assisting nursery inspectors with insect problems, and obtaining information for the weekly Cooperative Economic Insect Survey (CEIS, as a joint agreement with USDA; now the Cooperative Agricultural Pest Survey [CAPS]). This made it difficult to take regular courses. I also went to Cuba in 1959, shortly after the Castro regime took over, to study the Cuban May Beetle (*Phyllophaga bruneri*) introduced into Miami. Although I flew, the ferry from Key West to Havana was only \$35 each way! How times have changed both costs and opportunities.

That trip sparked my interest in the tropics and especially Latin America. Therefore, Spanish seemed logical as one of my languages (2 foreign languages were then required for a Ph.D.). I was told that I could not use Spanish because there were so many Latins in Florida that it would be too easy. After almost 50 years of travel in Latin countries, how I regret that choice, and my broken Spanish results. I was required to take German and French!

Fortunately, UF provided non-credit study courses in both languages, both taught by a wonderful professor (a former Hungarian Count). Although I could not attend regularly, he was able to teach me enough to pass the PhD language exams (although I was not yet enrolled in graduate school!). This hurdle out of the way, I discussed my program with the head of the Entomology Department, Dr. John T. Creighton (former Pioneer Lecture honoree). He suggested, because I had published an extensive paper on the Cuban May Beetle and had passed the language requirements, that I should skip the Masters and enroll toward the Ph.D.

I had previously taken nearly every entomology course offered at Ohio State, so I was required only to take Dr. Creighton's Morphology course (no student was exempt). As mentioned earlier, I was later asked to take Insect Physiology. My minor was botany, so many courses were taken in that department. Because I wanted to work in

the tropics, I was elated when in 1964, the UF joined 9 other charter universities to form the Organization for Tropical Studies (OTS), with headquarters at the University of Costa Rica. As the first UF student (pioneer) to apply for the 2-month program, I was required to justify my application (to be NSF supported) to the Dean of the Graduate School.

Dean L. E. Grinter was extremely negative about my participation, citing lack of all my formal UF courses, etc. I made a strong pitch that I wanted to work in the tropics and this would be the highlight of my training. Only 2 courses were offered: "Introduction to the Tropics" (which I wanted badly) and "Evolution and Ecology of Tropical Plants" (mainly for botany majors). Because the introductory course was not a part of my major or minor, I was told that I could not receive credit for it! As my minor, the Botany course was available for credit. I was determined to participate at any cost.

That trip, in conjunction with 2 months of *Cu-lucoides* field work with Dr. F. S. Blanton and Alberto Broce (U.S. Army grant) was the highlight of my professional career. The 4 months of collecting through 7 Central American countries, camping and operating blacklight traps nearly every night, produced hundreds of thousands of valuable specimens. Dozens of new species were found and the bulk samples are still being preserved and accessed by taxonomists today. The botany course had only about 6 students, and the professor (Dr. Ramon Ferreyra, San Marcos Univ., Lima, Peru) always preferred the field to the lab. There were no collecting permits required, compared to extensive restrictions today. In contrast, the introductory course was large, required buses for field trips, and spent more time in the lab. I have always been grateful to Dean Grinter for forcing me into the botany course. Grinter Hall was named in recognition of his leadership.

OTS also came in handy on my oral exam, when my botany professor asked: "If you were parachuted into an unknown area and you had no prior knowledge of the plants and animals, how would you determine if you were in climax vegetation?" Although I went by car, I experienced the same scenario when I arrived in Costa Rica for my OTS program. Fortuitously, that was the subject of many discussions in Costa Rica, where Dr. Leslie Holdridge had just published his Life Zone theories. I had no trouble elaborating on my answer in my orals.

Dissertations: The most important part of any PhD program was the written dissertation. My dissertation title "Scarab beetles of Florida" was chosen because it had been my research for several years (and continues to this day, after publication of 2 parts). At the time (maybe still), it was the largest dissertation from IFAS (660p., 204 figures). It was required to be typed, with no

erasures! Can anyone now, with computer ease, imagine retyping any page because of a single mistake, or inserting a single sentence in the middle of 660 pages, and retyping everything afterwards? Even I have trouble relating. However, my loving wife Evelyn typed this monumental tome several times, prompting our son to ask "Mom, why is Dad getting a Ph.D., because you are doing all the work". The UF (and I) recognized the efforts that wives devote to any successful PhD candidate, by honoring them with a PhT (Pushing Hubby Through) degree. I hope that tradition has been perpetuated.

Field work: My first collecting trip came only a short time after I joined the staff at SPB in 1958. Dr. Howard Weems had arranged a 2-week trip in conjunction with the USDA Wild Cotton Eradication program, with headquarters at Flamingo at the tip of Everglades National Park. What an introduction! We camped in tents, had an outhouse 50 ft. away, and hesitated using it because of the gauntlet of salt marsh mosquitoes! Nose and mouth had to be covered to keep from inhaling them. We were "pioneers" in a sense, because we volunteered to test a new repellent (DEET) supplied by Dr. Carroll Smith (previous Pioneer Lecture honoree) of the USDA Insects Affecting Man and Animals Lab (then in Orlando and now in Gainesville). The first DEET casualty was my watch crystal, and the second involved my hands being glued to my painted net handle. It was a greasy liquid and nothing like the nice smelling aerosols or wipes of today. Hundreds of subsequent trips to the tropics are not as memorable as this one.

Bonds: One of the intangible elements of my career experiences was a special bond that existed between most entomologists. It was especially true of small specialties like taxonomy. We all seemed to have similar goals and strove to make our group the best possible. Not that we didn't have disagreements! However, the common goals always seemed to solidify and prevail. The FSCA group of taxonomists, as well as those in the Entomology Department, and more than 300 Research Associates, have a tremendous track record for accomplishments. The FSCA (then SPB) collection of beetles was contained in 40 drawers when I came in 1958. That portion of the collection now occupies more than 2000 drawers! From a small state collection, FSCA has grown to be the largest (and we believe the best curated) collection south of the U.S. National Museum.

FES: In addition to being editor for 5 years of the Coleopterists Bulletin, involving good training from Dr. Ross H. Arnett, Jr. (a previous Pioneer Lecture honoree), I was Associate Editor for taxonomy for the Florida Entomologist, under then editor Dr. Stratton Kerr. He taught a course on scientific writing, which I believe helped many

students in their research papers, as well as theses and dissertations. Lamentably, I'm not aware of such a course today. When Norm Leppla was business manager, I also put my kids to work (at \$1.00/hr.; they were the "Ink Blots Co.") assembling separates (not reprints) for the *Florida Entomologist*. Was that a bargain?

The Hetrick Legacy: Teaching by example is a subtle technique, often used by Dr. Hetrick. All who studied with him greatly respected the man and his diverse knowledge, regardless of the subject. As a legacy, I'm sure that he would be most proud of those students he stimulated to become the best scientists they could be. Those naturalists that were born had the determination instilled by a fine teacher. Although he never sought the limelight, the honors bestowed upon him by his peers (including this Pioneer lecture), I know

would be humbly appreciated. I am proud to have this opportunity to be a part of this celebration, and to honor him for the important role he played in my career. I'm sure that he would be equally proud to share in the pride I have in those graduate students I have been fortunate to train at the University of Florida.

Acknowledgments: I thank the Florida Entomological Society for the opportunity to present this tribute to Dr. Hetrick, and for the chance to recall an important time in my career. Several colleagues have greatly assisted in preparing this tribute: Dr. Jennifer Gillett, Dr. Norm Leppla, Dr. Joe Funderburk, Dr. Tom Walker, and Chris Pickles provided background on Dr. Hetrick and assisted in many other ways. I especially thank Drs. Gillett and Leppla for preparing the PowerPoint slide preparation.