

CHAPTER SEVEN: COMING OF AGE

Even before the start of the Flora Project, the authors realized that the production of the Manual would be, in the words of Dr. Adams, "a very solid step toward the logical larger goal" of producing a definitive Southeastern Flora. Thus, in the early Fifties the exchange program was extended beyond a few sister institutions to include some 60 botanical centers in the Southeast and across the nation. At present, exchanges total some 160 centers or more from all over the world, with more than 40 from foreign countries. The great effort to complete, edit, and proof hundreds of pages of manuscript for the Manual had disrupted the normal day to day functions of the herbarium. Lack of time to sort and package the thousands of exchange specimens to be sent to other institutions had resulted in an enormous backlog of plants. These were piled high on every work table and were spilling over into the Herbarium. It was very important that the program not fall behind schedule. A curator to replace Harry was needed at once who could put the Herbarium in order and get the exchange program back on track. Already Albert had someone in mind who seemed right for the job.

John Russell Bozeman was a dynamic young man from Georgia with all the needed qualifications. He was hard-working, pleasant, and neat, in addition to having a sound botanical background and a basic understanding of the Herbarium and its problems. He had come to UNC in 1961 to work under Albert toward a Master's degree in Botany. During the next four years he took all available courses in taxonomy and ecology. He collected with Harry and Albert on numerous field trips, and worked part time in the Herbarium for several terms. In 1965 he received his MA degree and was well on his way toward a PhD, when he decided he needed to get a job in order to support his growing family. Therefore, he accepted a position as instructor of Biology at Georgia Southern College. In 1966 he was offered the curatorship at UNC with the option of working simultaneously toward completing his PhD., an attractive solution to several problems. Accordingly he began as curator on June 1st, just two weeks after Harry's departure. It was understood that this would be a two-year job, according to John's wishes.

Once again the Herbarium became a neat, well-run institution. John took out of storage the framed flower prints that had brightened the walls of the Herbarium's first home, in Davie Hall and hung them around in it's second home, Coker Hall. He lined up to the same height the name plates on all the steel cases; they had not all been purchased from the same company. This required a little drilling, but John was very handy with tools. In fact, if doing something more efficiently necessitated a gadget of some sort, he would simply make it, and at little or no cost to the department. Some of his ingenious devices are still used in the Herbarium today: tables mounted on small wheels for easier transport of plant material, a press frame for keeping plants, blotters, and corrugates straight while being strapped for the drier; and a wedge-shaped frame on casters for holding folders at waist height for convenient filing into the cases, just to name a few.

One of his greatest contributions to the growth and development of the herbarium was his efficient handling of the huge and badly neglected exchange program. Since 1962 the yearly average sent out had been slightly over 3,000 specimens. During his first year, John shipped out 70,431 specimens which reduced the backlog considerably. In two years he had sent out over 118,000 plants and was instrumental in collecting more than 135,000 specimens, of which some 95,000 were for the exchange program. All this was in addition to supervising the mounting and filing of 41,960 vascular specimens for our own Herbarium.

Toward the end of his second year, John decided he would need more time to finish his PhD. His primary interest was teaching. Accordingly, he asked to be relieved of his curatorial duties as of January 31, 1968. He was offered an instructorship in Botany by Dr. Greulach, the chairman of the department, who took this opportunity to congratulate John on "the unusually effective manner" in which he had served as curator. "We are most pleased with the way in which you have assumed responsibilities and have discharged your duties." Of course Albert regretted losing such an excellent curator, but for some time he had known that John's real interest was in ecology. Therefore he had already selected his replacement, a young undergraduate Botany major who had been "field-tested" on numerous collecting trips with Albert and John, who had taken a number of taxonomy courses, and who had already worked for several months as an assistant in the Herbarium.

Steven Worth Leonard was born in Davidson County, North Carolina, not far from Dr. Totten's home town of Yadkin College. In fact, Steve's father had attended classes taught by Dr. Totten's father at the Methodist Academy in that town. As a farm boy, Steve had a speaking acquaintance with cultivated plants around the yard, but his real obsession was with insects and spiders, black-widows being his favorites. Let him tell it in his own words. "As a child I was inquisitive enough about natural science to memorize the names of common cultivar plants in and around the yard, but my first real scientific interest bordered on an obsession with insects. I turned over every rock, chunk of wood, or piece of lumber to see what scurried there. Black-widows were favorites. I recall rather painfully the results of a trip through my grandfather's watermelon patch, rolling each ripening melon over (and incidentally twisting it off the vine) to see what creatures were hiding in the moist soil beneath. I also recall the various states of excitement elicited from my parents when I entered the kitchen one summer evening and produced from my overall bib pocket the prize of the day - a live copperhead snake."

After graduating from West Davidson High School, "5th in a class of 85", according to Steve, he entered the University of North Carolina, "a confused and lost country boy". Here he stayed for a couple of years, not too enthusiastically or successfully, just long enough to conclude that "neither Chemistry nor Journalism were the careers" for him. He dropped out and took a job with the North Carolina Forest Service.

Before leaving Chapel Hill, he stopped by to see Dr. Totten, who, doubtless concerned that his young friend was quitting college, suggested that he speak to Dr. Radford about the possibility of changing his major to botany. Two years later Steve took this suggestion seriously and returned to Chapel Hill to begin his junior year as a Botany major.

Early that fall he was invited to go along on a weekend field trip with Director Albert Radford and Curator John Bozeman, rather awesome company. His first assignment was to collect specimens of a grass that was growing under water. While nervously contemplating the impossibility of reaching the plants without getting his feet wet, Steve heard "much splashing, and looked up aghast to see Radford wading along knee-deep in water and snatching undetermined plants like a madman. There was no alternative but to plunge in, and from that moment until the final bag was loaded and we began the 300-mile trip back to Chapel Hill with what later proved to be a remarkable 4,607 exchange specimens, the trip was glorious." He saw numerous plants he never knew existed, though he "felt like an idiot...as Bozeman and Radford conversed in Latin over a hundred of this and a hundred of that."

On February 1, 1968 Steve accepted the position as curator, as he later said, "in a state of awe and delirium." Like John, he had a pleasant personality and would continue the friendly working relationship between curator and assistants that John had established. Like John, he too was well organized and would keep the Herbarium running smoothly.

With the "Manual of the Vascular Flora of the Carolinas" finally rolling off the Press, work on the Southeastern Project began picking up speed. The need for exchange was increasing, as were the requests for loans by the growing number of contributors to the Project. As Steve said only recently, those were hectic years, "a time of tremendous growth, when the daily schedule of specimen processing required organizational skills and little creativity." It took time to ready specimens to be mounted by the four or five workers under his supervision. Handling the flow of exchange and loans in and out was almost a daily occurrence. There were countless field trips, many with Albert, some to various provinces of the Carolinas for selective collecting or for settling questions of distribution. This kind of work Steve really enjoyed; like Harry Ahles, he loved being out of doors looking for new or rare plants. One highlight of his curator years came in the fall of 1969 when he and Albert drove to Florida for a week of collecting. This was their first visit to the Keys, and they made an effort to collect a representative set of specimens from each of the major islands. Each night, according to Steve, they poured over those "inadequate books we had brought along, trying to decipher names for those unfamiliar plants we had encountered - the dilly and the wild dilly, the stoppers, weird borages, and a myriad of rubiads."

A great deal was accomplished under Steve's excellent supervision during the three and a half years he served as curator. A total of some 100,560 specimens had been collected of which more than 73,700 were for the exchange program. Some 73,000 sheets were mounted and added to the Herbarium and over 76,000 specimens were sent out on

exchange to 130 institutions. Some 30 of these were in foreign countries such as Japan, Hungary, Scotland, India, Poland, Turkey, and Mexico.

While taking care of the Herbarium, Steve finished his A.B. in Botany, and was beginning work toward an M.S. Late in 1970, Steve wrote Dr. Greulich that after much deliberation he had told Dr. Radford that he wished to "resign, effective August 31, 1971, all curatorial duties - in order to concentrate on course work." Dr. Greulich took this opportunity to compliment him on his "excellent performance" both as student and curator, and offered him a teaching assistantship for the 1971-72 academic year. Steve received his Master's degree in 1973.

With all the specimens that had accumulated over the first fifty years of the Herbarium's existence, augmented by the tremendous increase in collecting for the preparation of the Manual, plus additions through exchange and gifts, the Herbarium was now one of the largest in the country. For some time Albert had been trying to upgrade the position of curator in order to attract a professionally trained person dedicated to making a career of the job. Someone was needed who would help the Herbarium become, in Albert's words, an even greater "research, training, and service institution", not merely a storehouse for several hundred thousand dried plants. John Bozeman and Steve Leonard each had admirably filled an urgent need at a particular time in the life of the Herbarium. Now there were different and greater challenges to be met. From this point on, field work would be scaled down and in its place the emphasis would be on research and the interpretation and use of the material already in the Herbarium. Once again it was time to find a curator equal to the job, hopefully one who would look upon it as a career.

One day Albert asked a fellow botanist, Dr. Jim Hardin of North Carolina State University, if he knew of a likely candidate for the curatorship of the Herbarium at UNC. Dr. Hardin mentioned a young PhD student he had met during one of his summer teaching sessions at the University of Oklahoma Biological Station. This student was assisting in the Bebb Herbarium there when Hardin walked in and described a plant he had seen with which he was not familiar - something that looked like a morning glory on an upright stalk. The assistant immediately told Dr. Hardin that it was *Heliotropium convolvulaceum* and pulled out a mounted specimen for his inspection. Hardin recognized it as his mystery plant and walked away amazed that the young assistant had identified it from a scant verbal description. So when asked about a potential curator for the Herbarium, Hardin recommended Jim Massey without hesitation. Furthermore, he paid Jim a high compliment by saying he was a "Harry Ahles and a Lloyd Shinnery, with a pleasing personality." One day when Jim Massey was wondering and worrying about where he could find the kind of herbarium job he wanted, the phone rang. On the other end of the line was Dr. Albert Radford, Director of the Herbarium of the University of North Carolina at Chapel Hill, offering him the kind of herbarium job he desired. Jim laughingly says that *Heliotropium convolvulaceum* was responsible for his getting the job...reminds me of my little black notebook that had something to do with my getting a job in the herbarium many years ago...

The new curator arrived in Chapel Hill with better-than-average looks, an outgoing, friendly personality, and in Albert's words, with "heart, enthusiasm, training, leadership, and innate ability" - and with Helen, his very talented wife, who later became one of the best secretaries the Herbarium ever had. Jim Massey was Texas born for sure. This was proven beyond a doubt when some years later, in a town where most people try to build houses in wooded lots without cutting down a single tree, he selected the spaciousness of a very large old field (not a tree in sight) as the place for his new home. However, one must admit that he landscaped his "field" handsomely, putting in trees where he wanted them, with room for his expanding hobby of growing daylilies, which are something to behold in blooming season.

Dr. Massey began his duties as curator on the 15th of August, 1971. He was well-qualified for the job. Prior to receiving his PhD from the University of Oklahoma, he had completed his M.S. at Texas A & M where he was a graduate teaching assistant and later instructor in botany. He had spent a year as Research Assistant in the Herbarium of the Rancho Santa Ana Botanical Garden. While studying at the University of Oklahoma, he assisted in the Bebb Herbarium and later spent a year as Visiting Scholar to Oklahoma College of Liberal Arts. Here he taught plant morphology, genetics, and general botany, and established greenhouse and teaching collections.

When Dr. Massey walked into the Herbarium that August morning, he was taking charge of the sixth largest university herbarium in North America. In those several hundred steel cases were plants from every state in the Union and from all around the world, some that had been collected more than a century ago. The hundreds of thousands of specimens in those cases constituted one of the finest collections to be found anywhere. Over the next twenty-two years, Jim, through his excellent care and management of those collections, would be guiding the Herbarium in its continuing fulfillment of the goals of research, training, and service formulated by Director Radford a decade earlier.

There are two things of which I am justifiably proud. The first was my recommendation that Marion Seiler be hired as artist for the Manual when Peggy Kessler left. Marion is an exceptionally talented artist whose graceful and botanically accurate illustrations have added so much to the value of the Manual. After the completion of the manuscript she continued to serve the department as a very efficient staff artist until her retirement. The second was my suggestion that Mary Felton be considered for the job she has so admirably filled since the fall of 1971. Her present classification is Curatorial Assistant. Mary is low-key, patient, well-organized, and pleasant. She says she takes care of the routine footwork around the Herbarium, freeing Dr. Massey to do "the more important and professional things." She trains the assistants and volunteers, keeps track of all specimens coming into or leaving the Herbarium, makes all repairs, serves as receptionist, brews the coffee, and does everything necessary to keep the Herbarium running smoothly. She's quite indispensable! She also does a good deal of the mounting herself (12,000 sheets in one year was a record).

Over the next few years progress was being made in all departments. Since the non-vascular collections were becoming well-established, Albert decided that each section should have its own curator, with Dr. Massey designated as General Administrator of the Herbarium and Curator of the Vascular Section. Dr. Norton Miller became Curator of Bryophytes when he joined the staff in 1975, and built up the previously small, poorly cared for Bryophyte collection to 3,500 neatly packeted specimens. Since his resignation in 1975, he has not been replaced. Dr. Max Hommersand has curated and developed the Algal Collection and, assisted by his botanist wife Fran, has added thousands of specimens from collecting trips to places such as Japan, New Zealand, Tahiti, New Caledonia, Nova Scotia, and Africa. Today this herbarium numbers over 55,000 specimens. One of the earliest collections on this campus, the Mycological, was begun by Dr. Coker and added to by Dr. Couch. A recent inventory indicated that it has grown to more than 40,000 specimens. Until his retirement in 1983, Dr. Lindsay Olive had been caring for this herbarium. Wood samples have been collected and curated by Dr. William Dickison, while Dr. Patricia Gensel has built up and cared for an herbarium of plant fossils and pollen samples. These collections have proven to be very important resources for research, publications, and graduate training.

In the vascular plant collection, emphasis was now on depleting the backlog of specimens for exchange, reorganizing the Southeastern collections for easier access by researchers and contributors, and reducing the handling of specimens by filing them into folders by state. A teaching collection of vascular plants, presently numbering over 8,000 mounted specimens, was begun for student study. It was named the "H.R. Totten Collection" in honor of Dr. Totten whose first love was teaching. The format for the Annual Reports of the Herbarium was much improved by changes made by Dr. Massey. He expanded the one-sheet factual listing of plants collected, borrowed, added to the herbarium, sent out on exchange, etc., to several pages covering the activities of the staff, new research, publications, and reports from the non-vascular herbaria. Then followed the usual complete listing of loans, exchanges, and gifts.

In 1974 Director Radford and Curator Massey received a most commendable report from the National Science Foundation **The Herbarium had been ranked third among university herbaria, after the University of Michigan and Harvard University; tied for fifth place with the Smithsonian Institution among all herbaria in the United States; had been designated as one of the 105 institutions in the National Resources Collections, and was nominated as one of the 25 National Resource Centers.** These rankings were based on size, number of specimens added yearly, loans and exchanges, number of professional visitors and staff, graduate degrees conferred, amount of research and so forth. Dr. Tom Scott, department chairman, wrote: "This is an exceptional achievement on the part of the staff of our Herbarium and one in which every member of the Department of Botany should take great pride. The Herbarium, which at this time is enjoying its maximum of activity and usefulness as a research tool and as a regional as well

as a national resource, has brought the best kind of recognition to the Department, University and the state."

In 1979 the University Press published the "Asteraceae" by Arthur Cronquist, Volume I of the Vascular Flora of the Southeastern United States.

In addition to curatorial duties, Jim Massey was now teaching a course in introductory taxonomy and assisting with the Plant Families program at the Botanical Garden. His enthusiasm for teaching stimulated a number of his students to volunteer for work in the Herbarium. Thus began the program of volunteer help which under Mary's training has rendered valuable assistance to the Herbarium.

Dr. Massey was also becoming involved in research on endangered and threatened plant species in North Carolina and in other states, which led him beyond the walls of the Herbarium, extending the reach of its resources to the public. He chaired committees, moderated panels, presented papers, and conducted seminars and workshops on the subject. Noteworthy among his publications are: a book with Dr. Hardin and others, one "Threatened and Endangered Vascular Plants of the Mountains of North Carolina and Virginia", accompanied by an atlas and illustrated guide to the same. With Dr. Paul Whitson he published studies and papers on species biology. He also contributed to "Vascular Plant Systematics" and "Natural Heritage", two very noteworthy volumes by Dr. Albert E. Radford and others. Dr. Massey's studies and projects on endangered species have been supported by grants from the US Fish and Wildlife Service, US Department of Agriculture, and the US Forest Service.

In 1981 Albert appointed Dr. Massey as his replacement as chairman of the Executive Board of the Southeastern Flora Project. He has since brought the number of contributors to 133. In 1990, under his editorial chairmanship of the Vascular Flora of the Southeastern United States, Volume 3, Part 2, the Leguminosae by Dr. Duane Isely was published by the University Press. In addition to all these activities, he has written lab manuals for his classes, and served on doctoral committees since his appointment in 1980 to Adjunct Professor.

Many noteworthy advancements have taken place in the Herbarium itself. The purchase of a microwave oven and two freezers has largely solved the problem of controlling insect damage to specimens, the age-old "bugaboo" of herbaria. Now no specimen is allowed into the Herbarium without first spending three days in one of the freezers, or going through the microwave. This procedure has almost eliminated the use of chemicals that are likely hazardous to the health of herbarium personnel. Also, thanks to the generosity of a couple of benefactors, the Herbarium became the proud owner of a computer and a laser printer. Bookkeeping and other chores have been considerably lightened and streamlined.

In April 1982, an open house was held to celebrate the 74th birthday of the Herbarium and the recent founding of the "Friends of the Herbarium", an organization promoting it as a scientific and educational institution. Also in April the curator and staff hosted a reception in honor of five botanists from the People's Republic of China who had been commissioned to study flora in the United States. Several years before, Dr. Massey had taken steps to establish contact with Peking which resulted in the set-up of an exchange program with authorities there. Our Herbarium became the recipient of some nice specimens from China, thanks to Dr. Massey's initiative.

In 1983 Albert turned over the directorship of the Herbarium to Dr. Massey who now became Director as well as Curator. For thirty-seven years Albert had provided the leadership for the development and growth of that institution, as Curator for fourteen years, and then as Director for twenty-three years with curators working under him. Those thirty-seven years of experience have shaped his philosophy of teaching, his courses, his research, his publications, and his efforts to contribute something of worth to society.

For some fifteen years up to his retirement from the Department in 1987, he had spent much of his non-teaching time on various projects of societal relevance. For example, in 1975 he agreed to check out 115 sites from Alabama to Pennsylvania for the Landmarks Program for the National Parks Service to determine those worthy of preservation. Of these sites, ranging from rock domes and wooded ravines to river swamps and grassy serpentine barrens, Albert recommended five for National Natural Landmark sites. All five are now protected as National Landmarks. In 1979 he was called as an expert witness for the Environmental Defense Fund in their "Wetlands Case" against the Environmental Protection Agency and the US Army Corps of Engineers in Louisiana. He was also recommended by both parties to help write a definition of "wetlands", the critical factor in the suit. All of this involved flights to Dallas, Atlanta, and New Orleans. Later the same year he completed the study of the Dan River Basin Inventory Project for the US Army Corps of Engineers.

A great deal of his time was spent on conferences and field trips to help determine rare and endangered species for the US Fish and Wildlife Service, the US Forest Service, the North Carolina Natural Heritage program, the North Carolina Department of Agriculture, etc. The results of his studies and those of co-workers have been published in several books and journals.

The Herbarium of the University of North Carolina at Chapel Hill was now one of the twenty-five National Resource Centers in the United States, and an integral part of the International Plant Resources System. Herbarium-based research on the local level has resulted in more than twenty-four major publications by the staff, and over one hundred graduate degrees. Many visiting scholars from the United States and abroad have used the collections and facilities of the Herbarium. Since 1938 more than 283,000 exchange specimens from all over the United States and from many foreign countries (including

China and the USSR) have broadened the geographical base of our accessions. During this same period, some 178,000 specimens have been borrowed from our Herbarium for research projects, annotated and returned, greatly enhancing the worth of our collections.

The measure of the value of an herbarium is in the size and excellence of its collections, in its use by staff and visiting researchers, in the quality and number of its publications, in its importance to the training of students, and in its outreach in service to society.

The Herbarium that began so long ago as "...a few sheets, possibly a hundred or two, of mounted or unmounted plants...scattered about in corners and under tables without much care...", gathering dust, has finally come of age, a truly modern herbarium, fulfilling all the requirements that the title implies.

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