

THE HISTORY OF THE HERBARIUM
OF THE
UNIVERSITY OF NORTH CAROLINA
AT
CHAPEL HILL, NC
1908 - 1998

By
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PREFACE

Soon after establishing a support group called the "Friends of the Herbarium", Dr. J.R. Massey, the new Director of the Herbarium (1983), began the publication of a semi-annual Friends' "Newsletter". He asked me to contribute an article on the early history of the Herbarium since I had known all the curators connected with its development from Dr. W.C. Coker's time on --- no doubt a gentle way of saying I had been around for quite awhile. I had indeed been privileged to know all these folk and to be involved in some way or another with the growth of the Herbarium since 1935, when I began my graduate studies in Botany at Chapel Hill.

After countless hours of researching Dr. Coker's voluminous files of personal letters in the Southern Historical Section of Wilson Library, and looking through my many letters written from Chapel Hill to my parents, I had a beginning chapter ready for the 1984 spring issue of the "Newsletter". There had been no time to think through the whole project before starting - probably not the best way to begin a series, as the article turned out to be. Deadline followed deadline in rapid succession. Still I managed to turn in the seventh and final issue on time, in the fall of 1986.

A number of readers told me they enjoyed the series and some even suggested that they be published as a unit. At the time I was busy with other projects, so let the suggestion pass. Now that the drive is on to develop the Botanical Garden in which the Herbarium will be a very significant part of the Garden's Research Center, I am having second thoughts.

Public support is essential to the success of such a project. Thus it seems imperative that the public know something of the history and development of our Herbarium, how it has grown to be one of the largest and best organized collections in the country, an integral part of the International Plant Resources System, and one of twenty-five National Resource Centers in the United States. The public should also know that many major works produced by our Biology faculty are the result of herbarium-based research; and that over the years a great number of graduate student degrees have been conferred by the Department, degrees in which the Herbarium's specimens have played a very important part.

Few people are aware that many visitors come from far and near and around the world to see our Herbarium and study its specimens. A look through the Guest Book is an interesting lesson in geography. Even fewer people know of our exchange of thousands of specimens with numerous other herbaria around the globe. In so many ways the Herbarium has been and continues to be a viable asset to the University, to the faculty and to the students, and especially to society itself through outreach in service in many areas.

The History of the Herbarium is presented here as a unit, updated to the present by a number of changes and additions.

Laurie S. Radford 1998

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THE HISTORY OF THE HERBARIUM OF THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL, N.C.

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"...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: not a very auspicious beginning for the herbarium which by 1974 was ranked third in the Nation for size and operation among university herbaria, and one of the top-rated research centers in the United States for systematic collections. This is the story of the growth and development of that Herbarium.*

PART I - THE HERBARIUM 1908-1998

CHAPTER ONE: THE FIRST THIRTY YEARS

Those few neglected dust-gathering specimens had been collected by a young man from Raleigh, North Carolina, who entered the University of North Carolina at Chapel Hill in the fall of 1888 at the tender age of fifteen. William Willard Ashe, lacking one credit for admission, spent three summer months studying botany under the supervision of an aunt. Upon standing the entrance exam, he did so well that he surprised Dr. J.A. Holmes with his knowledge of plants. William specialized in botany and geology, but his first love was botany. While a student at Chapel Hill, he spent his vacations and much of his spare time in the fields, searching for specimens. After graduating in 1891, he went to Cornell, leaving behind those few hundred or so plants. He could not know that those same specimens would some day be the beginning of the University Herbarium; nor could he foresee that many years later the 20,000 or more plants he would collect on his own time and at his own expense while working in Forestry, would become important in the development and growth of that same herbarium.

As our story unfolds, an interesting pattern emerges: at the beginning of each new stage of growth there was a definite need that had to be met before progress could continue; and standing in the wings, as it were, there was always an individual equipped with the training or native ability peculiar to the meeting of that specific need. Thus we shall see how eight successive curators with widely differing temperaments and talents, each guided and nourished this herbarium through a decisive stage in its life.

* Unless otherwise indicated, all quotes are taken (with permission) from the *William Chambers Coker Papers # 3220* in the Southern Historical Collection, University of North Carolina Library, Chapel Hill, N. C.

First upon the scene was a young botanist, a native of Hartsville, South Carolina, a graduate of the University of that state, a student for a semester at the famous Strasburger Laboratory at Bonn-am-Rhine in Germany, and a Ph.D. from the University of Chicago. Dr. William Chambers Coker joined the Department of Biology in the fall of 1902 as associate professor of Botany. It is said he made it clear that he would come only as Professor of Botany not as Professor of Biology! The department, under the chairmanship of Dr. Henry Van Peters Wilson, had for many years been occupying the fourth floor of New East Building. There was no specialized equipment for botany courses, and no herbarium as such. It was at this time that Ashe's few specimens were "assembled and put in a safe place, but were not considered further until the new building was erected..." in 1908. This new building was Davie Hall. Botany was now established as a separate department, with space for an herbarium. A few cases were built for both higher plants and mushrooms. Although Dr. Coker arrived in 1902 with a copy of Atkinson's "Mushrooms" under his arm and started using it immediately (judging by the notations in the margins), apparently he did not begin keeping specimens until 1908. For the next six years he was the sole botany professor, head of the department, and first caretaker of the young herbarium. In fact, he was the Botany Department!

Seemingly, very little was recorded over the next 15 or 25 years or so about the progress of the herbarium. There was no sense of urgency nor concentrated effort to build up a sizeable collection as soon as possible. Specimens were added from time to time as collected, now that there was a safe place in which to keep them. This is understandable, considering the scope of Dr. Coker's responsibilities and accomplishments, in addition to teaching botany.

Soon after coming to Chapel Hill, he began to publish notes and articles on a vast array of subjects from liverworts, mosses, fungi, and seed plants, to the teaching of science in high schools, and writing about famous botanists. Scarcely a year after joining the department, he began to transform a 5-acre boggy cow pasture on the edge of the campus into what has become the now famous Coker Arboretum. Beneath its Wisteria Arbor alumni still love to stroll, as alumni have done for decades. Dr. Coker never meant this tract to be an arboretum as such, but an ornamental garden for the University and a place in which a wide variety of plants of botanical interest and use in teaching could be grown.

In 1913 he became chairman of the newly formed Committee on Buildings and Grounds, in which capacity he served for the next thirty years. Much of the beauty of the campus today is due to his supervision of all planting of shrubs and trees, guided by his good taste and innate ability as a landscape architect. Some may still recall that for years most of the plants on campus were grown from shoots and cuttings (at little expense to the University) in a small one and a half acre plot, just south of Peabody Building. At this writing, the little nursery lies buried beneath a large parking lot. So much for progress.

During those very first busy years, Dr. Coker also laid the foundation for a good botanical library of rare books, first editions, old herbals, and the writings of early botanists. Often he paid for them himself if University funds were not available. Over the years he donated many of his personal volumes so that today this botanical collection is beyond price. His prodigious research on fungi resulted in the publication of several volumes and monographs, the most famous of which is *The Saprolegniaceae*, a volume of some 200 pages and 60 plates. This work on water molds has stimulated and influenced research on aquatic fungi the world over. It is without doubt still a classic in its field.

Perhaps his most important contribution as first curator of the herbarium was his excellent collection of fungi which by the mid-thirties numbered over 20,000 specimens. Much credit for the careful preparation, drying, and labeling of many of these specimens is due Miss Alma Holland (the late Mrs. Dale Beers) who came to work for Dr. Coker in 1918 and stayed on for many years as his research assistant. She was indispensable as secretary, researcher, editor and illustrator of many of his publications, and finally as co-author with him of a book on higher fungi, *The Boletaceae of North Carolina*, another classic.

Meanwhile, the collecting of higher plants had by no means been neglected. By 1914 the first addition to the staff arrived, Henry Roland Totten, as instructor in Botany. His special interest was in the classification and distribution of higher plants. Two years later, he published with Dr. Coker *The Trees of North Carolina*. This work was later expanded into *The Trees of the Southeastern States* and published in 1943. During these years the two men were in frequent touch with William Willard Ashe, comparing notes, locations, opinions and specimens. Work on the "tree books" stimulated the collection of woody plants and thus the herbarium increased in numbers, estimated to have been around 15,000 in the early Thirties.

In 1917 John N. Couch, a junior at Trinity College (now Duke University), came over to the University of North Carolina at Chapel Hill to complete requirements in botany for his premedical course. He was so impressed by Dr. Coker that he soon forgot medicine and switched to Botany, eventually earning his MA and his Ph.D. in the study of aquatic fungi under Dr. Coker. He did a special study on the relationship of species of the fungus *Septobasidium* with scale insects, which resulted in a book that is now "a classic in mycology". His fine collection of twig specimens from this study has become a special part of the herbarium under the Fungi Section.

By 1932 our country was in the middle of "The Great Depression", the worst in its history. Millions had lost their jobs and were desperately trying to hang on. Money was hard to come by, even for the essentials. Institutions as well as people were hard hit, and there was no money to be found for extras.

It was during this dark time that news came of the sudden death of William Willard Ashe, following an operation on March 7th. This unexpected event was to change the nature and the direction of the Herbarium, as we shall see. Dr. Coker wrote their mutual friend,

Dr. T.G. Harbison (another botanist), a few days later: "I suppose you noticed the sad news of Mr. Ashe's death. I have for a number of years relied on him and you more than on any other two men for helpful information about the distribution of the southern flora. I took his death as a distinct personal loss."

Dr. Harbison had known Mr. Ashe for more than 30 years, had tramped with him over countless miles and had covered much of the southeast with him, visiting the sites of a number of Mr. Ashe's types. The two men had corresponded about southern flora over the years and were very close friends. A few days after the death of Ashe, Dr. Harbison received from Ashe's secretary an undated letter of instructions from Ashe to be delivered in the event of his death, to his good friend Harbison. It almost seemed that Ashe had a premonition that he might not survive the operation.

In the letter, Ashe stated that his botanical work was largely incomplete and he hoped Harbison would be able to look over his collection, and carry out some of his wishes. One of these was that his herbarium might be placed in some North Carolina institution. Apparently the two men had talked of this a number of times, but as Dr. Harbison stated in his letter to Dr. Coker, "...he made no suggestion" as to which institution. Harbison's first choice was the University of North Carolina. "Now my personal wish and preference would be for the University of North Carolina to be the custodian of this fine collection representing the life work of one of her most brilliant sons. I feel this would meet his wish."

Ashe never gave an inkling of what he thought his collection might be worth, only that it had cost him a small fortune "to do what I have done." Dr. Harbison went on to say that he felt it his duty to get as much as possible for Ashe's widow "in this time of depression." He then put forth several ideas, one of which was to write to fifty or one hundred of "the wealthiest friends of the U. of N. C. and put the matter up to them." He presumed he would have to go to Washington to Ashe's home to "arrange" his herbarium, and also to Raleigh where his herbaceous plants were stored in boxes. Dr. Harbison then stated that "the part of the work I dread most is the getting back of the type specimens he has loaned. He tells me where to find the empty genus covers and where to find the types to be returned and replaced. I fear some of his types of Crataegus may have been misplaced (?) or destroyed by the same person who did something with Beadle's types that he did not feel like recognizing." He did not say who that might have been!

As news of the death of Ashe spread, a number of institutions expressed interest in acquiring his herbarium, if the price were right. Among these were the New York Botanical Garden, the Arnold Arboretum, the University of Michigan, the National Herbarium in Washington, and the Pennsylvania State Forestry School, to name a few.

During that spring and summer of 1932, numerous letters shuttled back and forth between Dr. Harbison at his home in Highlands, N.C. and Dr. Coker at Chapel Hill. Mrs. Ashe had been ill and Harbison had not been able to learn from her what she would consider a fair

price for her husband's collection; nor would Harbison have any idea of its worth until he could go to Washington himself and look it over. The "National Herbarium people" wanted Ashe's types, but Harbison was opposed to breaking up the collection. "I am hoping...funds may be raised to keep this collection in the state and at the University if possible." A Florida "gentleman in Highlands gave Harbison the name of a man who might be persuaded to give money toward purchasing the herbarium for Duke, but not for the University of North Carolina!

By June it was decided that Dr. Harbison should delay his trip to Washington until after August. The Ashe herbarium had to be appraised by several people and until such time no definite price could be set for its sale. Meanwhile, Dr. Coker wrote Dr. Frank Graham, then president of the University of North Carolina, a "strong" letter, urging him in spite of hard times, to make a great effort to secure "for the University this remarkable and unique collection of North Carolina and other southern plants." He went on to say, "You are aware that North Carolina may be considered at present the state in which scientific and extensive studies of southern botany is now concentrating. Work done here, at Duke and at State College is going on steadily all the time in the direction of a better knowledge of southern flora and to have this remarkable collection go out of our state would be a calamity." November came, and Dr. Harbison wrote that he was still corresponding with institutions about the sale of the Ashe Herbarium..."I'm still hoping we can keep it in N.C., or at least in the South. Ashe's types should remain in the South."

Then on December 22nd, Dr. Coker wrote Dr. Harbison that "President Graham and I succeeded yesterday in getting a gift from Mr. Watts Hill of Durham...and I hope that you and I can secure the Ashe Herbarium from Mrs. Ashe..." Dr. Harbison replied immediately that he was "delighted to learn that money was in sight to secure the Ashe Herbarium." He would leave for Washington on Monday. He ended his letter with "Hoping for the best I am looking forward to our meeting with great pleasure and the keenest interest."

The two men met in Washington and went together to see Mrs. Ashe. Their mission was successful, and Dr. Coker left Dr. Harbison to pack up the herbarium and arrange to bring it down to Chapel Hill by van. Freight would have been cheaper, but Dr. Harbison did not like that idea "on account of rough handling." While he was bringing the Washington section of the herbarium to Chapel Hill, Dr. Totten was moving the Raleigh section over to the University. At last, woody plants, herbaceous plants, notebooks, reprints, and pamphlets were all together in one place, in Davie Hall. Once again, Ashe's plants were all over the place, under tables, on the tops of cabinets, in corners - not just a hundred or so specimens, but 20,000 or more. This time, hopefully, they would not sit around gathering dust, but soon would be "mounted, classified, and put on display," as Dr. Totten wrote to the editor of Science on January 20th: "The herbarium should be ready for the use of visiting botanists by summer." Little did he know that many summers would come and go before the herbarium would be ready for visiting scientists; and many of the boxes and

bundles would gather additional dust before their contents would be poisoned, mounted, labeled, sorted, and filed away.

It was time to turn the whole thing over to a full-time curator, one unhampered by chairmanships, teaching, committee meetings, writing books, checking on arboretum help, answering umpteen letters, etc. Some one was needed to give undivided attention to deciphering Ashe's "peculiar signs and symbols", as Dr. Coker described the shorthand that Ashe often used on his specimens in the field. The herbarium was for the most part unmounted, not even poisoned, so there was much work to be done to get it into shape to be used.

The man ready-made for the job was even now standing in the wings: Dr. Harbison, who else? Dr. Coker had already made that decision. Dr. Harbison was perfect for the job. He and Ashe had been friends for over thirty years, had collected together, corresponded constantly, comparing notes and descriptions. Harbison knew all the sites of Ashe's types. He was familiar with those "cryptic symbols" and could fill in all those unfinished labels. He had collected plants in the South for the Biltmore Estate and Herbarium, and for over twenty years he had collected and studied southern plants for C.S. Sargent and the Arnold Arboretum. It was said of him that he knew the woody plants of the southeastern states as no one else knew them. He said of himself, "I am supposed to be able to name all of the trees and shrubs of the south at sight." He added that in his quest for plants he had walked enough miles to "make a journey three times around the world." During these travels, he had built up his own sizeable herbarium, neatly and fully labeled in his beautiful, flowing handwriting.

Thanks to Mr. Hill's generous gift, there was enough money remaining after the purchase of the Ashe Herbarium to hire Dr. Harbison for about six months, as well as to provide fourteen new herbarium cases and plenty of mounting material. So he began work at once, sorting, preparing specimens for poisoning and mounting, and translating Ashe's symbols and abbreviations onto legible labels. Apparently the money ran out early in December, and University funds were hard to come by, so for a couple of months in 1934, he worked with Dr. Coker's brother David in Hartsville, S.C., building a lake and making a garden for Coker College. The two became fast friends in a short time, as they worked to make the garden "one of the showplaces of the South." While there, Dr. Harbison learned that Dr. Coker had successfully persuaded the University to hire him as curator at a stipend of \$125.00 a month, eight months out of each twelve, for "as long as the University is financially able to continue or as long as you wish to continue." This agreement was to go into effect July 1, 1934

For some reason Dr. Harbison did not begin work until late that fall, possibly due to the fact that space was being made in Davie Hall for the new cases for the Ashe plants. There was talk of tearing out a partition to enlarge the herbarium, and there was much noise and confusion, and little place in which to work. So it was late September before he began his curatorial duties at Chapel Hill. He went home for Christmas, planning to return on the

3rd of January, but on January 17th Dr. Coker wrote his brother David in Hartsville that he would let Harbison work for him during part or all of February, "you carrying on his salary during the time you use him." Dr. Harbison and David were to bring in native azaleas from Georgia for transplanting to the garden - Harbison would make up his herbarium time later.

Sometime during the late winter or early spring of 1935 he suffered a severe attack of influenza that left his heart weakened. He was under the care of Dr. Fields, a Chapel Hill physician, who put him on digitalis. Apparently Dr. Harbison went home to Highlands to rest and recuperate. He wrote Dr. Totten on September 1st that he had been following the doctor's advice, and was feeling much improved. According to Dr. Fields, Harbison ran out of his medicine, so visited a Georgia doctor who wouldn't give him digitalis but put him on a drug from a "bush", apparently a forerunner of digitalis. In late October he returned to Chapel Hill and began again on Ashe's plants, working through November. After that, for the next six weeks he stayed for the most part in his room at the Totten's home, as his health seemed to steadily decline. His ankles were so badly swollen that Dr. Fields gave him a diuretic, and told hm he would look in on him the nex morning. The Tottens were away, but had left him in the care of their faithful black cook.

On Sunday morning, January 12th, 1936, Dr. Fields found that his patient had died quietly in his sleep. Dr. Fields called the cook to come help him, but she was so "skeered" that she ran from the house and disappeared. A neighbor, Mrs. Newsome, came over in her stead. Dr. Fields felt that Harbison would have lived much longer had he followed faithfully directions to take his digitalis.

Dr. Coker wrote a short article for the college paper, the Daily Tar Heel, stating that Dr. Harbison was "one of the most active and able field botanists in the United States. He spent a remarkably active life largely on foot studying the southern plants. He made numerous excursions with Mr. W.W. Ashe and was therefore able to decipher Mr. Ashe's obscure labels. Dr. Harbison was a man of the highest character and of warm, human feeling. In his death the University loses not only a great botanist, but a delightful companion."

All his life Dr. Harbison had been a keen observer, blessed with an exceptionally retentive memory. From his youth he had read widely, and by the age of twenty-one he had accumulated a library of over 1,000 volumes. When he was twenty-two he began to teach in his native Pennsylvania, at the same time continuing his education by attending classes during vacations, and by completing programs of study from the best correspondence schools of the time. In this way, after hard study and rigorous examinations, he finally received a PhD degree. His love of botany inspired a walking trip with a friend as far south as Highlands, North Carolina, and back. That fall the people of the little mountain town called him to teach in their school, and from then until his death some fifty years later, Highlands was home.

The death of Dr. Harbison was a tragic blow to the department and especially to the work of putting the Ashe collection in shape. He alone was familiar with that herbarium, the location of most of the types, and with the itinerary, writing and thinking of their collector. As Dr. Coker wrote his sister-in-law, Mrs. David Coker at Hartsville, "Mr. Harbison's death is a great misfortune for us here as we have no one else that can do even approximately as well his work in finishing up the labeling of the Ashe Herbarium." It is unfortunate that due in part to lack of ready funds and also due to Dr. Harbison's declining health toward the last, that his talents and special knowledge could not be used to the fullest after the acquisition of the Ashe herbarium. The records seem to indicate that in all he worked scarcely ten months on the Ashe material.

That January of 1936 was indeed a bleak month for the department. The little office where Dr. Harbison had been working on Ashe's Crataegus the previous fall was stacked with plants to be poisoned, plants to be mounted and sorted and labeled and filed away. Many of the new herbarium cases were stuffed with bundles of unmounted specimens in "temporary" storage, there being no other place to put them until they could be taken care of. Before long, the confusion would be compounded by the arrival of some additional 12,000 specimens from the Harbison Herbarium, recently purchased from his widow. Soon every case in the herbarium would be top-heavy with boxes and bundles of plants awaiting sorting and preparation for final placing in those new cases.

There was no way anyone could be found to replace Dr. Harbison with his special knowledge, training, and experience. But someone was needed at once to bring order out of chaos. Dr. Coker already had that someone in mind, not an outstanding botanist by any means, but someone who loved the herbarium, who was not afraid of hard work, and who seemingly had the ability to accomplish the immediate task - to set things in order. That had to be done before any future taxonomist could take over.

CHAPTER TWO: FROM BIRDS AND BUGS TO BOTANY

That someone was a graduate student who had come to the University the previous summer to begin work toward a master's degree in zoology. By no stretch of the imagination could she be called an "outstanding" botanist. In fact, I was not a botanist of any sort when I entered the University that June of 1935. During my growing-up years on our farm in Wilkes County, North Carolina, I loved to prowl the woods and fields in the early morning hours, fascinated by the activities of birds, bugs, and spiders. Flowers were pretty to look at and nice to arrange in vases, but that was the extent of my botanical interest. My mother who was born with two green thumbs, loved and grew plants from the time she was a little girl. In later years she studied botany on her own, and was always thrilled to find a new flower in her native Michigan woods and learn its name by chasing it down through the keys in Gray's Manual (which she had taught herself to use). Her efforts to interest me in this delightful pursuit usually fell with a dull thud: I loved birds and someday I was going to be an ornithologist. But things don't always work out according to plan, as I learned soon after arriving in Chapel Hill.

My meeting with the head of the Zoology Department was brief but memorable. Dr. Henry Van Peters Wilson was petite, dignified, and scholarly, with snow-white hair and piercing blue eyes. I quickly learned, to my great dismay, that he considered ornithology, entomology, and such to be "frothy" courses, "frills", upon which no serious student of zoology would waste time. "No, no," French was no good; I must take German. What I needed was morphology, comparative anatomy, etc., the basics. To him I seemed intent on avoiding the basics. Perhaps I was adverse to hard work. He closed his eyes and debated this thought a few moments, asking and answering his own questions. Suddenly his blue eyes flew open, he fixed me with a penetrating look, yawned, and said he was very busy. Somewhat shaken, I hastily retreated down the hall to the Botany Department where I was most kindly greeted by Dr. John N. Couch. He registered me for a couple of botany courses, since there was nothing in zoology being offered that summer. Before long, I had decided to switch my major to botany.

This was a new direction for me, for which I was poorly prepared, I should say, not prepared at all. My science teachers in both High School and College had been basically zoologists. Ironically, I was saved by a little black pocket-sized notebook in which for several summers past, I had sketched and colored some thirty common plants growing around our farm and orchard. So when Dr. Couch asked for examples of work I had done in botany, the only thing that came to mind was the little notebook. The fact that I had done it on my own and not as a requirement for some course seemed to impress him, for he went around the building showing it to everyone he could find. I have to give my mother the credit, for she suggested that I bring in plants and sketch them (she knew I liked to draw), and try the keys. So in spite of myself, I did learn a few plants with their Latin names, and how to use a key in Gray's Manual.

The little notebook led the good professors to believe I knew much more botany than I did. I had to learn a lot and as fast as possible - I couldn't let them down. I took both botany courses offered that summer and audited a couple of undergraduate classes by way of review. At the end of summer, Dr. Coker offered me an undergraduate assistantship, the only financial help available. I was delighted. Although it paid only \$250 for the nine months, with careful planning I felt I could manage. He said it was likely my work would be in the herbarium. At that time women were not often allowed to assist in predominantly male labs.

In the fall I had a second encounter with Dr. Wilson, this time a very pleasant one. For my minor in zoology he suggested hydrobiology, entomology, and embryology, the three courses I had mentioned in June. He was very nice about it. In fairness to him, I must say here that later I took one of his "basic" courses and enjoyed it immensely. He was an excellent teacher, one of the old masters. I counted the experience a privilege - and he learned that I was not afraid of hard work.

September of 1935 was a busy month. I was taking new botany courses, had started on my thesis, and was beginning to work in the herbarium. I elegantly described the latter in a letter home: "I took some plants that had been dried and pressed, and put some glue on them and stuck them on herbarium sheets." There were four F.E.R.A. (Federal Aid) students also working in the herbarium, and all of us were supervised by Miss Ruby Rice, a graduate student (she later married Dr. Elbert Little, an eminent dendrologist in the Department of Agriculture). She had come the previous fall to assist Dr. Harbison, who had noted in a letter to Dr. Totten, "I hope Miss Rice and I can do some nice work. I am glad she is new to our place and ways of doing. She will be able to start with no bad habits."

Ruby certainly had no bad habits. She was a very quiet, gentle, pleasant person, and an excellent supervisor - but she didn't stay long. On October 4th, she left to accept a clerical and research position at Cornell. The following day Dr. Coker told me that until Dr. Harbison arrived I was in charge of the herbarium and would supervise the workers. I managed to keep them busy, but was very glad to see Dr. Harbison when he came on the 22nd. I liked him at once and noted a few days later in a letter home: "I enjoy working with Dr. Harbison...he's a nice old gentleman." He was a very modest man "with short pointed gray beard, gray hair and twinkling eyes". By mid-November he was letting me put away plants in the cases "so I am learning some genera of the Composite family...it's much more interesting than gluing plants onto paper."

By December Dr. Harbison seemed to need to rest for longer and longer periods. Consequently, he began turning over to me more and more of the routine work of the herbarium, so that by early January I had been well initiated into the operation of it. His death on the 12th was a very personal loss to me, for though our working time together had been but a few weeks, I had come to admire him for his great knowledge of plants,

and to respect him for his integrity, kindness, and gentle humor...if only I could have known him earlier, how much more he would have taught me.

That spring of 1936 I worked very hard on my courses, my thesis, and in the herbarium. There I spent many more hours than required because I loved the work, and because everything had to be kept moving along or else the student workers would lose their stipends. Then, too, more and more botanists from other areas were asking to look at Ashe's types and other collections, or to borrow specimens for their various studies. The truth was that so much of the Ashe material was still in mostly unmarked bundles all over the place that no one had any clear idea where a particular genus or family might be. The herbarium was definitely not ready for visiting botanists. As I noted in March: "The herbarium is not catalogued or even straightened out; it is in a frightful mess...so many plants have been stuck around in any old place ...instead of being properly filed...Dr. Coker suggested we stop our other work and straighten out the files first."

It was a temptation to do just that, but the student workers simply did not have the experience or botanical knowledge required to do the job. Since mounting was about all they could do, the work of preparing material for them had to go on. So I proposed a compromise: from then on I would be responsible for filing all mounted specimens and at the same time would begin to straighten out the files, if everyone (especially professors!) would refrain from reshelving plants, and put them on a "To Be Returned" table. Then I would refile the plants into their proper pigeonholes, and take the blame should anything be lost. Dr. Coker liked the idea and was most agreeable, as he nearly always was when I brought up for his approval any new suggestions for improvement.

In April I learned from Alma Holland, Dr. Coker's secretary, that Dr. Coker was planning to offer me the job of full time curator of the herbarium as soon as I received my master's degree. I redoubled my efforts to learn as much as possible about plants and to do a good job in the herbarium. Several graduate students had been assigned to the herbarium, in addition to the F.E.R.A.'s, so I really had to work hard to keep ahead of them all.

CHAPTER THREE: FROM HIGHLANDS TO WORLD WAR II

After a long courtship, Dr. Coker had married his former secretary, Louise Venable, in the fall of 1934. Until the 1950's when Dr. Coker was no longer able to travel, they used to spend several months each summer at Highlands in his rustic log cottage that overlooked Lake Ravenal. On the opposite side stood the little laboratory building of the Highlands Biological Station. It was here that professors and often some of their graduate students came for a brief time each summer to pursue their research on the flora and fauna of the region. The Station was a one story flat-roofed building with a large workroom, from the north side of which opened a row of small separate cubby-holes, each with an outside window. These were the cubicles in which the researchers did their work when they were not in the field. Dr. Coker had a couple of these little rooms where he spent many hours studying and describing the fungi of the region. Every year he and his wife Louise drove up to the cottage to escape the summer heat (whoever heard of air conditioning in those days!), and were joined a little later by Dr. Coker's secretary, Alma Beers. She was his indispensable right hand.

For some reason she could not go up for the first few weeks in the summer of 1936, so Dr. Coker asked me in her place. Of course I was delighted, though a little appalled at what he expected of me. As I wrote my parents - "He wants me to...take pictures of fungi, flowers, and shrubs! Heavens! He knows I have never done any photographic work, but he feels confident that I can learn enough before we go to be able to use a plate camera!" The Graflex he had ordered arrived shortly before we were to leave for the mountains, so my introductory course in photography was very brief and concentrated indeed. It also included a short session on learning to develop plates and make prints.

Things went along very well that summer at Highlands in spite of a few problems, such as how to build a support for the heavy camera so that mushrooms could be photographed from above, at various levels. The minor inconvenience of no running water in the tiny darkroom was solved by my simply lugging it over by the pailful from the cottage, a quarter mile away. Naturally, the first few prints were dismal failures, but by the end of my stay, Dr. Coker seemed quite pleased with the results.

It was indeed a pleasant summer for me. My little room upstairs in the Coker's cottage had a tiny window from which I could look out into the cool hemlock forest. Early mornings I was free to roam the woods and meadows, to study birds or to collect plants for the herbarium. Then came breakfast with the Cokers, always a pleasant time. Meals were prepared for the most part at the "Big House" by Mrs. Potts, who was a renowned cook, and brought over by her daughter Caroline who stayed to clean up afterwards and do some housework. With Mrs. Coker's careful planning and daily shopping for choice fruits and vegetables, and Mrs. Potts's excellent cooking, meals at Highlands were always

a delightful and delicious interlude. Frequently they were shared by an interesting guest, with lots of good conversation.

Dr. Coker and I worked at the lab several hours each morning and afternoon, and the longer I worked with him the more careful and accurate I found him to be. He was always thoughtful and considerate, with a nice sense of humor. He always had the ability to cut through all sorts of extraneous material and go directly to the heart of a problem. Before starting on a new study or project, he always cleared his desk of everything. He would often say that "you need to start with a clear desk and a clear head."

Dr. Coker's constant companion day and night was a little one-man dog named Mickey (and I mean "one-man") who looked just like the little dog in "His Master's Voice", the famous Victrola trademark. Many mornings the Cokers, Mickey, and I walked the pleasant trails around Highlands in search of mushrooms and other plants for study. On longer trips by car, sometimes over a day or two, Mickey of course always went along. The Cokers sat up front and took turns driving while I sat in the back and made certain the little creature was on leash before a door was opened. I still keenly remember the day I fell from grace. We had just returned to Highlands after a wonderful day of collecting mushrooms. The Cokers stopped as usual at the post office to get their mail, Mrs. Coker opened the front door and before I could get hold of Mickey he sprang over the front seat, shot past the partially opened door and disappeared downtown. To me it seemed like a long afternoon at the little cottage, without much conversation. Finally, the little rascal walked in without apology, hungry and tired and ready for supper. He ate, then lay down at his master's feet for a long nap, full of dreams no doubt, about his cleverness in escaping from me for a rare afternoon of forbidden freedom and adventure.

Our trips that summer included interesting and beautiful places like the Great Smoky Mountains, Gatlinburg, Maryville, Mt. Pisgah, the Pink Beds, Coweeta, Wayah Bald, and Standing Indian. Most were new to me and very exciting. From all these trips I brought back ferns and flowering plants for the herbarium at Chapel Hill.

Highland's frequent rains kept the climate cool but rather damp, so that drying specimens and keeping them dry was a real problem. The mushroom drier, just a sieve of heavy wire over electric light bulbs, was of no use for higher plants. There was no fan to circulate the heat or carry off the damp air. My attempts to use it for drying my presses of seed plants resulted in darkened, moldy disasters. Dr. Coker's memories of these ruined specimens nearly stymied future plans for a much-needed drier for the herbarium at the University ... more about that later. I solved the problem at hand that summer, thanks to some workman who had left a ladder leaning against the laboratory building. I carried armloads of damp blotters up to the flat roof and spread them out in the sun (when there was sun). A few hours later I took down dry and almost hot blotters which I immediately exchanged for the damp ones on the plants. In this way I was able to take back to Chapel Hill a large

collection of nicely dried specimens of good color. One could not call this method very cost-efficient, but it did produce quite satisfactory results.

Upon returning to Chapel Hill, I spent a month getting everything ready for fall, taking inventory of supplies, and checking over Dr. Harbison's material. His plants were in fine condition and it was a real pleasure to work with them. In November I paid a visit to the National Herbarium in Washington to see how our methods compared with those of a well-established herbarium, and came away feeling that in general we were quite up-to-date here in Chapel Hill. Later I visited the Gray Herbarium, The New York Botanical Garden, and the Arnold Arboretum for more ideas on improving our own program. It had been a busy and a productive year.

The next two years (1937-38) saw growth and change in both the curator and the herbarium. In June of '37 I received my master's degree in botany (under Dr. Coker) and at last could devote my whole time to managing and developing the herbarium. Most of my workers were botany students who, although usually majoring in fungi, at least knew which end of a plant was up and could spot gross errors in identification. They shared my enthusiasm for keeping the herbarium neat and attractive, and worked diligently on assigned tasks, so that by the end of the first year much had been accomplished.

The poisoning of the entire unmounted Harbison collection of some 12,000 specimens was finally completed. (That method of dipping pressed dried plants into a mixture of alcohol and mercuric chloride, a deadly poison to protect against insect damage, has long since been replaced by methods safer to human beings as well as to plant color, etc.) Three badly needed new cases necessitated the shifting of the entire herbarium to make room for a huge backlog of mounted Ashe material that had been stored on shelves, awaiting space in the proper cases. This shifting was a horrendous and time-consuming task, but it gave us the opportunity to catch numerous filing errors, locate specimens in need of repair, replace old brittle folders with fresh new ones, and identify and correctly file a great number of unnamed specimens that had been stuck into the wrong places.

Among the many changes that improved the appearance of the herbarium, probably the most satisfying to me was removing to the back (and out of sight!) all pressing, poisoning, and mounting activities. For years, all this had been carried out right up front on a large work table directly in front of my office door. Now visitors entering the herbarium would see a neat row of cases, each numbered in legible Arabic numerals (no more confusing XXVI with XXIV), a plant family chart keyed to the case numbers, and a visitor's work table equipped with reading lamp and comfortable chair. All blotters, newspapers, and other materials we cleared out of the little office up front and moved to shelves in the back work area. At last I had a neat place in which to set up "housekeeping" with my desk, typewriter, books, etc. There was still much to be done, but the herbarium was beginning to assume the appearance of a legitimate institution. (Incidentally, my decision to change the numbering of the herbarium cases from Roman to Arabic was the result of an incident

that had embarrassed Dr. Coker when trying to show a visitor how easily a plant family could be located in the file by first looking it up on the wall chart. Trouble was, he wanted file XXIV, but mistakenly went to file XXVI. Didn't work.)

As more and more botanists came to visit and study, and as we began to receive more requests to borrow our specimens, I realized we had to begin numbering our sheets. When Dr. Blomquist from Duke, for example, borrowed some 300 sheets of grass specimens, many were without collector or sheet numbers. What fun to copy 300 labels for our records! So I ordered a numbering machine and designed an herbarium stamp to use with it. A long, long time --- years in fact, would be required to bring the sheets up to date, but at least we had made a start.

The year 1938 seemed a good time to take stock of what we had accomplished and to set some long term goals. Dr. Coker was very much interested in what was being done each day in the herbarium. Hardly a morning passed that he did not stop by my office. He would stand in the doorway, gently rocking back on his heels, thumbs hooked under his suspender straps, and peering over his half glasses with that little grin and a with a twinkle in his eye, ask, "What's new?" I nearly always had something to show him or tell him about our work that seemed to please him. So I decided to present him with an itemized account of our accomplishments and an estimate of the number of specimens in the herbarium to date. As far as I can determine, this was the first written report of the work of the herbarium in its thirty-five years of existence, and the forerunner of the annual reports that have continued to the present. The original barely covered two pages, quite a contrast, for instance, to the 1983-84 report of some thirty pages.

The following are a few of the items contained in that first report:

- 490 specimens borrowed by us
- 400 specimens borrowed by us
- 202 exchanges sent out
- 818 exchanges received
- 7,000 plants poisoned
- 5,700 plants mounted
- 5,000 plants filed
- 800 collected for exchange
- 2,300 local collections (1938)

Approximate number of specimens in the herbarium:

Vascular plants.....	53,300
Fung.....	20,000
Others.....	<u>3,355</u>
Total	76,655

Other changes made in 1937-38: Three new cases added; entire herbarium shifted to increase filing space; all cases renumbered in Arabic; office rearranged; eight new families added, and 96 families put in good order (genera and species arranged alphabetically, labels checked, repairs made, folders divided as needed, old ones replaced with new, etc.)

Early in 1939 I wrote home: "...if I had a car I would stay down here for about three weeks in June and study the plants of the coastal region. I know so little about anything except the mountain plants." Never did I dream that in less than ten months I would have the use of a car for field trips and collecting. Until then I would have to walk, so I took three of my herbarium assistants and we walked four miles to the site of a new lake, the present Eastwood Lake. We filled four vascula with the plants that would soon have been bulldozed away, and lugged them back the four miles to Davie Hall. They would make fine exchange material. We had to take every opportunity to get good specimens to send out, since we were now exchanging with an increasing number of institutions

Summer at Highlands that year was a little different. The usual quiet was broken when the lab was overrun for a week by a class of twelve students from Furman University, brought there by Dr. Ives and his assistant, Albert Radford. I knew that the latter was coming to Chapel Hill in the fall as a new graduate student in botany, and that he would most likely be assisting me in the herbarium. It had been reported that he was quite good in taxonomy. So I looked him over rather critically. He was very quiet, worked hard, and seemed really interested in botany. I decided he would probably be a very useful addition to our work force. I really needed someone to work with me on identifying and double-checking those hundreds of unnamed specimens.

The first day back on the job in September, I found my newest assistant already there ahead of me, checking out the herbarium. Before I could tell him I was going to put him to work on the backlog of unidentified specimens, he let me know that he had no interest in gluing plants to paper - that would be a waste of his time. All he wanted to do was to identify plants. A bit miffed, to say the least, at being told how to run the herbarium, I nevertheless held my tongue. I needed an "identifier", not another "gluer"; some day I would set him straight. Come to think of it, many years later he has yet to mount his first plant.....

In a short time it became apparent that my newest assistant was right - it would be a waste of his time and taxonomic knowledge to put him to pressing, poisoning and mounting. I really needed someone to work with me on checking and identifying those hundreds of unnamed specimens.

We soon decided there needed to be a checklist of Orange County plants, so we set aside Thursday mornings for those field trips. After the first one, I wrote to my folks, "We struck out through marshes, bogs, over meadows, up hills and down dales, through thick

woods, tangles, brambles, etc. " This description doubtless would still have a familiar ring to many of Mr. Radford's students down through the years.

That fall we tramped many a dusty mile over Orange County for our checklist and spent countless hours pressing and identifying our finds. Few students in those pre-World War II days had cars, but occasionally we were fortunate enough to catch a ride out of the county so we could collect farther afield, and bring back new plants for the herbarium and exchange. We also spent long hours identifying unnamed herbarium specimens and filing them into their proper places. By Christmas vacation, we had added 400 specimens from Orange County, identified more than 700 sheets of grasses, sedges, and violets, as well as 280 specimens for Virginia Polytechnic Institution and the University of Georgia. Also we had added 57 more plant families to the 96 that had been put in good shape the year before. The rest of the staff had worked hard, too, poisoning, mounting, and filing around 4,000 specimens.

We had talked with Dr. Coker about starting a shrub garden which could eventually display most of the native shrubs of North Carolina. In January, 1940, he surprised us by making available to the herbarium and for our use a second-hand Model A Ford coupe. It had originally belonged to Dean Hobbs, then to Miss Holland for a time. Dr. Coker had just given her a new Buick for Christmas, in lieu of the well-deserved raise he was unable to get for her from the University. Now the little car was ours to use for collecting. My wish had come true!

Dr. Coker gave us \$55 which was left over from some previous account, and could hardly wait for the snow to melt before sending us out on our first collecting trip. He soon had a little trailer made so we could begin bringing in plants for the shrub garden. By June 2nd we had traveled 2,400 miles and spent only \$43.97 for gas, oil, and repairs. We had made 19 trips, some as far away as Wilmington and Myrtle Beach, and had brought in and planted 60 shrubs, and added some 3,900 specimens to the herbarium. By the end of the year that number had been increased to 6,000 specimens, from the mountains to the coasts of both Carolinas.

According to the annual report for 1940: "This fall the herbarium storage and work space was considerably enlarged by the removal of a wall between the herbarium and an adjoining laboratory. A much better lighted and more attractive arrangement of cases and working space was thus made possible. The herbarium now occupies the entire second floor of the back wing of Davie Hall." All the walls were repainted, the floors rewaxed, and six new cases installed, making 47 in all.

Thus began 1941, with the now familiar process of shifting the folders into the new cases to relieve overcrowding and make room for new collections. Again this was a time to mend,

tape, rewrite some of the labels, number and stamp each sheet as we went along. We were gradually getting everything into shape.

With all the collecting we simply had to have a good drier. The old method for many years was simply to lay blotters out to dry on Davie Hall's wide stone steps, where students perched during breaks and accidentally burned holes in them with their cigarettes or walked on them with their dusty shoes. The dried blotters were then put on the plants and weighted down with a board topped by an enormous crock filled with sand... This was simply ridiculous as well as back-braking. We had to have an efficient drier. Dr. Coker still remembered those blackened, moldy plants that resulted from my trying to use the mushroom drier at Highlands. Up to now he had enthusiastically supported any new ideas we had for improving working conditions or methods. This time it was clear the subject was closed, period.

But we still had to have a drier! Dr. Totten understood our predicament. He told us to go ahead and build one and he would work it out with Dr. Coker. For several days we struggled with remodeling a tall narrow glass-doored cabinet, fitting it with cross supports which Albert sawed out of thick oak boards with a very dull handsaw. The only place to work was in the dirt-floored basement, illuminated only by a single naked light bulb. We finally had the "thing" brought upstairs and put into the workroom. After more sawing and nailing, it stood steady and received a couple coats of varnish. It didn't look half bad, and when lamps were put into the bottom, it worked very well even without a fan. Plants came out with such bright colors that Dr. Coker was quite pleased. Apparently Dr. Totten had explained it to his satisfaction, for he never mentioned the "thing" to us. Later on, he even had the Buildings Department make us a very nice box, complete with lights and a fan.

That was the year we finally took everything down from the tops of the cases, at long last. Since the North Carolina Academy of Science was meeting in Davie Hall in the spring, Albert and I wanted the herbarium to look its best. We framed and hung flower paintings around the walls (75 cent frames from Woolworth's, some still in use today), put out an herbarium guest book, and transplanted more insectivorous plants from the greenhouse into our terrarium in the front lobby. Mr. Henry Wright of Highlands sent down a Shortia plant for the occasion and it bloomed nicely for the meetings.

The war clouds that were hanging heavy and dark over Europe were beginning to spread across the Atlantic. Though the possibility of our country's becoming involved still seemed remote, and life went on about as usual here, there was a feeling of uncertainty and apprehension in the air. That fall we invited my mother to accompany us on a collecting trip to Roanoke Island, by way of Lake Mattamuskeet. For a stretch of 36 miles on a lonely dirt road through the wilderness of Hyde County, we saw only one sign of human habitation. For several days we never saw a newspaper or heard a radio. There

was only peace and quiet and no war news, just flowers everywhere. Nearly every plant we collected was something none of us had ever seen before. My mother felt well repaid at last for her efforts of long ago to interest me in botany.

In July 1941 Albert was called into the Army and sent to Ft. Belvoir, Virginia for basic training in the Engineer Combat Corps. For the next four years he would have little time to think about botany. In October he came to Chapel Hill on a furlough, and we were married on the 10th. Then we saw each other only a few times until the next summer when he was sent to Texas to train with a newly formed Engineer Combat Battalion. It seemed likely that he would be in the States for several months, so I asked for a short leave of absence from the herbarium in order to be with him. The few month's leave became 15 months, and finally he was shipped overseas the last of October 1943. It would be two years almost to the day before we would see each other again. I took our four month old son David and went back to Wilkes County to stay with my parents. They needed me - and I needed them. There was no one to help them with farm or orchard. Young men were leaving schools, factories, offices, and farms by the thousands to join the Armed Forces. Thousands more were being called up by the draft.

It was hard to leave the herbarium. I had become very attached to it and its needs. I had accepted the challenge to bring some order out of its great disorder, mainly the result of the sudden accumulation of some 35,000 specimens from the Ashe and Harbison herbaria, crowded into a space too small and in need of much attention. Those had been such happy years, full of learning and personal growth, new experiences, good friendships, and most of all a gratifying sense of accomplishment. I recalled some of our accomplishments: most of the Ashe and Harbison collections had been processed and filed; all those bundles, gathering dust for years, had been taken down from the tops of the cases and cared for; a good start had been made toward putting the cases in order; a drier that worked had been built; herbarium cases had been increased to 47 and now occupied the entire second floor back wing of Davie Hall; an efficient workroom had been set up at the back and a neat office in the front. Botanists were coming from many places to study in our herbarium. Exchange of specimens with other institutions was on the increase, as well as loans back and forth. Many specimens were being added each year by our own staff. For example, in the short time that Albert had worked there, he and I collected around 11,000 specimens. The herbarium had grown from 74,000 specimens in 1935 to close to 100,000 by the time I left in 1942. My assistants had been hard-working and enthusiastic, and together we had changed many things for the better. The herbarium had become a well-established and respected institution. We could be proud. The work of the herbarium would slow down and most of our projects would be put on hold. Our nation was at war, and there were more important things to attend to now. The herbarium would have to wait. It was in good shape.

In late June of 1942, I had left the herbarium in the very capable hands of "little Miss Wicker", as Dr. Coker called the undergraduate student from Pinehurst, N.C. who had

begun work for me in April. She proved to be one of the most dependable assistants I ever had. As I wrote Dr. Coker that fall when I asked for an extension of my temporary leave, "Eloise Wicker has assisted me in practically every phase of the work...I am sure you have heard me say many times that she has shown more self-reliance, initiative, and intelligence than some of the best graduate girls I have had." It was a great relief to me to have her in charge of the new assistants, for I knew she would train them correctly and see that the work of the herbarium was done right. Two years later, in August, 1944, Dr. Coker wrote me that "Eloise is not coming back. Her brother is reported missing over Belgium, and she is going to stay with her mother." From then on until Albert and I returned in 1946, the work of the herbarium was carried on sporadically by graduate women, sometimes one, sometimes two at a time, and usually only during the regular school year.

Those were trying days for Dr. Coker who had become so accustomed to my being on hand at all times to keep everything moving along and in good order. I was always there to discuss various ideas with him, to plan for the future of the herbarium, or to get out the plants he needed for his latest study. He was beginning to have problems with his health, and had been hospitalized a couple of times. It was difficult for him to get through the winter without a bad cold and the threat of pneumonia. After I left Chapel Hill, the Cokers and I kept in touch by frequent letters back and forth. His comments were revealing: "The herbarium is making little progress since you left...Most of the time there's nobody to press things or look after things that are always coming up." That fall he seemed to be feeling particularly low - "One of our greatest trials is that we have nobody that can give whole-hearted attention to the Herbarium...there's not a soul to help me in any way...I wish that you were back with us."

Upon the advice of his doctor, he had given up chairing several campus committees, had resigned as President of the Highlands Biological Corporation, and had turned over the Chairmanship of the Botany Department to Dr. Couch.

CHAPTER FOUR: WAR'S END AND NEW BEGINNINGS

The war in Europe officially ended on May 8, 1945; but you just don't go home the day after. It takes months to demobilize a great military machine in orderly fashion. And there was still a war to be won in the Pacific; many troops were already being transferred to this new arena. But to the weary men and women waiting to embark for home, and to their families impatiently looking for their return, those were the longest months of the war.

On September 8th, Albert wrote from Nurenberg, Germany: "...tomorrow morning I start my westward homeward trek, so this is my last letter from Europe. Das ist alles von Europa! WE HOPE!!!" However, it was October 11th before he finally departed aboard the Victory ship, St. Albans. Nine days later he set foot on his native soil after an absence of nearly two years. At last he was safely home, and like countless other couples and families everywhere, our joy knew no bounds - shadowed only by sorrow for those thousands upon thousands whose loved ones would never come home again.

Dr. Coker had always planned that Albert would be a member of the botany staff upon completion of his degree after the war. He was also counting on my continuing as curator of the herbarium. A few weeks before Albert's return to the states, a letter arrived from Dr. Couch saying they hoped he would come back to Chapel Hill to continue his interrupted graduate studies, and asking that he let them know as soon as possible what he wished to do. After two years of intensive training to become a combat engineer, followed by two more years of active duty overseas, Albert felt he had retained little of the botany he once knew so well...perhaps he should consider farming, or possibly some phase of engineering. I reminded him that he had always found his greatest happiness in roaming the fields and woods, collecting and studying plants. I felt certain it would all come back to him very quickly, once he began his studies again. His farming/engineering fantasy soon evaporated. We drove down to Chapel Hill to talk things over with Dr. Couch, and before long Albert was all set to begin work early in January, with the opening of the Winter Quarter. Now for a place to live.

Housing was extremely tight. So many veterans were coming back to school, taking advantage of the financial help offered by the G.I. Bill of Rights, that it seemed every available space on campus and in the village of Chapel Hill was taken. The dorms were bulging, and even the "Tin Can" served for a time as an emergency barracks. To quote from a 1977 newspaper article on the razing of that famous landmark to make way for a new gym: "When World War Two veterans returned to campus...it housed them, bunk to bunk, double deckers, exactly as they had lived in military camps the world over." Victory Village had not yet been built. Veterans with families found apartments extremely scarce, and kitchen apartments almost non-existent.

The Carolina Inn was renting some of its rooms and suites, so Dr. Couch managed to get us a third floor bedroom-livingroom combination. This was to be our home for the next seven months and we were indeed thankful to have any place to live. Sometimes I couldn't help thinking how lovely it would be to have a kitchen, eating out was so expensive. "Our dinner today cost \$1.35 for the three of us (I wrote my folks); the roast beef alone was 35 cents." (!) We set our new 2-burner electric hot plate on a couple of up-ended orange crates, added a card table, and presto, a corner of the bedroom became our kitchen and diningroom. Refrigerators were not to be had, and until we were able to buy an icebox sometime later, providing daily bread literally became providing bread daily. Like so many other wives and children on campus, David and I walked uptown every day for whatever we might be lucky enough to find at the corner grocery. Sometimes it was a little ground meat or a small roast, or if we were really lucky, a pound of white margarine. If you wanted it yellow, you colored it yourself. Even if I had been able to find a baby-sitter, I would have had little time to work in the herbarium that spring.

Early in January, 1946, I wrote home that " the herbarium looks the same as usual, but there is plenty of work to be done. I think I will be able to do some now and then...". The graduate student serving as part-time curator had just left to marry her returning soldier-fiance. Dr. Couch would have been very happy to have me take over, and I would have been very happy to oblige; but until I could find some reliable care for David, I would be able to work only a few hours now and then when Albert was free to stay with him. Dr. Couch temporarily resolved this untenable situation by granting Albert the title and pay of part-time curator while employing him mainly as assistant in under-graduate labs. So for a time Albert gave most of his attention to running the labs where he was sorely needed that spring, due to the heavy enrollment of veterans and the serious lack of teaching assistants. Thus for a couple more years until he received his PhD, the work of the herbarium continued its slowed down pace, carried on mainly by graduate women, with oversight by Albert.

Work at the Shrub Farm had slowed down, also, during the war years. After Albert and I took stock in April to see what was in bloom, I remarked in a letter to my parents: "It's too bad the place had to be neglected for four years. If Albert and I could have continued our collecting and care during that time, we would have a wonderful array of native shrubs by now." There had been some casualties but the remaining plants were "quite vigorous and healthy-looking". Bellwood, azaleas, coral honeysuckle, yellow jessamine, vacciniums, and hollies were all in bloom and presented a colorful display. Of course the farm had not really been neglected, for Dr. Coker had sent his gardeners out to water and mulch when needed, and had done his best to add new shrubs from his trips. I was referring to the absence of the systematic collecting and planting that we had been carrying out up to the summer of 1941 when Albert was called into the Army. We had prepared a list of shrubs native to the Carolinas and from this list we planned our collecting trips to

specific areas where we knew the plants could be found. We were also building up family plots as fast as possible.

After Albert was drafted in 1941, I still went out locally for shrubs, taking along either Charles O'Kelly or Bob Rabb to help dig and "lug". Dr. Coker always brought back something from his trips to Hartsville, S.C. Twice in the spring of 1942 when Albert was home on leave from Ft. Belvoir, we took trips far afield and each time brought back and set out a packed trailer-load of shrubs. During that spring and early summer, I spent many hours at the Shrub Farm taking careful notes, making measurements of growth, jotting down observations and descriptions, while directing the weeding, watering, and mulching. As I wrote Albert, "The Shrub Farm is essentially a living part of the herbarium." Hopefully, some of our observations and comments would add to the value and authenticity of the shrub book that Drs. Coker and Totten had been working on for several years.

Now, after four long years away from Chapel Hill, it was so good to tramp the fields and woods again, studying and collecting plants. David and I went along on the easier trips, but for the more strenuous excursions (such as following New Hope Creek for 18 rugged miles), Albert's companion was Maeburn Huneycut, a young taxonomy student who was doing a problem on seed plants for his M.A. under Dr. Adams. He was quiet, eager to learn, and most important, very slender. The three of us fit quite comfortably in the one seated Beagle, with David on my lap or standing up in front of the dashboard.

One day in May we decided to introduce Maeburn to a favorite area of ours, the Big Savannah near Burgaw, made famous by Dr. B.W. Wells of State College in Raleigh, N.C. (now North Carolina State University). The other members of Maeburn's taxonomy class wanted to go along too. They were beginning to feel a little envious of their classmate who was always bringing in such interesting plants from far afield. (In this class was a certain Clyde R. Bell, who is presently better known as Dr. C. Ritchie Bell. He later became the first Director of the N.C. Botanical Garden). Dr. Couch helped us secure a University station wagon, and thus was born the fore-runner of the countless class field trips that Albert has "executed" over the past forty years. He even set a precedent which, no doubt, all of his students will recognize: "We will leave promptly at 7:00 a.m." - he did **not** mean 7:01!

We took our time going through the sandhills, stopping often since everything was new to most of the students, and we wanted them to see and learn as much as possible. So it was nearly six o'clock when we reached White Lake. It was at that time still a beautiful, clear lake with white sandy bottom, bordered with shrubs and cypress trees, unspoiled by human habitation. What a sad contrast today's overbuilt exploitation presents. We just had to wade awhile in those warm, clean waters that gently washed over the white sand, before we traveled on to Wilmington for the night.

The next day we arose early to catch the opalescent sheen of the morning sun on the ocean. For Maeburn and David, this was their first chance to "See the big wadder flapping!" as described by the latter, his little voice excited and shrill over the roar and boom of the breakers rushing ashore. We spent the morning around Wilmington and Wrightsville collecting aquatic plants. By now the students didn't mind getting into the muck and mire, as evidenced by Bell's wading out hip-deep into a marsh to collect a beautiful white spider lily that none of us had seen close up.

On our way home we stopped at the Burgaw savannah, made famous by the great botanist, Dr B.W. Wells, author of "the Natural Gardens of North Carolina." In this book he describes the highlight of our trip as "...the famous area near Burgaw, in Pender County, comprising fifteen hundred acres, a local district which some day should be made into a state park." This was an enormous meadow with acres of orchids of every hue from pale lavender and pink through deep rose and even white, with blue iris scattered throughout, and generously sprinkled with orange polygalas and yellow star grass. We probably did not realize at the time how privileged we were to behold such beauty, soon to be turned into farmland and destroyed. Finding the unique Venus Flytrap was an exciting climax to the day, as we turned homeward. We finally reached Chapel Hill about 9:30 p.m., tired and grimey, but happy over all the new places visited and new plants seen and collected. Everyone agreed that it had been a most successful and pleasant adventure.

Albert and I had been waiting for months for an elusive kitchen apartment in the building next to ours for which we had been told we were "next in line" at least three different times. So we finally decided early in August to accept the Burlage's offer to move into their little cottage about a mile from the campus. David was fed up with "tree-top" living on the third floor of the Inn after two years of comparative freedom to roam his grandparents' farm with its swing, chickens, cow, dog, Fordson tractor, and other delights that made up a little boy's Seventh Heaven. The move to a ground-level cottage saved from ruin all our dispositions. An electric refrigerator was a wonderful bonus indeed, as was a nice garden spot down by the creek.

At the end of two happy years, on June 4th, 1948, Albert became Dr. Albert Radford, and David's little brother John turned sixteen months old. About that time our landlord startled us with the news that he planned to sell the cottage, but we were not prepared to buy. So thanks to Dr. Couch again, we were lucky enough to get a first floor corner apartment on campus in one of the wooden barracks in the new Victory Village. Sadly, we had outgrown "Beagle, but we would always cherish fond memories of our trips together. We bought a much roomier Jeep station wagon, but it had no character - we just called it "the Jeep."

That fall a minor crisis arose over the location of the Shrub Farm. Rumor had it that it lay in the path of improvements to the University golf course. Also, according to Dr. Coker, it had been flooded to a depth of two feet a couple of times during the war. He observed

that "...it will be impossible for us to go on with this collection in its present position." He decided to have Albert and me supervise the transplanting of as many of the shrubs as we could to the old drug garden site in the Arboretum. We hated to see them moved, but could think of no alternative. Perhaps some day we could start anew in a better, more secure place with room for expansion.

By 1948 the herbarium had grown to a collection of many thousand specimens, most of which had been mounted, sorted, and properly filed, and the unknowns identified. At last it was possible to take a good look at the herbarium and note its strengths and weaknesses. The Ashe and Harbison collections were largely woody, as were the many specimens collected during the writing of the Coker-Totten tree books. On the other hand, there were numerous gaps in the collections of herbaceous species that needed to be filled - legumes, mints, grasses, sedges, lilies, composites, and aquatics. A number of these have small, inconspicuous, flowers, are difficult to identify, and not the favorites of all taxonomists.

After nearly six years of partial care, the herbarium was sorely in need of a full time curator, again one with special abilities, training, and native talents to do the job at hand: someone with keen eyesight, a good memory, and a love for collecting in all sorts of places. It would also help a good deal if he were already familiar with a number of these herbaceous plants. Albert certainly seemed well-qualified for the job.

Born in Augusta, Georgia, the eldest of nine children, he learned very early the meaning of hard work and sharing. He found his recreation in playing baseball, shooting marbles, fishing in clay-hole ponds and creeks in the area, or wandering through cottonmouth-infested swamps. Though few of his friends went beyond high school, he early realized that education could make a difference in one's future. So after high school he attended Augusta Junior College. The Dean encouraged him to apply for a scholarship to Furman University. He entered as a junior math major. He needed only one more course to complete his science minor, but upon finding that only general botany was available, he balked. He wasn't about to take that stuff! He judged all botany courses to be like freshman biology at Junior College - dull and utterly boring. However, just to get it overwith, he reluctantly changed his mind and registered for the course the next day. To his great surprise he found Dr. Ives to be a wonderfully inspiring teacher, and soon realized that botany was what he wanted to study the rest of his days. He took every botany course offered during his two years at Furman, plant physiology, ecology, local flora, etc., all taught by Dr. Ives. Albert switched his major to botany, became Dr. Ives's lab assistant, and spent many hours in the herbarium checking identifications and writing labels.

Needing one more course to complete his major, he signed up for a summer term at Mt. Lake, Virginia, taking plant taxonomy under the renowned Dr. Jack Fogg of the University of Pennsylvania. By the end of summer, from class work and independent

study, Albert could recognize over 1,000 species of plants, checking them off in his weather-worn copy of Gray's Manual.

Dr. Ives always sent his best students to Chapel Hill for graduate degrees in botany, students such as Don Ritchie, Leland Rodgers, Hiden Cox, to name a few. Apparently he encouraged Albert to go too, for Dr. Coker told me with a pleased little grin that we were getting an excellent field man to work in the herbarium that fall of 1939, one of Dr. Ives's students. Now, nearly ten years later, in 1948, the student that Dr. Ives had turned on to botany was faced with the problem of combining three jobs: curator, instructor, and collector of plants for the herbarium. Albert was already teaching a freshman botany course every fall, winter, and spring quarter, plus one summer school class. He could handle the herbarium work with the help of several good assistants.

As for the field work, he would be out at every possible chance, over weekends, on Saturdays and holidays, and later when he began teaching graduate students, on class trips with them. On some weekends and especially in summertime, there were family trips, just the four of us in the "Jeep". At other times, Albert rarely ever lacked for enthusiastic fellow travelers such as Bill Pendergrass, Leland Rodgers, Ted Browne, Charlie Miller, Jim Duke, or John Haesloop. So he seldom had to go alone, and this was a relief to me. I had reason to be concerned whenever I saw them leave with the geology boat tied on top of the station wagon. That meant they were going to explore the Trent, the Cape Fear, the Neuse, or some other river. I was not too happy about that because Albert had never learned to swim. And he seemed especially fond of collecting aquatics and botanizing around islands in the mouth of some river!

On one such trip, Jim Duke, Bob Johns, and Albert put a motor on their boat and went over to Smith Island some four miles from the mainland to botanize for several hours. On their way back, the motor died. They had to row the remaining two miles to shore, buffeted by rip tides and rather high waves. Of course they never wore life jackets! Those trips were anything but dull. The narrow escapes, the interesting sights, the close encounters with snakes, alligators, and once with sharks, would fill a book. Albert brought back bags of plants from every trip that took hours to identify, press, and label. The empty spots in the herbarium were beginning to fill up and the value of the herbarium as a taxonomic center was steadily increasing.

During the summer of 1950, there was talk of developing a new shrub garden near the junction of Mason Farm Road and Country Club Road. Dr. Totten had been discussing the idea with Albert since it seemed the latter would have a lot to do with the planning. "Albert thinks that it should become a showplace for the state as well a place to carry on experimental work on our native shrubs. It would be a great thing to have them all growing together in one area." I wrote in a letter home. This from a later letter: "Clyde Bell likes his job at Hartsville but I think he would like nothing better than to be here teaching or doing some kind of work in the department. Dr. Coker has mentioned his

being a good one to head up the shrub farm; Albert hardly has time for it. To do it right would take all one's time...Albert would still have something to do with the planning. Dr. Totten wants to call it a Botanical Garden and have it take in about 40 acres, with three pools for aquatics."

It is interesting to note that Dr. Coker had been thinking along these lines even before 1950. I recently came across a paper he had written in October 1944 entitled: "Important and Useful Fields for Research in the Plant Life of the Southeastern States." He set forth two proposals, the first having to do with the herbarium (more about that later), and the second with a tree and shrub collection. He stated: "We propose the establishment at Chapel Hill of a really adequate collection of living trees and shrubs of the southeastern states." He went on to say that there is nothing like this in existence, though the need for it has been recognized for decades by the more "enlightened southern scientists." He saw such a collection as serving the advancement of pure science while leading to important economic results through plant breeding, the improvement of varieties, and the use of native shrubs as ornamentals in our gardens.

Three years after Dr. Totten's mention of a Botanical Garden, I made this note: "Dr. Wyman from Arnold Arboretum was here to look over the site for the Botanical Garden, so Albert, George R. Cooley, Drs. Couch, Totten, and Carroll Wood were out all morning with Dr. Wyman." Mr. Cooley, a financier from the state of New York, had long been very interested in botany. For many years until his death in 1986, he would stop by on his way to and from Florida to visit the department. Nearly always he would leave a generous check with Albert to be used for anything he needed for the herbarium.

By 1950 Dr. Coker was no longer able to drive. Mrs. Coker chauffeured him to Davie Hall now and then where he did a little work. Sometimes she drove him out to the Village to see the children and me. By fall we had moved to a little house on Purefoy Road near the lot we had bought earlier and on which we had a nice garden. The Cokers drove out there several times to see us, and I was always glad to have some fresh vegetables to give them. It saddened me to see Dr. Coker looking so pale and thin. Yet he remained cheerful and seemed interested in everything. The last time they drove out, his nurse was with him and they stayed only a few minutes. "Dr. Coker looks like a shadow...", I wrote my parents. He died on June 27, 1953.

The graveside service on the first of July in the old Chapel Hill Cemetery, conducted with simplicity and dignity, was attended by a great number of his family and friends. Thus ended the days of a very talented man, whose life was filled with useful study and a wide range of accomplishments. He was always searching for the truth, always loving his work and the study of plants. No one knows how many times he gave a young person a helping hand or contributed generously to a worthy cause. He was quite handsome, with the look and bearing of an aristocrat, yet sincere and approachable. I count myself fortunate indeed to have known him both as teacher and friend, and to have had the opportunity and

privilege of working with him for so many wonderful years. Fond memories without number I shall always treasure of both Dr. and Mrs. Coker.

By the close of 1955, Albert had made 129 collecting trips over a seven year period, adding 5,738 numbers and 8,600 specimens to the herbarium. He had collected in every province of the two Carolinas, explored many areas, and had become familiar with numerous species in their natural habitats. It had been a great learning experience in which his geology background proved invaluable. He had come to share the vision, long held by Dr. Coker, of what needed to be done in the field of botany in the Southeast.

In the 1944 paper referred to earlier, Dr. Coker had clearly defined that need as being a "field and herbarium study of southeastern plants, both high and low, to find out what we really have here." He further stated that although endowed with a "flora of exceptional richness, compared with other sections of the country...our knowledge of what it encompasses is by no means complete. Before the Civil War this section had taken the lead in several sections of botany, but since that time we have fallen sadly behind the northern states." He concluded by saying that here in Chapel Hill we have an "ideal location for the advancement of such studies and have made considerable progress, as shown by our herbarium and publications." He was concerned that botanists from the north were coming down to study the flora of our area and returning to publish their findings in northern journals. He didn't particularly object to their coming to enjoy our flora, but he was greatly disturbed that we as southern botanists were not doing a better job of studying the plants of our own region. During his own administration, Dr. Couch also felt most strongly that research on the southern flora should be a major endeavor of the Botany Department.

By the late 1950's, Chapel Hill had indeed become an ideal location for the study of southern flora, due in no small part to the growth and increasing value of the herbarium. An ambitious program "to find out what we really have here" was now gathering momentum. The scope and intensity of that effort, soon to be undertaken by a mere handful of mostly "southern" botanists, even now almost overcomes one with astonishment. Dr. Coker's long-held vision was about to become a reality.

CHAPTER FIVE: URGENTLY NEEDED: A NEW MANUAL

Wide-ranging variations in topography, geology, soils, and climate have made possible the abundantly rich and diverse plant life in the Carolinas. Myriads of habitats for countless species are provided by miles of sandy beaches and dunes, acres of salt and brackish marshes, sounds and inlets without number, pocosins, Carolina bays and pine savannahs, and the vast expanse of the piedmont stretching westward to the foothills of the mountains with their craggy peaks and near-sunless gorges. Many northern plants find their southern limits in the Carolinas, and a number of southern species grow no farther north. There is a touch of the Canadian zone in the Carolina mountains and a bit of the sub-tropics in the southern tip of South Carolina.

Those first botanists and scientists who came to the Carolina shores during the early Colonial days, must have been filled with amazement and excitement upon discovering so vast an array of strange and unfamiliar plants. Old World records were of little help in identifying these species, so the newcomers wrote their own lists and descriptions of their finds. In 1788 the first flora of the area, "Flora Caroliniana", was published by Thomas Walter of South Carolina. This little volume in Latin containing just over one thousand species remained the only descriptive flora of the region for the next one hundred and eighty years.

During the 18th and 19th centuries, knowledge of the plants of the Carolinas was greatly increased by the field work and publications of many dedicated botanists too numerous to mention here. We can scarcely imagine the hardships they endured as they traveled many hundreds of miles through uncharted wilderness, mostly on foot, sometimes on horseback or by boat. They had no station wagons, no interstates, no maps of well-marked roads, none of the equipment that enable botanists today to turn out well-pressed specimens of good color. Still, how we envy those pioneer botanists and explorers for what they were privileged to see: the freshness, the beauty, and the majesty of a pristine land as yet unravaged by axe or saw or plow!

It was in the early decades of the present century that W.W. Ashe and T.G. Harbison made their sizeable collections of plants from all over the Southeast. Those were also the years that W.C. Coker and H.R. Totten collected widely over the two states and beyond in preparation for their "Trees of the Southeast", first published in 1934. Many other botanists were observing, collecting, and publishing, among them H.L. Blomquist of Duke University, B.E. Smith of Coker College, and W.B. Fox, R.K. Godfrey and B.W. Wells of North Carolina State. Much of this activity was limited to the study of local floras and to special groups of interest to these botanists. Following the close of World War 11, during his early years as curator of the Herbarium, Albert collected far and wide over both states, increasing his understanding of the relationships between plants and their habitats.

The observations of all these men added immeasurably to the knowledge of the flora of both Carolinas.

The most commonly used manuals during this period were the well-known Gray's Manual and John Kunkel Small's Southeastern Flora. The former, written chiefly for plants of the northeastern states, was useful for identifying mountain and upper piedmont species of the area, but contained few of the plants found in the sandhills, coastal and maritime habitats. Here Small's Manual was of more help since it did include the Carolinas southward; but it had not been revised since 1933. There was an urgent need for a manual that would better serve our area, one with more accurate distributional data, and with illustrations. It was time, as Dr. Coker had pointed out in 1944, to conduct an intensive "field and herbarium study...to find out what we really have here." Events would validate his further observation that Chapel Hill was "an ideal location for the advancement of such studies...", studies that would lead eventually to the production of a manual for the Carolinas.

The first such event was the purchase by the University of a set of the Gray Card Index, a listing on cards of all the new names and combinations of vascular plants in the New World, with authors, places of publication, bibliographic references, etc. First issued in 1894, there was a backlog of some 200,000 cards, which arrived all at once for the Herbarium in Chapel Hill. The botanists at State and Duke were offered the use of the Index in return for their help in alphabetizing and filing the thousands of cards. So for many an afternoon over quite a few months, a group of ten to fifteen would gather in the Herbarium in Davie Hall to work for several hours. From Duke came Dr. Henry J. Oosting, Dr. Rudolph Schuster, Dr. Lewis Anderson, and Dr. H.L. Blomquist; from State, Bob Godfrey and Bill Fox; and from UNC Dr. Carroll Wood, Dr. J. Edison Adams, Dr. H.R. Totten, and Albert. Sometimes students joined in to help. In addition to being an essential reference, the Index served to get the botanists from the three schools together. They became better acquainted, learned about each other's work, made some long-time friendships, and discussed the flora of the Carolinas. After an hour or two of sorting, they were ready to break for refreshments. I like to think that I had a small part in the enterprise by furnishing home-made cookies for many of their sessions.

Dr. Blomquist was responsible for getting the group thinking and actually moving toward making a survey of the flora of the area. On January 20, 1952 I wrote in a letter home: "Dr. Blomquist was over here some weeks ago to attend a Botany seminar, and afterwards got to talking with Albert and Dr. Wood and some of the fellows from State. He thought it would be a good idea for some of the younger men interested in taxonomy in the state to get together and talk things over, so he invited about 15 from here, Duke, and State." They met at his house and enjoyed a delicious dinner prepared by Mrs. Blomquist, and afterwards talked about botany. It was such a great success that they decided to meet from time to time to continue their discussions.

During the next few years various circumstances and events began to thin out the group. Bob Godfrey left to teach in Florida, Carroll Wood returned to Harvard, and Bill Fox

died in a tragic accident. Others became involved in their own research, and some lost interest and dropped out. Thus by the beginning of 1955, only Blomquist, Adams, Totten, and Albert remained committed to the Project. They soon realized that after their teaching and research, their combined spare time efforts were not going to accomplish much very fast. There was an urgent need for an experienced, hard-working taxonomist who could devote his full time to supplementing their efforts. It would not be easy to find such an "expert" and should they succeed, they had little hope that the University would or could support another herbarium position.

The Department's decision to hire a 1949 Carolina graduate, C. Ritchie Bell, to teach and to head up the Botanical Garden, proved to be a most fortuitous turn of events for the Flora Project. Ritchie had gone to Berkeley for his Ph.D. and was presently teaching at the University of Illinois. There he met Harry Ahles, a young man who had worked as a gardener for eight years at the New York Botanical Garden. Although he had never gone beyond high school, he was a self-taught taxonomist and field man, so good that he was hired as assistant curator at the University of Illinois. After Ritchie came to UNC, it was due to his lavish praise of this "natural-born genius" (praise taken by all with quite a few grains of salt - no one could be that good) that Ahles was hired as assistant curator of the herbarium at Chapel Hill, January 1, 1956. He proved to be even more remarkable than Ritchie knew. Albert said years later, "Ahles was the best field student of plants I've ever known. His field instincts and intuition were absolutely uncanny, particularly in view of the fact that he did not have field geology, soils, or hydrology training." It is no exaggeration to say that without the coming of Harry Ahles the Flora Project most likely would have "withered on the vine". Much credit is due Ritchie for realizing that Harry was the one needed at that critical time and for persuading him to come to Chapel Hill.

With the addition of Harry Ahles and Ritchie Bell, the group now consisted of six individuals representing as many different botanical interests and backgrounds. Dr. Totten had considerable knowledge of the woody plants of the South. His speciality was conifers; he also knew a great deal about oaks and hickories. Dr. Adams was particularly interested in the Ericaceae, the heaths, but his most important contribution was his special talent for editing. He was a superior student of the English language and knew how to use it correctly and effectively. Dr. Blomquist, an authority on ferns and grasses, laid a sound foundation for those groups in the Manual, although he did not live to see the work completed. He died in 1964. Ahles was a super collector with a very keen eye for detecting anything new or different about a plant, even, it was said, when glimpsed from a fast-moving car! Although he was not too familiar with some southern plants, he was soon identifying them by the hundreds and seemingly never forgetting a single one. He was a tireless worker, completely devoted to learning all there was to know about the plants he loved, and he loved them all, beautiful and plain alike. Ritchie had worked with southern species at Coker College and also had done considerable research on the pitcher plant group. Albert had collected extensively over both Carolinas, with special attention to the graminoids and to aquatic and marsh plants. Also, he had long been interested in the relationship of plants to topography, rocks, soils and water.

CHAPTER SIX: THOSE TWELVE LONG HARD YEARS

Early in January 1956, the six botanists met, and with Albert as principal investigator, set their goals and agreed upon procedures. The Project, covering both Carolinas, would be divided into three work phases: 1) General collecting over the two-state area for distributional data; 2) Identification of plants and plotting of their distribution on county maps; and 3) Preparation of manuscript with descriptions, keys, and diagnostic drawings, culminating in the publication of the Manual. It was agreed that the three younger members, Radford, Ahles, and Bell, would do the major share of the collecting and field work, while the remaining three would begin compiling data from the herbaria of Duke, State, and UNC. The six botanists listed and divided the plant families, each first selecting those he was most familiar with and interested in - he would be responsible for their taxonomic treatment, regardless of collector.

The two state-area was superficially divided into 45 roughly similar sub-physiographic groups of three contiguous counties. From each group, one county was assigned to each of the three collectors. It was his responsibility to collect that county four times in one year: early spring, spring, summer, and fall, in order to catch as many species as possible in both blooming and fruiting stages. Ahead were thousands of miles to travel and thousands of plants to gather. The three younger botanists were eager and ready to go.

The Department had only one vehicle, a Chevrolet station wagon. Some private transportation would have to be used. Since Harry did not drive, he first went with either Albert or Ritchie. One of Albert's favorite stories is about the time he and Harry were collecting in a large, weedy field near Murphy, a small mountain town in North Carolina. As was their habit, in order to avoid too much duplication of species, each was calling out to the other the name of each different plant as he collected it. The farther apart they wandered, the louder they called - "Carex swanii!", "Ranunculus abortivus!", "Cardamine hirsuta!", etc. Soon half the townfolk were lined up along the edge of the field, curious about those two "loonies" who were pulling up weeds and stuffing them into bags, while shouting loud insults at each other in a strange tongue - certainly not the King's English.

It was soon decided that two "experts" collecting together was a waste of time and talent except in certain rare cases. Harry's main job was to collect, so that kept him out many days during the week and sometimes over the weekend, usually in the Department vehicle with a student driving. Ritchie and Albert collected independently, each using his own station wagon when the Department carryall was not available. The great increase in collecting caused a need for more blotters and ventilators. In the absence of money for new supplies, Ritchie obtained roofing felt which he cut into blotters. A furniture company gave him its large packing boxes, and from these they made numerous cardboard ventilators that worked quite well. In fact, money for the Flora Project was very hard to come by that first year. Harry's salary was paid by a grant from an Alumni fund and a gift

from Mrs. W.C. Coker. The University Research Council gave the collectors financial help for travel, but all other expenses had to come out of their own pockets.

From mid-March to mid-October Albert made 55 trips, traveled over 13,000 miles and collected some 17,000 specimens. As soon as public school was out, the children and I were free to accompany him whenever he was using our station wagon. We went with him on 25 of those trips for a total of over 7,000 miles. Sometimes we camped out in state parks since there was no money for lodging. From those family excursions we brought back close to 10,000 specimens. The kids and I can't claim too much credit there, I hasten to add. David and John were much more interested in chasing after butterflies for the former's growing North Carolina collection. Only little five-year old Linda followed her Dad around, eagerly bringing him "noo" flowers which he graciously accepted although he had just collected same. My time was divided between helping collect and press, and settling questions such as "Which of you boys swished the head off that perfect plant specimen, just to catch a butterfly?" More important duties were preparing lunches and keeping an eye on everyone's safety. I had to watch out for disgruntled serpents, brush-covered holes, poison ivy and poison sumac, slippery river banks, and NO TRESPASSING signs that somehow seemed to escape the notice of the chief collector. In spite of such minor irritants, a few intensely hot and dusty days, and many, many long hours of collecting and pressing, those family trips enabled us to see and enjoy the beauty of the Carolinas in all seasons from coast to mountains as no other endeavor could have. They also strengthened family ties, usually, that is..

Everyone worked hard that summer. On June 4th I wrote my folks that Albert had come in from Highlands "safe and sound and a little thinner, after a whopping week of collecting. He brought back over 2,000 specimens and left the drier full up there and Harry pressing what they had collected Saturday. I hope Harry doesn't have a heart attack from overwork...They have added a lot of new records to the counties...quite a few coastal plain plants turned up in the mountain bogs..." Harry and Ritchie continued to collect there for another week, bringing the total to 4,000 plants. At the end of this first season, they sent to the University Research Council the following report:

25,000 miles traveled;
Over 52,000 specimens collected;
50 new records for each state;
30 records for physiographic provinces in both Carolinas.

Their knowledge of the distribution, morphology, and ecology of the vascular species had increased tremendously. To quote Dr. Adams: "We have done enough field work to realize that the present understanding of plant geography in the two Carolinas will have to be revised considerably."

A similar report sent to the National Science Foundation in March 1957 apparently convinced NSF that the Flora Project was deserving of some financial backing. A two-year grant was arranged, the first payment to arrive that fall. During the summer, small but welcome grants from the University helped keep the collecting going. At the end of the two-year period, Albert reported to NSF that Phase One of the Project had been completed with collections and field observations from all 146 counties, over 120,000 miles traveled and 175,000 specimens collected during the three growing seasons. Phase Two was well underway with about 65% of the collections identified and sites plotted on county maps. Progress had been made in Phase Three with some keys and descriptions written and a few genera illustrated. "Research to date has yielded over 240 new state records and two species new to science...five papers published and four more in press." As Dr. Adams wrote to Dr. Couch, "All field work, involving an almost literal scouring of North Carolina and South Carolina, has been completed. It has been a herculean task, but the collections resulting therefrom make possible the production of a really authoritative flora of the Carolinas."

Over the next three years taxonomic activity in Davie Hall reached fever pitch. Descriptions and keys were being written, field identifications checked, mounting supervised, and fresh material brought in and illustrated. Talented Peggy Ann Kessler, a botany major, had been drawing the graminoids and umbels, but before long she left to marry Jim Duke. It was the Project's good fortune to have her work continued and completed by an exceptionally fine artist, Marion Seiler. The majority of the illustrations in the Manual are faithfully portrayed by Marion's beautifully shaded line drawings.

An extensive exchange program with 61 institutions in the United States and around the world had been set up by Harry and Albert. More space was needed for packaging exchange material to be sent out, and for checking incoming plants from other institutions. Plant pressing had been moved to the basement, along with the driers. Upstairs all interior walls of the Herbarium had been removed to make room for more cases. Old Davie was bursting at the seams. A new botany building was on the drawing boards, but the happy moving day was a couple years off.

For a time, work on the Flora slowed down. Ritchie was chairman of the building committee, and Albert and Harry had to plan way ahead for the big move. They decided it was time to replace with modern steel cases, all of the old glass-doored oak cabinets that had served the Herbarium from earliest times. They just could not be bug-proofed. A generous gift from George R. Cooley (the Herbarium's long-time benefactor), with matching funds from the University, plus a substantial NSF grant, paid for 243 steel cases.

Their arrival was timed to coincide with the move to Coker Hall, the new Botany building. And what a move it was! All those heavy wooden cases full of plants, all equipment, supplies, and storage cabinets had to be maneuvered down the many steps of Davie Hall, loaded onto trucks, and driven across campus to their new home. There everything was

to be taken to fourth floor by elevator. As fate would have it, those wooden cases were just a trifle too long to fit into the elevator. Nothing to do but transfer their contents to boxes and send them up to fourth. Many of the old cases were left on first floor to house the algae collection but a number of them were manhandled up the many turns of the stairwell to be used as storage cases by Botany students and faculty. At long last the move was complete, and for the first time the entire vascular herbarium was housed in uniform steel cases. The Botany Newsletter stated: "Dr. A.E. Radford, Director of the Herbarium, and Mr. Harry Ahles, Curator, are most pleased with the new quarters in Coker Hall...the Herbarium is now, not only one of the largest in the country, but also one of the best housed."

By the following year, 1964, all keys and distributional data for the Manual had been written. The authors wisely decided to first field-test the keys of the forthcoming Manual, by getting out an abridged edition to be called a "Guide to the Vascular Flora of the Carolinas". Accordingly, a 383 page field guide was published by the Book Exchange in September, at a most reasonable price. It proved to be very popular, so that by the time of the publication of the Manual, all 5,000 copies had been sold.

Although the authors, Radford, Ahles, and Bell were responsible for most of the families, a number of other botanists must be given credit for their treatments of certain families. Among these are W.T. Batson, E.O. Beal, D.S. Correll, Francia C. Hommersand, H.R. Totten, W.H. Wagner, Jr., and R.L. Wilbur. Dr. Blomquist, who was at that time Professor Emeritus, was given special thanks for identifying most of the grasses, and J.E. Adams for his professional editorial assistance and organization of the format.

The Guide received favorable comments, such as "a work of high quality", "edited and proof-read exceedingly well", "a landmark in the history of Southern botany!" and so on. A second book, an "Atlas of the Vascular Flora of the Carolinas" was published by the North Carolina Agricultural Experiment Station in 1965. It was a collection of county dot maps showing the documented distribution of each species of vascular plant known to occur without cultivation in the Carolinas. The authors hoped to stimulate interest in filling in the gaps with documented collections. The Atlas was well received and its purpose accomplished.

Ten years had gone by since the organized beginning of the Flora Project. At long last everything had been put together in manuscript and sent to the University Press. At this point, in the spring of 1966, Harry suddenly announced that he was leaving. He had come to the herbarium at a time when his special talents were urgently needed. He had stayed his ten years, had collected thousands of specimens for the Flora Project, and had pressed, identified and documented them. He had worked hard, seven days a week and often 15 hours a day in field and herbarium. He had written up his families and turned them in. Now, he decided, it was time to leave. He felt that he had accomplished his part of the Project, though there still remained many months of proofing, reading, rewriting, and

further proofing. He had little interest in writing, even less in rewriting. Harry was in his element in the field, and there he had no peer. His passion for collecting, identifying, and classifying caused an admirer to dub him "a modern Linnaeus". Harry was unique. Comfortable in his old field clothes and plaid jacket, he cared little about social functions. His brusque "I'm not coming" doubtless took care of any second invitations to dinner. Yet no one could be kinder, more considerate, or more unselfish than Harry when it came to sharing with interested students, his vast storehouse of knowledge about plants or anything else in nature. During breaks or after hours, students clustered around him as though drawn by a magnet, drinking in every word. He was a natural born teacher.

In answer to a friend's query as to why he would want to leave a position in such a prestigious University, Harry replied, "They have air-conditioned the Botany Building...I will not work in an air-conditioned laboratory." He got a job as curator (in an air-conditioned building, no less) at the University of Massachusetts, soon learned to drive a car, and even taught a course in local flora, something that he could never be persuaded to do at UNC! Fifteen years later, in the spring of 1981, Harry's many friends were shocked and saddened by the news of his sudden death, following an operation for lung cancer. Albert wrote Dr. Oswald Tippe, Harry's long-time friend, "He had the keenest eye of any individual, professional botanist or otherwise, that I have ever met...as far as his knowing plants in the field, I have never met his equal...Harry was truly a unique individual who made a fundamental contribution to the field of botany in the eastern United States."

Perhaps what he meant to his many student friends everywhere was best expressed by those at Amherst who at his death helped compile a little paper of "Remembrances" in 1981 from which the following quotes are taken:

"By his knowledge and enthusiasm for field taxonomy he increased our powers of observation and our recognition of species."

"He is a legend in the South where botanists are always interested in a few more Harry stories."

"...although I may never see Harry again in body, I see his spirit all around me: the wildflowers, the spring buds, the returning songbirds and all that is nature."

"How very much I have to be thankful for...for having Harry as my friend and mentor."

"I am glad for Harry's sake that his end came swiftly, and I'm glad for our sake that he died as the gentle rustlings of spring began. Somehow the morningsong of the northbound sparrows and the flowers of maple and myrtle make his death a little easier to take."

Harry will not soon be forgotten, neither will be forgotten the impact on the Manual of the incredible amount of work he did while here.

Many others had contributed significantly to the production of the Manual. Deserving of special recognition are those graduate students and friends who did research on floras and revisionary studies: L.S. Beard, A.E. Blair, R.F. Britt, C.J. Burk, Henrietta L. Chambers, P.J. Crutchfield, Tom Daggy, J.A. Duke, Peggy K. Duke, O.M. Freeman, F. Gabrielson, O.M. Gupton, J.H. Horton, Anne McCrary, Jean McNeely, J.F. Matthews, Lionel Melvin, Judy Morgan, Dan Pittillo, G.S. Ramseur, C.L. Rodgers, Jr., G.P. Sawyer, W.D. Seaman, M.N. Sears, Drake Smith, S.E. Stewart, G.E. Tucker, B.S. Williamson, and John Bozeman. Those who identified special groups were: H.L. Blomquist, T.G. Yuncker, T.R. Fisher, U.T. Waterfall, E.T. Wherry, W.P. Adams, Robert Kral, Don Drapalik, Judith Lee Rogers, E.O. Beal, and F.C. Crosswhite.

At last the first copies of the Manual were coming off the Press! There was great rejoicing as well as loud sighing of relief in Coker Hall. "We are celebrating this week the arrival of the first copies of the MANUAL OF THE VASCULAR FLORA OF THE CAROLINAS --- a great event in the history of the Press as well as the Botany Department." So wrote Lambert Davis, director of the University of North Carolina Press, to the chairman of the Botany Department, Dr. Victor Greulach, on December 18, 1968.

The production of that manual has indeed to be judged a "great event", the most significant achievement to date in the life of the Herbarium. As we look in retrospect at the decision of a mere handful of botanists to write the manual and as we follow their struggles through those twelve long hard years to make their dream come true, we are amazed that they were able to accomplish their purpose so admirably. Many times it was sheer grit, dogged determination, and unshakable belief in and dedication to their cause that kept them pushing ahead in spite of numerous roadblocks. Grant money didn't fall into their laps; they were required to prove themselves first. If ever a major undertaking was started on the proverbial shoestring (with a certain amount of naive optimism), that was the Flora Project!

The Manual was an outstanding work, a book of 1,244 pages with descriptions, keys, and distributional data for over 3,200 species of ferns, conifers, and flowering plants, a glossary of over 450 terms, approximately 2,000 distribution maps, and more than 1,800 illustrations. As of June 1998, **40,472** copies have been sold.

A sampling of comments and reviews follows:

"This monumental book... This classic work... a landmark in its field... is without peer." -
The University of North Carolina Press.

"This is a big and important publication. It will not soon be replaced by a better one. Its facilitation of teaching and research will be enormous. It is now the standard reference

to a significant part of the flora of eastern North America..." - Dr. William Culberson, Duke University.

"The illustrations are magnificent...The Manual will fill a need far beyond the Carolinas." Dr. Stewart A. Ware, College of William and Mary.

"This manual is the culmination of intensive studies of the Carolina flora begun by the authors in 1956. By repeated collecting forays to all parts of North and South Carolina they accumulated more than 200,000 specimens that have served as the primary reference for this work...It is a handsome job, with descriptions, indented keys, dot maps, and many illustrations... In sum, the authors have done a good job of finding out what actually grows in the Carolinas and making it possible for people with a modicum of botanical training to identify Carolina plants in accordance with present taxonomic and nomenclatural concepts. That is a major accomplishment, for which they deserve ample credit." - Arthur Cronquist, The New York Botanical Garden.

"The superb bi-state flora by Radford and collaborators, the most modern in the Southeast, is a worthy successor to a botanical tradition begun with Catesby in the early eighteenth century." - Dr. D.G. Frodin, Guide to the Standard Floras of the World. Cambridge University Press. 1984.

It was good to pause and enjoy the feeling of accomplishment that came with the production of the Manual. Dr. Coker's dream had at last become a reality through the persistent efforts of a dedicated few and the invaluable support of many. The Herbarium had finally become a modern herbarium with national standing.

It was time to look to the future. There were new tasks to accomplish, new challenges to meet

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.

Novembe 1998