The years from 1832 to 1838 were pivotal ones in American botany. In 1836 two important books were published, the United States Dispensatory and Asa Gray’s Elements of Botany. These two books indicated the ever widening division of botany as a science distinct from medicobotany. This period, a part of the Torrey and Gray epoch, saw the 1838 Wilkes Expedition staffed with nine “scientific gentlemen,” including a botanist, in the first government sponsored scientific expedition.¹ These years also mark the American experience of Edward Frederick Leitner (1812-1838), a young German botanist and physician.²

* This paper was written during the course of a Josiah Macy, Jr. Foundation Fellowship in the History of Medicine and Biological Sciences, 1969-70. It was presented in part at the 44th annual meeting of the American Association for the History of Medicine, Colorado Springs, Col., April 29, 1971.


Fig. 5 - Cypress Forest, 2006 [Photo by Peter Nolan]
Born February 4, 1812, at Stuttgart, Frederick August Ludwig Leitner was the son of Johann Friedrich Leitner and Karoline Friedericke Bühler. His father was the Royal Court Gardener in the Botanic Garden of Stuttgart. His paternal grandfather, Johann Michael Leitner, was a barber-surgeon from Eckersdorf. Frederick Leitner’s father died when he was four: then the mother and her four children moved to Schorndorf, her birthplace. Among Leitner’s christening sponsors was Mr. David Heinrich Ammermüller, Court Gardener of the Royal Württemberg Domain, Einsiedel. Since Einsiedel is only 7 kilometers from the University of Tübingen it is possible that Leitner worked in these gardens as he attended lectures at the University of Tübingen by Professor Gustav Schübler. On Schübler’s student lists, Leitner is mentioned as “GärtnerStudent.” He was not registered at the University as a Student or Hospes and he was not required to pay for the lectures. He regularly attended and successfully passed the examinations in the following courses: 1828, Medical Botany; 1828-29, Agricultural Chemistry; 1829, Economic Botany; 1829-1830, Statistics of Württemberg (Natural History); 1830. Plant Physiology. Leitner received a subsidy from the Society for Natural Science of Württemberg and in 1831 sailed from Le Havre for the U. S. After traveling in New York and Pennsylvania he went to Charleston, S.C., where he found a compatible German community with natural history interests. He became a student at the Medical College of South Carolina and a pupil of Dr. J. E. Holbrook. Early in 1832, before the close of the medical college term in March, the Charleston Courier for May 24, 1832 carried the following advertisement:

Instruction in Botany

The subscriber offers his services to the Ladies and Gentlemen of Charleston as an instructor in Botany. Should he receive sufficient encouragement he will commence his instructions in the Medical College on or about June next. Terms will be made known by either of the gentlemen who have kindly presented him with the following testimonials.

Having opportunities of becoming acquainted with Mr. Leitner’s capacity as a botanist, we cheerfully recommend him as a person who is thoroughly acquainted with and well qualified to teach the science of botany. B. Geddings M.D., A. Hasell M.D., J. Edwards Holbrook, M.D., J. Bachman, Henry R. Frost, M.D., Elias Horlbeck, M.D., J. Edwards Holbrook, M.D., J. A. Johnson, M.D., and D. Greene “of Boston.”

The subscriber is also desirous of devoting some of his leisure hours in giving lessons in the German language and if required in Latin and Greek.

F. L. Leitner

Mr. Leitner has been regularly educated in the University of Tübingen (Germany). He is a good classical scholar and is particularly qualified to give instruction in German being his native language.

J. Bachman

Another notice in the Courier stated that the lectures would begin June 8. The next evidence of Leitner’s activities is found in a letter in German, to the Moravian mycologist Lewis David von Schweinitz of Bethlehem, Pennsylvania. Charleston, 1st July 1832:

1 For information about Leitner prior to coming to the United States I am totally indebted to Dr. Volker Schäfter, Universitätsarchiv, Universität Tübingen, who checked the church registers of Schorndorf and Eckersdorf, the city Archives of Schorndorf, the State Archive of Stuttgart, and the Archives of Ludwigshurg. The Evangelical Church registrar at Schorndorf, the Rev. H. Rieber, reported to Dr. Schäfter that Leitner was born January 18, 1812, and gave his parents’ names. However the printed Stuttgart church registers of 1812 lists Frederick Leitner’s birth as February 4, and the christening on the 8th of February, at the Chateau church in Stuttgart. Items about the Leitner family in the State Archives of Ludwigshurg are under E 19 Busehel 193, 199, 204. Also located were Professor G. Schübler’s student registration lists from 1828-1830 and two obituary notices: (1) by N. H. Julius, Hambourg, signed May 1858, Allgemeine Zeitung, no. 334 and 335, June 26, 1858 from the Blätter für literarische Unterhaltung and (2) a very similar account which does not mention Mr Kerst the pharmacist friend, Schwäbischer Merkur Nr. 173, 28 June 1838. There is no mention of Mr. Kerst in the available record in Charleston. See John Hampton Huck, The History of Pharmacy in South Carolina (Charleston, 1951).


3 A. Hasell, M.D. (1803-1886) was professor of materia medica in the Medical College of the State of South Carolina when it was reorganized in 1833. See Waring, op. cit., p. 243.


6 Henry Rutledge Frost, M.D. (1799-1866). When the Medical College of South Carolina was opened, he was elected to the chair of Materia Medica, and in 1841 produced Elements of the Materia Medica and Therapeutics. See Waring, op. cit. (n. 5 above), pp. 230-232.

7 Elias Horlbeck, H. V. (1804-1881), an eminent physician and an amateur botanist. See Waring, op. cit., pp. 246-247.


9 Lewis David von Schweinitz (1790-1834). For biographical accounts see Barnhart, op. cit. vol. 3, p. 250.
Sir,

Since it is after all not possible for me to have a talk with you, valued friend, and enjoy your kind company, I’ll take up the pen to enter into correspondence to hear more of you and your new discoveries in the Natural Sciences.

I hope you and your family are enjoying the best of health. When I visited you last I was in the belief that I was going on board a ship to learn more of Natural Science but the position Doct. Friendly offered me was so dangerous that nobody in my place would have accepted it. I left Philadelphia for Charleston hoping to learn more about the Flora of the Southern States and I have truly not been disappointed.

During the first week I made the acquaintance of the first gentlemen of Charleston and found that there were more men in Charleston who were favorably inclined towards natural sciences than in New York or Philadelphia. As soon as I had a better foundation in English I announced my lectures in Botany, in German, Latin and Greek. My efforts were so blessed that as of now 15 Gentlemen and 17 Ladies are my students in Botany; 5 Gentlemen in the German language; I Lady in Latin and 1 Gentleman in Latin and Greek language.

At the same time I can inform you that I study Medicine regularly. I took half a course in German and think a physician has the best chances of practicing the study of the Sciences. The environs of Charleston are pretty well explored, we found only a few new plants about which I will presently inform you; we go out about once a week.

The upper part of Carolina is, I imagine, little known and explored. I had the pleasure of making the acquaintance of Mr. Audubon, one of the greatest ornithologists. I found him a greatly talented and excellent man.

As soon as the lectures come to an end next Spring I intend to undertake a rather grandiose plan, that is, to explore Florida, Georgia, Tennessee and the Arkansas Territory. I believe I can find subscribers for it in this country, I hope to get approx. 20-25 in Charleston. I should have approx. 50-60 members, each to contribute $20. I would reciprocate the money with dried plants, minerals, insects, reptiles, shells, stuffed birds. I would keep an eye open especially for botany, mineralogy, and entomology. There is a field of opportunity for conchology in the Florida Reefs.

I would leave Charleston the first of March and return there in September. My intended journey goes as follows: leave Charleston on the first of March for the Florida Reefs, then there I plan to go inland to the interior of Florida to Lake Mayaca, and on to Charlotte Harbour, Lake Simmons, Tampa Bay, Lake Eustis, then up the Johns River to Lake George, Orange Lake and St. Augustine; from there to Okefenokee Swamp and Georgia; then to Crow Harbour, Fort Barrington, west up the Altamaha river to Fort James, Jacksonville, Hartard, Fayetteville, Decatur; traverse the state line to Tennessee, hike over the Cumberland Mountains to Sparta, Williamsburg, and down the Cumberland River to Nashville, Clarksville, then up to Smithland where the Ohio joins the Mississippi; down the Miss. to where the Arkansas River joins in, then on the west shore of the Arkansas river to Pine Bluff, Akropolis (Little Rock), cut across the Cherokee Boundary Line, explore part of the Ozark Mountains and return—if I am still in good health.

The Indians are rather rebellious and if they are not calmed down they might show their mettle. Still the Seminole Indians so far are peaceful, the ones in Georgia and Tennessee also. The only difficulties might develop in the Arkansas Territory. I believe this opportunity shouldn’t be neglected because such an occasion might not repeat itself. Everybody who knows me in this country is convinced of my enthusiasm. Perhaps you will have the kindness to publicize the trip in a scientific journal and inform your friends about it, especially Dr. Torrey15 in New York. Also I know that Rev. Seydel is a mineralogist and conchologist and I guess would not want to miss this opportunity.

I beg you to inform me of all expenses which you may incur as I will reimburse you with my best thanks. It will always be a pleasure for me to be of service to you.

Please remember me to your worthy wife and your sons, also Mr. Bishop Andreas, the Rev. Seydel and L. Saynish17 if you see them. I imagine you will soon write to me and tell me what you think of it.

In the meantime I remain always your sincere friend and servant.

E. F. Leitner

Have you heard nothing of Volz?18

My address is: E. F. L. Leitner, care of M. M. Strobel, Meeting St. Charleston.

Fig. 6 - Charleston Medical College, 1830s [Courtesy of the Waring Historical Library]
Although Leitner was not widely known at that time, the editor of the *American Journal of Science and Arts* saw fit to offer him the following tribute: “Perhaps we cannot, in any better manner, introduce a respectable young stranger to the American public, than by giving publicity to the following letter of Dr. Leitner to the Editor:

The frankness and integrity are not less observable than the intelligence and zeal which it indicates.” The editor, Benjamin Silliman then published Leitner’s letter of July 14, 1832:

**Dear Sir —**

Since your Journal has fallen into my hands, I have felt a great desire to become better acquainted with you; I therefore take the liberty to address this letter to you. I hope you will excuse my inaccuracies in writing, particularly, as I have been but a short time in this country. From early youth, I have felt a great inclination for natural history, and when having arrived at a riper age, I saw my sphere in my native land (Germany) too narrow, then a thought arose in my mind to visit and explore this interesting country, in hope that I might, perhaps contribute, by and by something to the knowledge and science of natural history. After visiting the college in Tubingen and enlarging my knowledge, I left my native home, to bid it perhaps the last farewell, and embarking from Havre de Grace, I arrived in New York last year (1831). Having little knowledge of the language, I at first encountered a great many obstacles, which prevented me from visiting the circles of the learned and scientific.

I came to South Carolina, after I had wandered through a great part of New York and Pennsylvania. I cannot sufficiently praise the hospitality of the people of Charleston: I am treated with the greatest kindness and benevolence, and they do everything in their power to extend my views. I shall finish, in Charleston, my studies of medicine, then, by delivering lectures on botany in that institution. I was indeed surprised and delighted to find more spirit here for natural history, than in any part of the United States which I have visited. About seventeen ladies and fifteen gentlemen attend my lectures; a considerable number in the summer season.

I have in view an expedition to Florida next March, (1833) the time at which the (medical) lectures terminate. I shall visit first the Florida Reefs, (perhaps accompanied by Mr. Audubon,) and penetrate from thence into the heart of the territory, to explore its great

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20 The original letter is preserved in the Silliman family papers in the Historical Manuscript Room, Yale University Library.

21 Benjamin Silliman (1779-1854), chemist and geologist, was editor from 1818-1838 of *The American Journal of Science and Arts*, often called “Silliman’s Journal.”
treasures, and to lift the veil which now covers that part of the United States. I expect to stay there until the sickly season begins, and then return to Charleston, if God prosers
my undertaking, to distribute the collections among the subscribers. The subscription is only $10 for each member, and the money is returned in shells, minerals, plants, insects, reptiles, and some stuffed birds, and seeds. I hope to procure about thirty subscribers in this city. If I succeed next year in my expedition to Florida, and finish my studies in medicine, I shall very probably undertake an expedition on a larger scale, to the western states. I hope the gentlemen at the North will not overlook such an occasion to enlarge their museums and herbariums.

I can take the liberty Sir, to offer a few observations only, for the pages of your Journal:

Very respectfully yours,

E. F. Leitner

The article he submitted was, "Observations on depriving Flowers of their anthers, to produce Double Flowers." In this paper Leitner mentions Dr. Messer of Cabo, Prof. Bauer, Prof. Schuebter, Mr. C. Orthman (inspector of the college Garden) and Dr. Gaertner. Using this scientific journal to inform readers of his proposed trip he also wrote letters to attract subscribers. This is evident in the following letter to John Torrey:

Charleston 12 September 1832

Sir

Although I have not the pleasure of your acquaintance, yet the importance of the subject on which I will address you will, I hope, sufficiently excuse for the liberty. The high standing, which you have in the scientific world, has induced me, to believe, that you will give every aid in your power, to foster all undertakings, that have in view the enlargements of science. I departed last year from Germany for this country with the intention to explore some part of it. Although Stephen Elliott, the great Botanist, be no more, yet I perceive with pleasure, that botany is making rapid increases in Charleston, even among the fair sex. As my leisure hours I devote to the study of medicine, and to my favorite study, natural history. My object in addressing you, is to state to you the design, which I have in forming an expedition to the Floridas for the purpose of collecting specimens of natural history in the several departments of botany, mineral, entomol. etc. The variety of plants is certainly great especially in East Florida, where the flora, as I should suppose, has a similarity to that of Mexico and the West Indies, and the number of described plants will certainly be enriched with at least 100 new ones. The Tortugas offer a great field for conchology the streams in the interior country for Ichthyology. Not having the present means enough to carry it through at my own expense, I will undertake it by subscription: the money is afterward returned in the collected subjects. The ticket is only $10 a member. One Specimen or some times 2 of the smaller kind of every species of plants will be forwarded to every member, plants, which cannot be collected in so large a number, as 80-90 of the same species, are distributed after proportion. Persons taking 2 tickets will get of course the double number, especially of those which could not be collected in sufficient numbers as 70-80 of the same species. Persons can subscribe in any of the branches of minerals entom. bot. etc. Subjects from Ornithologie and Zoologie will be collected in small numbers only, however I shall not neglect, to collect flower seeds, which will be very agreeable to many florists and amateurs of flowers. I shall leave Charleston about the middle of February next for St. Augustine, I shall go from there to Jacksonville, Talahassee, S. Marks, Orange Lake and Lake George, from whence we shall penetrate in the Interior or return to the Western coast of East Florida, examine the most remarkable places along the coast, especially Charlotte harbor and the environs of Lake Mayac, and at last the Tortugas and Florida Reefs from whence I will return to Charleston, which will be about the middle of June, when then the distribution immediately begins. On my part no exertions shall be spared to add something to the natural history of this country. I beg leave to tender you my esteem, and solicit from you your kind endeavors in aiding me in the pursuit of an object, that may be important to the lovers of science. You will oblige sue very much indeed, if you would open a subscription in New York. under your praesidium, and you will be so good to observe, to subscribers that the amount is sent on in December, that I can prepare myself for the Journey. Should you wish any information in respect to my Qualification, I beg reference to the follow gentlemen: Dr. Schweintiz in Bethlehem, M. James Audubon, the naturalist, in Boston, Dr. Geddings in Baltimore, Dr. Greene in Boston and any respectable person of Charleston. I shall be happy to receive soon from you an answer. Should you have any demands, perhaps of European plants, of which I possess a good number I am always at your service.

With sentiments of the highest respect and esteem

Your obedt servt

Edward F. Leitner

My Address is:

Edward F. Leitner, care of Dr. Edwards Holbrook, Charleston.
In Boston B. D. Greene wrote to W. J. Hooker on September 30, 1832, “A young German of the name of Leitner, a very respectable botanist proposes to start in February and to spend about 4 months in exploring the Floridas. Should he carry his plans into execution I shall have the pleasure next summer in providing you with a set of his plants which I think will be quite interesting, those of East Florida especially.”

On January 20th, 1833, John Bachmart, the Charleston Lutheran minister and collaborator of Audubon, wrote to Audubon, “Leitner the Botanist, leaves here on an expedition to Florida. Many of us have subscribed in shares, the amount of which they are to receive in such specimens of natural history as they may prefer, has enabled the gentleman to engage in this expedition. There are very few individuals better qualified for such an undertaking than Mr. Leitner. He is not only thoroughly acquainted with Botany (of which he gave abundant evidence in the two courses of lectures he delivered in the city last summer), but possesses a general knowledge of all the branches of Natural History and little doubt is entertained that in our New Territory which he designs exploring will be added, not only to the Flora of our country but to our Zoology, Ornithology, Conchology and Entymology. From our last accounts up to the 15th instant, he was exploring Thomson’s Island on Key West from whence he expects to pursue his course in a Northern direction through the interior to St. John’s River and Lake George and afterwards to be governed by circumstances. Mr. Leitner has gone on an expedition in which he is accompanied by the best wishes of every lover of Science for his health and success.

The Charleston Courier (Feb. 26, 1833) carried a more extensive report beaded, “Scientific Expedition.”

We understand that Mr. E. F. Leitner, a graduate of the University of Tübingen (Tübingen) in Germany is now in East Florida engaged in a scientific expedition. The liberality of several individuals, principally resident in Charleston, who have subscribed in shares, the amount of which they are to receive in such specimens of natural history as they may prefer, has enabled the gentleman to engage in this expedition. There are very few individuals better qualified for such an under taking than Mr. Leitner. He is not only thoroughly acquainted with Botany (of which he gave abundant evidence in the two courses of lectures he delivered in the city last summer), but possesses a general knowledge of all the branches of Natural History and little doubt is entertained that in our New Territory which he designs exploring will be added, not only to the Flora of our country but to our Zoology, Ornithology, Conchology and Entymology. From our last accounts up to the 15th instant, he was exploring Thomson’s Island on Key West from whence he expects to pursue his course in a Northern direction through the interior to St. John’s River and Lake George and afterwards to be governed by circumstances. Mr. Leitner has gone on an expedition in which he is accompanied by the best wishes of every lover of Science for his health and success.
Leitner’s expedition was also known in Paris. J. G. F. Wurdemann wrote to Dr. Edmund Ravenel in 1833 that he had spoken to Baron de Ferussac about exchanging conchological species, and added: “As a matter of course I extended your correspondence to all states of the Union, and informing him of Leitner’s intended excursion told him you would probably receive many shells from there next spring.”

The next evidence of Leitner is found in a letter of B. D. Greene to Hooker, July 20, 1833. “I lately heard indirectly from Leitner, the German who was exploring E. Florida, that he had been lost in — woods & nearly killed by the bite of a moccasin? He had however recovered & found his way out and has written to Charleston that he had added as many as 200 species to the North Am. Flora but that the principal part of these had been described as South Am. or West Indian plants.”

An entry in the Charleston Courier for September 3, 1833, tells in most detail of the Florida expedition.

Communications
Mr. Leitner the Naturalist

It is generally known in this community that a number of individuals, principally residents in this city, engaged the above gentleman in the arduous duty of exploring those portions of East Florida, which have hitherto been but little known. He went as a Naturalist, well qualified to investigate minutely every branch of natural history.

In the early part of the spring, he examined most of the Islands around Key West. and from the valuable collections which he sent to this place, in a very short time, his employers were made sensible of his industry, zeal and capacity. He subsequently resolved to cross the Peninsula of Florida to the south of St Augustine, and after reaching the sea on the western coast, to explore the country in a Southern direction, till he once more arrived at Key West.

During nearly four months no intelligence was received of him, and it was feared that he might have fallen a victim to the climate, or to other dangers attendant on such an expedition.

Yesterday, however, the cheering intelligence was received, that he has just arrived at Key West, was in good health, and expected in a very short time, to present us with the fruits of his industry.

Mr. Leitner succeeded in crossing what are called the everglades of Florida. and he is under an impression that he is the first white man that has ever accomplished this undertaking. He writes that after surmounting many difficulties, he arrived at Cape Sable, on the western coast of East Florida; that for three months afterwards he was cruising on the Maine; examined the coast from Cape Sable, as far as Tampa Bay — ran up all the rivers to their very heads — sounded them — took their courses with the compass, and examined their banks, not only with regard to natural productions, but also to agriculture.

At a place called Pavillon Key, he was so unfortunate as to have the
mast of his boat carried away in a squall. By this accident, in which his boat filled with water, his collection, consisting of 1,000 plants, 50 skins of rare, and some of them undescribed birds, together with many other specimens in natural history were totally destroyed. Although this was very discouraging, yet he again resorted his re-searches and endeavored as far as he was able, to replace the collection of which the winds and the waves had robbed him.

At Tampa he was attacked by a violent bilious rheumatic fever, which lasted him 7 days. He was without medical assistance, and without any human aid. He however, recovered and resumed his labors. His collection, which has safely reached Key West, now amounts to 700 species of plants — a number of skins of animals and birds — the skeleton of Manati (Manatus America-anus) an animal now nearly extinct, specimens of shells, insects, &c.

Mr. Leitner is expected here in the John Dennison, and the information he has been enabled to collect will, no doubt, be valuable not only to the naturalist, but will afford the agriculturist an opportunity of judging how far the Southern coast of Florida is adapted to the cultivation of the productions of tropical climates.34

August 31
The only other fragmentary information about his expedition is derived from the newspaper article by N. H. Julius (see above n. 3) who reported that Leitner wrote a dictionary of the Indian language, had read to him from a diary of this trip, and who, when abandoned, desperately ill, by his Indian guide, had only one medicine—“Wondertree oil,” or castor oil!

On September 20, 1833, Audubon wrote to his son Victor: “A young German, a good Botanist with whom I am well acquainted, has lately, returned to Charleston from the Everglades spent a summer there and discovered about 50 new Birds, a great number of Plants, etc. The new birds John Bachman will secure for me and I will derive some knowledge from Lightner.”

Not only was Leitner a scientist, he was also a fine artist. One example is a sensitive sketch of a landscape found in the memory book of Miss Mary Eliza Bachman, dated 23 October, 1833.

Leitner returned to the medical school and his studies in 1834. According to a catalogue for that year, he is listed as a graduate. His doctoral thesis was on a botanical subject, De Hippomane Mancinella. The regulations for the M.D. degree were listed as follows:

Each candidate for a diploma should have attained the age of twenty one years — studied there with some respectable Practitioners, — attended two full courses of Lectures, one of which must be in this institution, and one of demonstrations in a dissecting room, — be of a good moral character, — and offer an acceptable thesis on some medical subject in the Greek, Latin, or any of the modern languages, for the best in each of which a suitable testimonial will be awarded.

One of the subscribers to the 1833 expedition was anxious for the promised specimens. Dr. Amos Binney wrote to Ravenel, May 17, 1834:

Fig. 11 - Reverend John Bachman [Courtesy of the St. John’s Lutheran Church, Charlestown, S.C.]
Some eighteen months since more or less I subscribed twenty dollars (through Dr. B. D. Greene) towards defraying the expenses of an exploring expedition by Mr. Leitner on the condition of recovering a proportionate part of the collections made by that gentleman in shells. Dr. Greene informed me that he had forwarded the money. Since that time I have heard nothing more on the subject. When Dr. Greene left this place for Europe he authorized me to receive any package intended for him. I have thought that from your situation you may have some information on the subject and should be obliged to you if you can put me in the way of receiving any objects intended for Dr. Greene or myself.

Leitner was apparently one of the first to popularize the study of botany. J. Bachman wrote to L. R. Gibbes on May 27, 1834: “The study of Botany is becoming a little more fashionable in this City than formerly, Leitner has a tolerable class of ladies. I do not think they have made much progress beyond the first principles, but some of them begin to look wise and I find the flowers and shrubs along the sides of our roads looking as if a flock of sheep had cropped off their heads.”

It was certainly for such a course that Leitner prepared his Botanical Chart, a small undated booklet of two large folded papers. In this Leitner is described as “Lecturer on Botany, Charleston and Fellow of the Society of Natural History Stuttgart.” The preface reads:

To obviate the necessity of referring to a variety of sources for the significance of terms employed in the description of plants, the author has been induced to publish in tabular form, a compendious work of reference for the use of those who are prosecuting the study of the science of Botany. In the compilation of this the author has deviated from the plan by Mr. Rattray of Glasgow, in his Botanic Chart. He has enlarged the Botanical nomenclature by the introduction of important technical terms, concisely explained and arranged in systematical order and has illustrated the key to the modified system of Linnaeus by references to indigenous plants of North America, “E. F. L”

There follows a description of botanical terms on page 1. On page 2 he adds the key to the Linnaean Sexual System of Botany and a section devoted to the method of preparing an Herbarium.

Thus I have endeavored to bring together and present to the eye in one view, in a more narrow compass, than has hitherto been done, nearly all that is essential to be known towards the prosecuting with success the study of practical botany; and should this breviate happen to excite in anyone, a desire to cultivate an acquaintance with this most delightful science it may become the source of much pleasure to the individual as the exercise necessary to the pursuit will confirm the health and strengthen the body.

In August 1834, Audubon wrote Bachman: “What are Ravenell and Lightner doing. Maria sent us word that the former had gone to the Floridas — and that the latter was delivering lectures.” In the same year the Medical Society of the State of South Carolina was founded and Dr. Leitner was appointed Librarian. And Bachman was conducting experiments on vultures to test whether they perceived carrion by sight or smell. Bachman’s experiments commenced at Audubon’s request, were authenticated by a group of Charleston’s physicians, one of whom was E. F. Leitner, Lecturer on Botany and Natural History, South Carolina.
Audubon, ever anxious for material, wrote to Bachman, Dec. 3, 1834: “I regret very much that Dr. Leitner did not give us in writing his curious experiments in the Buzzards it would have come so well in my article on this species. Could you not get this from him and take care of it for us thereafter, for I doubt that he will publish himself.” Later (Dec. 10, 1834) Audubon again urged Bachman, “Procure if you can the experiments made on the Buzzard by Doctor Leitner on paper of the poisonous drugs.” J. Bachman wrote a letter to the Journal of the Boston Society of Natural History, defending Audubon’s articles on the rattlesnake and vultures: “Dr. Leitner, A German Botanist now residing in this city Charleston and on whose veracity the fullest reliance can be placed, authorizes me to state, that in exploring the Floridas during the last summer he met with a rattlesnake crossing Tampa Bay, on the Western Coast, this was also witnessed by Dr. Randolph and Mr. Hackley who were in company.”

On Feb. 7, 1835, Greene wrote to W. J. Hooker: “Leitner’s collection as I am informed by the Gentlemen here who contributed to his expenses all lost. I have not since my return heard from him personally. I will propose to him what you suggest with regard to his visiting the rocky mountains to the south of Drummond’s route.”

Leitner was listed in the Charleston Directory for 1835 and 1836 as living at 137 Meeting St. and we know that he read an essay at the meeting of the Medical Society of the State of South Carolina on July 15th on “Poisonous Effects of the different species of Poison Sumac, Poison Oak, and Poison Vine, of the Hippomane Mancinella Excoecaria Agallocha.” This account, which was signed by a “Georgian,” commented: “We regard this essay as a scientific production, highly creditable to the author.” It was obviously a continuation of his doctoral thesis.

"Fig. 12 - Fakahatchee Storm [Photo by Peter Nolan]"
Leitner made a second trip to the Keys. Bachman wrote Audubon (Sept. 14, 1836): “Dr. Leitner is among the Keys. I gave him my own gin and whiskey for specimens.” In the same letter Bachman wrote:

With regard to Florida nothing will be done by naturalists for at least two years. Your Indian friends, the cutthroats, have scalped almost every woman and child south of St. Augustine, save those of Key West. They have burnt and plundered every plantation; and although they will probably be in great measure, put down next winter; yet there will, undoubtedly remain many small predatory bands that would make no bones of scalping an ornithologist, SECUNDUM ARTEM; and would ask no questions whether he was the friend or enemy of William Penn.

At Key West, on October 12, 1836, Leitner accompanied a military party assembled there by Lt. Levin M. Powell55 to explore the coast of East Florida and the “Everglades.” Powell wrote that this expedition consisted of 50 seaman and 95 marines, seven officers, in six boats and two schooner boats, and the revenue cutter Washington. Powell also noted that “Dr. Leitner, (the latter, a physician and naturalist of distinction) volunteered to serve in a military capacity… At Owl Key, at the Mouth of Santa Maria River, we anchored to make a descent upon a village said to be up the river. Dr. Leitner was our guide, he had been to the village several years before… On the 2nd day December we made sail for the South. After a cruise of more than a thousand miles upon the east of Florida arrived safely at Key West on the 8th of Dec.”

Powell concluded his report: “To Doctor Leitner and Mr. Mallory (gentlemen mentioned—above as volunteers) I am under many obligations. They not only volunteered but rendered valuable services.”56

Sometime in 1837, Leitner again joined Powell as a guide and surgeon in order to pursue his natural history researches, On Jan. 15, 1838, Leitner was killed near Jupiter Inlet, Florida. There are a number of accounts of his death.58 The most reliable is certainly that by James Rhette Motte who was there.

At the time Dr. Leitner was shot down, his hospital steward hastened to his assistance; and immediately shared a similar fate. It was said that Leitner was not quite dead when last seen; but requested those who came to bear him off, to look at their own safety, and not to regard him, declaring that he was mortally wounded, and could not live long; and that it would therefore be unnecessary for his friends to encumber themselves with him. Poor Leitner!

He was my friend and fellow student, we having pursued our professional studies together in the same office in Charleston, under the auspices of Dr. J. E. Holbrook. A German by birth, he had made Charleston his place of residence for the previous seven years. He was a man of rare ability, and singular modesty: excelling in the characteristics of the German scholar, and enthusiastically devoted to the sciences; of which botany was his favorite branch. Zealous in acquiring knowledge pertaining to natural science, he had devoted, himself for the last three or four years of his life to exploring the unknown regions in the southern portions of Florida; which he found to be fertile in objects of interest to the naturalist. Anxious to pursue his researches, and denied the privilege of doing so alone, by the hostility of the natives, he had attached himself to one expedition in the capacity of acting surgeon, as he had done to a similar one under Lt. Powell the year previous, in which he proved himself very useful as a guide through this terra incognita.” He had but a short time before issued a prospectus for publishing the results of his labours in that section of Florida; of which he alone of all scientific individuals was capable, when death thus suddenly terminated his career of usefulness: depriving science of one of her most indefatigable votaries; and mankind of the benefits of his laborious researches.

At a later period to this when we were encamped near the scene of Leitner’s death, I spared no pains, and missed no opportunity of ascertaining everything relative to his probable fate. The Indians who were engaged in the conflict which proved fatal to him having become our prisoners, I sought all occasions to learn from them what had become of my friend for his body could never be found, nor any trace of it. They always attempted to evade the inquiry by giving some absurd answer, and generally contradictory at different times. At first they informed us that he was captured alive tho severely wounded by the Indians, who ascertained that he was a surgeon, determined to save his life that they might profit by his professional services. That with this intention, they endeavored to make his situation as comfortable as possible; and had carried him many miles into the interior on a litter; when one day an Indian warrior who had lost his brother in one of the battles, rushed upon him with a yell, and plunged his knife into his heart.

Some of the Indians told a different story: They said that six days after the fight, a couple of Indians met him walking upon the bank of the river in the vicinity of the battle-field and shot him dead on the spot. Alas! What a fate, if this story be true; but what a relief must death have been to him, in his abandoned situation, suffering from wounds and starvation, and no prospect of relief in any other way but from death.

Which of these accounts deserves most credit if either does, is problematical. The Indians being such proverbial liars, I doubt if the real ultimate fate of poor Leitner will ever become known to the whites authentically.59
In an account of his death in the Army and Navy (A. N.) Chronicle, the following is written about his scientific work:

He nearly prepared for the press a work embracing all these topics; not omitting the topography of that hitherto terra incognita, when it has pleased a mysterious Providence to deprive mankind and the cause of science of the further benefit of his labors. He had we believe, also collected, a large and choice herbarium. We trust the materials for his work are still in the hands of some of his scientific friends in Charleston, who will not fail to give them to the world in some form. We believe that the present accomplished head of the War Department (Joel R. Poinsett) had intended, some years since, to have assisted in the publication of the work.

Another account reported: “Very many of the specimens of plants and other materials for his work collected by him, are lost and have never yet been found. But we believe it is understood that the Rev. Mr. Bachman of Charleston, (so often mentioned in Audubon’s great works) is engaged in the task of preparing for publication, what remains of the labors of this very modest, enthusiastic and much lamented student of Nature.”

Two obituaries of Leitner were published in German newspapers. One signed by a N. H. Julius of Hamburg, reported that; “his almost finished work on Florida would be finished by his friend living in Charleston, the pharmacist Mr. Kerst from Weissenfeld.”

Audubon credited Leitner for observations on birds and animals in his Ornithological Biography, the text which accompanied his plates. In discussing the least bittern Audubon wrote, “In the Floridas and Carolinas they have been known to breed in small communities of four or five pairs. One instance of this was observed by my friend Dr. Horlbeck of Charleston, and Dr. Leitner, another friend of mine, found them quite abundant in certain portions of the Florida marshes.”

Later, Audubon noted under his section on flamingoes:

Fig. 13 - Bitterns [Courtesy of the Broward County Parks Department]
“Dr. Leitner also procured some in the course of his botanical excursions along the western coast of Florida, where he was at last murdered by some party of Seminole Indians at the time of our last disastrous war with those children of the desert.”66 There are several references to Leitner in the octavo edition of Quadrupeds of North America. Audubon wrote of the Rice Meadow Mouse, “Dr. Leitner brought us a specimen obtained in the Everglades of Florida.”67 And again in the section on the common American Deer, the late Dr. Leitner informed us that the Florida Indians seldom shot at a deer beyond twenty-five or thirty yards, exercising great patience and caution before they ventured on firing, the result however under these favorable circumstances was unusually successful.”68 In his description of the White-Footed Mouse, he wrote that “Dr. Leitner, an eminent botanist who, whilst acting as surgeon in the army, was unfortunately killed in the Florida war, informed us that whilst on a botanizing tour through Florida a few years ago he was frequently kept awake during a portion of the night by the White-footed Mice which had taken possession of the huts of the Indians and the log cabins of the early white settlers.”69

Leitner’s herbarium path follows as romantic and sad a fate as did Leitner himself. When the German zoologist Jean Louis Cabanis70 visited South Carolina in 1839-41 he obtained about 800 Leitner specimens from a druggist, Charles H. Panknin.71 Cabanis brought the specimens to Berlin,72 but they were destroyed by bombs in 1943.73 Some Leitner specimens were obtained by

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66 Ibid., vol. 5, p. 256.
67 The octavo or miniature edition of The Quadrupeds of North America (1851-54) in three volumes of text. Vol. 3, p. 216.
68 Ibid., vol. 2, p. 231.
69 Ibid., vol. 1, p. 304.
70 Jean Louis Cabanis (1816-1906). German ornithologist, Barnhart op. cit. (n. 2 above), vol. 1, p. 294: “...visited South Carolina, 1839-41, but made only zoological collections. The botanical collections credited to him from ‘Florida Key West’ were secured by him from a druggist named Panknin, and had been collected by a German botanist who had died a short time before. I have no doubt that this was Leitner.” See Auk, 1966, 23: 247.
71 Charles H. Panknin (1808?-1860), born in Germany. He studied chemistry under Gmelin, pharmacy with P. G. Greger, botany and materia medica with J. H. Dierbach, and came to Charleston in the 1830s and in 1835 was licensed to practice pharmacy by the Medical Society of South Carolina. This information is from Professor J. Hahpton Hoch, Department of Biology and Pharmacognosy, School of Pharmacy, Medical University of South Carolina.
73 Communication of Director, Professor T. Eckardt.
the Carolina botanist Hardy Bryan Croom.74 Croom’s herbarium is in the New York Botanical Garden and the Brooklyn Botanic Garden,75 however no Leitner specimens can be located there.76 It was hoped that some of Leitner’s specimens might have been sent to B. D. Greene, one of his sponsors. B. D. Greene’s herbarium (which was given to the Boston Society of Natural History at his death) is now divided between Boston University and Harvard University.77 Neither can locate any Leitner specimens.

One of the plant specimens which Leitner collected has been presented in a unique way. Bachman wrote to Audubon, Oct. 2, 1837,78 that he was sending the drawing of the Marsh Hen which Audubon had suggested, and added, “Maria79 sends it, together with the drawing of a new plant by Dr. Leitner in Florida to Mr. J. Berthoud.” J. Audubon wrote to J. Bachman (April 14? 1838), “Has Leitner published the New Plants he discovered in the Floridas? I ask this latter question because on the 83 number of my Work Plate 411, I have represented a new Nymphaea, which if unpublished by him, I should like in my letter press to name after Dr. Leitner’s name, ‘Nymphaea Leitneria’.80 In spite of this statement Audubon’s plate 411 bears the legend in the elephant folio edition: “Common American Swan. Cygnus Americanus, Sharpless. Nymphaea flava-Leitner.” Since this lily was then quite unknown to botanists, it was ignored and treated as a fable, or as an extravagant vagary of the naturalist’s imagination.81

Mrs. Mary Treat in 1876 sent both fresh and dried specimens of the yellow water lily to Harvard and announced her discovery in a literary journal: she also proposed a new name, Nymphaea lutea. The fresh
specimens were propagated and sent to Kew Gardens. Then followed a description of the plant in the Curtis’ *Botanical Magazine*, 1887, by Joseph Dalton Hooker.

*This is a very rare plant, having been comparatively recently made known to Botanists by the researches of Dr. Leitner in Florida, though it was much earlier recognized by a Naturalist: for, according to Chapman’s “Flora” it is figured in Audubon’s great work on the ornithology of the United States, published upwards of half a century ago. As a species it is quite unlike any other, though belonging to the northern section Castalia, and not very far removed from the American N. odorata from which the colour of its flowers at once distinguishes it.*

* N. flava is a very elegant plant, it was flowered in the Water Lily House of the Royal Gardens in July of this year. The Kew plants were received from Prof. Sargent, of Brookline, Boston, in 1877, and again in 1880 from N. Sturtevant. The plant flowered for a first time in the Water Lily House at Kew in July, 1882.*

Asa Gray hastened to correct Hooker:

*My dear Hooker; — glad to see the “Botanical Magazine” figure of Nymphaea flava 6917. There is something not quite right in the history as you give it. Leitner was the botanist who showed the plant to Audubon, and gave it the name which Audubon cites, and he died — was killed by the Florida Indians — half a century ago. He was the “a naturalist” you refer to.*

Chapman honored Leitner by naming a genus of plants for him in 1860, which has only one species. *Leitneria floridana* (corkwood). Bentham later (1880) defined a separate family, the Leitneriaceae. Based on Chapman’s genus.

*Leitneria* remains a unique and rather enigmatic plant, for in spite of much study its real relationships still are problematical. The family Leitneriaceae is the only family of flowering plants known only from the central and southern United States.

The yellow water lily, however, is now regarded by most botanists as conspecific with the yellow water lily of southern Louisiana, Texas, and Mexico. This was described from Mexican plants and named by Zuccarini in 1832 as *Nymphaca mexicana*, and this appears to be the correct name of the plant found by Leitner and illustrated by Audubon.

Most recently Leitner has been mentioned in connection with the yellow water lily portrayed in the Audubon swan plate.

E. F. Leitner fills an almost inconsequential part in the history of botany, because he failed to maintain associations with leading botanists in the Northeast and Europe who might have described and publicized what must have been notable discoveries that for one reason or another never reached them. His assassination ended his potential legacy to American botany. However his career reveals the state of botany in the southeastern United States at the time; the means of financing natural history exploration, the continuing support of botany by physicians, paths of botanical specimens transferred from America to Britain, and the opportunities for botanical instruction. His activities also suggest the relationship of American natural history to European, the role of the German scientific community in South Carolina, and an early example of the use of military expeditions for natural history collecting. The subsequent verification of a mysterious plant discovered by Leitner is also revealing of the process of botanical nomenclature in the 19th and 20th centuries.

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*J. D. Hooker in Curtis Botanical Magazine, 1887, 113, third series, tab. 6917, Nymphaea flava.*


*Alva Wentworth Chapman (1809-1899), a physician and botanist. See Barnhart, op. cit., vol. 1, p. 342. For the original description of the genus Leitneria see A. W. Chapman, Flora of Southern United States, 1860. pp. 427-28. It is curious that he does not mention Leitner. Neither do G. Bentham and J. D. Hooker, Genera Plantarum (London, 1883), vol. 3, p. 397. According to Charles Sprague Sargent, The Silva of North America (Boston, 1895), vol. 7, p. 110, “Leitneria was discovered by Thomas Drummond, it was found by Dr. A. W. Chapman in 1847 growing on the muddy shores of a cove washed by high tides five miles west of the town of Apalachicola in Florida. The generic name commemorates that of a German naturalist killed in Florida during the Seminole War.”


ACKNOWLEDGEMENTS


This paper was read in manuscript and criticism offered by Dr. B. Schubert, Prof. J. Ewan, Prof. E. A. Hammond, Dr. J. Waring, Prof. J. Stannard, Prof. A. Hunter Dupree, and Dr. J. Swacey. There are four scholars whom I would like to thank particullarty — Dr. J. I. Waring and Professors Joseph Ewan, S. W. Geiser and E. A. Hammond. They all match erudition with kindness and graciousness. Without the unfaltering devotion of my research assistant, Loring Elizabeth Power, this article could not have been written. It is appreciatively dedicated to her.