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L. D. DE SCHWEINITZ AND EARLY AMERICAN MYCOLOGY [1]

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The text for this discourse is taken from the forty-fourth chapter of the book Ecclesiasticus:

Let us now praise famous men, and our fathers that begat us. . . .

Men renowned for their power, giving counsel by their understanding. . . :

Leaders of the people by their counsels, and by their knowledge of learning meet for the people, wise and eloquent in their instructions: . . .

All these were honored in their generations, and were the glory of their times.

There be of them, that have left a name behind them, that their praises might be reported. . . .

The people will tell of their wisdom, and the congregation will shew forth their praise.

Doubtless each of us owes to some of our more recent fathers in mycology a debt of honor and gratitude that can be discharged only in our dealings with those of a later generation. My own list must

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include Professor Frederick Grover of Oberlin, who showed me my first clamp connection and set me on my way to graduate study; Dr. G. W. Martin of Iowa, who taught me much more than the Tremellales; the Abbé Hubert Bourdot of St. Priest-en-Montmarault and Miss Elsie M. Wakefield of Kew, who gave to a beginner in a foreign land help beyond what was asked; Dr. David H. Linder and Dr. William H. Weston of Harvard, both craftsmen in mycology and in other matters; Dr. Helen Gilkey and Dr. S. M. Zeller of Oregon State, from whom I learned to hunt in as well as on the ground; Dr. Walter Snell of Brown, a perfectionist in all the favorable senses of the word; and Dr. H. S. Jackson of Toronto, from whom I learned not only much sound taxonomy but the pleasure of working with a witty and generous collaborator. The people will tell of their wisdom, and the congregation will shew forth their praise.

Each will have his own roll of beneficent creditors. But the mycological father of us all, the patron saint—if that be permitted—of North American mycology, is Lewis David de Schweinitz.

Schweinitz was born in Bethlehem, Pennsylvania, February 13th, 1780 (**8, 21, 23**).[2] His father, Hans Christian Alexander von Schweinitz, a member of an ancient Silesian family (**24**), came from Saxony to America in 1770 (**18, 20**); he was in charge of the secular affairs of the church of the Unitas Fratrum, or Moravian Brethren, in North American (**29**). His mother, Dorothea Elizabeth de Watteville, daughter of Bishop John de Watteville and granddaughter of Nicholas Lewis Count Zinzendorf, who had established the Unitas Fratrum on his Lusatian estates, came to America in 1778; the church party of which she was a member had great difficulty in making their way through the battle lines to Bethlehem (**24**). To the ecclesiastical attachments of his forebears Lewis David de Schweinitz owed his name[3] —Count Zinzendorf had been "friend Lewis" to the Quakers during a residence in Pennsylvania (**21**)—, his lifelong vocation, and his introduction into the great fraternity of mycologists.

On a visit "when a mere child" to the Moravian school Nazareth Hall

[2] This date from the church registers is confirmed by the entry on the fly-leaf of the Schweinitz family Bible in the Bethlehem archives; the published "1781" is surely erroneous.

[3] He was baptized Ludwig David, and the family name was von Schweinitz. In writing initials only he usually (perhaps always) used L.v.S. But in his botanical (**2, 58**) correspondence and papers in English he regularly used Lewis; his letters are signed sometimes von and sometimes de, and his papers de. Contemporary notices in English of his death, whether ecclesiastical (**25**) or secular (**27**), and the stone on his grave, read Lewis David de Schweinitz.

not far from his home, Lewis David was attracted to a specimen of a *Cladonia* (*Lichen digitatus* L.) lying on a table (21).[4] Some account of this object, apparently offered by Samuel Kramsch, afterward his teacher, seems to have been his introduction to cryptogamic botany. Later, on July 4, 1787, he entered the school as a pupil; there he continued until 1798. He is reported to have excelled in languages and in the use of language (21); he wrote lively verses, and in 1796 began, as editor, the first Moravian school paper. Although instruction in the natural sciences was no great part of the curriculum, his interest in botany and knowledge of that science certainly developed here. Among his papers are a manuscript *Flora nazaretheana* compiled during 1787 and 1788 by his teacher Kramsch, a supplement added in 1797 by his friend Christian Denke, and an index (29). These are probably the basis of the manuscript "partial flora of Nazareth and its vicinity" (18, 21) erroneously attributed to Schweinitz in some accounts. Towards the end of his studies he was appointed to take part in the instruction at Nazareth Hall, an older boy teaching the younger ones (14, 21).[5]

In April 1798 (13, p. 2601), his family removed to Germany (14, 21); accompanying them, Lewis David in that year entered the Moravian theological seminary at Niesky, in Silesia. According to his passport he was, somewhat later, "of medium build and had dark hair," facts not evident from the portrait. He is reported to have been fond of chess and of tobacco (31), and seems to have persisted in these vices; Rafinesque in 1837 described him and another as "Victims of Tobacco!" (with initial capitals and an exclamation point), condemning it as a foul poison and destroyer of human life (32). Although Rafinesque does not call attention to the shocking fact, Schweinitz also "enjoyed a good glass of wine" (31). Even though a foreign student, he seems to have been no expatriate: his nickname at

[4] This visit, from which "he dated his own partiality for the beauties of the vegetable kingdom," is in most accounts said to have taken place on his entering the school. But he is reported to have been "in company with his grandfather, Bishop de Watteville" (21), who was in America for an official visitation between May 29th (or 30th), 1785, and June 12th, 1787 (13, pp. 2018, 2019, 2173). The lichen revelation came before the schooling.

[5] An unambiguous sentence of Schweinitz's (53), "In October [1796] Bro. Hans Christian Alex Schweinitz accompanied his eldest son hither [to Salem]; the latter to be employed in the boys school and other business. . . . ," easily suggests that Lewis David as a youth taught in North Carolina also. But the "eldest son" was an older half-brother Friedrich Christian, who served the congregation at Salem from 1796 to 1802 (13, pp. 2552, 2566, 2692).

Niesky was "America" (15). He wrote a philosophical novel "Friedheim" while at Niesky (14, 24), and circulated it in manuscript among his friends. He is described as enjoying good company and, having a cheerful and friendly disposition and sprightly conversation, throughout his life being well thought of as a companion. All of this characterizes, I think, a man whom we should like to have known. For mycologists, however, the important event of Schweinitz's student years was his friendship with one of his professors, Johannes Baptista von Albertini. Albertini, who later became a bishop, and finally head, of the Unitas Fratrum, was not only a distinguished theologian, philosopher, and teacher but, like Samuel Kramsch of Bethlehem, one devoted to natural history. And some time between May and September of 1801 (31) he and Schweinitz determined to collaborate on the work that we know as the *Conspectus fungorum* (1)—of which more later.

In 1801 Schweinitz graduated from the seminary (31) and was set by his church to teaching in the Moravian academy at Niesky. Six years later he was transferred to the settlement in Gnadenberg, also in Silesia (25, 64), where he had duties as a preacher and as teacher or coach to future divinity students. His sermons are described as of "the utmost simplicity . . . practical, not argumentative—experimental, not speculative" (21). While he was in Gnadenberg Napoleonic troops were quartered there, and his sunny and irenic disposition stood both him and the town in good stead (21). On May 24th, 1808, he was ordained deacon (13, p. 3570; 14) and was invited to assume similar responsibilities in Gnadau, Saxony, where he continued until 1812. In that year he was appointed Administrator of the Church Estates in North Carolina (13, p. 3163). The possibility of that appointment had been suggested by one of the leaders at Salem as long before as May 23, 1804 (13, p. 2785). Before setting out for his new post he married Louisa Amelia le Doux, a lady of French ancestry whose parents then resided in Stettin; the ceremony was performed by Albertini (24).

The journey to Schweinitz's homeland (52) was more like an Odyssey than an ordinary sea voyage. Napoleon's continental system had resulted in the bottling up of European harbors; England was blockading Napoleon and stopping and searching American vessels and impressing their crews for the British navy; and the precarious neutral status of the United States was soon to end with the beginning of our War of 1812. The Schweinitzes left Herrnhut in Lusatia June 4, 1812, traveling by coach to Hamburg. Early on the 12th they left Hamburg for Altona, where they were detained for more passes; having with some pains gone back to secure the required documents

Schweinitz returned to Altona the next day and reached Kiel, then a Danish port, near midnight of the 14th. On the 16th the party boarded the American three-masted ship Minerva Smyth, but were held in port by a lawsuit entered against the vessel by a Danish privateer in the Danish courts, and by French privateers looking for a prize. Schweinitz employed some of the twenty-five days spent at Kiel in visiting its university. Toward noon of July 2nd they put out, but were menaced by the privateers; a British fleet arrived in time to drive off the French and in turn sent a boat to board the Minerva Smyth; her captain put back under the protection of the Danish cannon and the British also were driven off. On July 10th the ship again put out, this time in a fog, and succeeded in reaching Göteborg on the Swedish west coast. While they were held in the roadstead by storm word arrived, on the 19th, of a probable war with England; in fact, war had been declared June 18th. July 20th they sailed, passing between Scotland and the Orkneys. On August 8th the ship was captured by a British fleet returning from the West Indies; but being faster than the captors the Minerva Smyth sailed away during the dark and continued on her voyage. On August 26th she encountered a hurricane and nearly capsized; the upper masts were cut to right her, and the bowsprit was carried away; but their spars were retained rather than cut loose; and the storm passing by three in the morning of the 27th, the foremast was rerigged, and more repairs were made later. On September 7th the ship entered the bay at Newport, three days after an English flotilla had left; she sailed down Long Island Sound and anchored at New York next day. On the 15th the Schweinitzes left by post-stage, and reached Bethlehem the evening of September 16th. The journey had consumed 103 days; the voyage from Sweden to New York, 58 days.

Some of the accounts of Schweinitz make much of his sunny and charitable disposition, but one of them credits him with "a vein of satirical humor" (21) also. He may well have recalled the encounters of the Minerva Smyth with the British navy in writing long after, of *Dematium Aluta* Lk., "I have very fine specimens from warships of the American fleet built on Lake Erie, and in a few years destroyed by this small fungus foe—although over the British foe it was victorious" (47).

On November 14, 1812, the Schweinitzes reached Salem, North Carolina. At that time Salem was a place congregation (53)—i.e., a Moravian town, in that only the church or its members could own land (13, p. 3044)—and the administrative center of a very large tract held by the church in North Carolina and known as Wachovia, from

Count Zinzendorf's estate Wachau (**20**). Schweinitz's appointment as Administrator of the Church Estates meant that he had, in addition to preaching, teaching, and service on church governing boards, the management of this tract. There are no botanical diaries to record the day-by-day progress of his scientific studies, but the sketches we have received of his riding through the forests on necessary ecclesiastical business and returning with specimens in his saddle-bags are probably true in essentials. The published statement that "hardly a day passed on which he did not go out on botanical excursions in the vicinity of Salem" (**18**) seems, even for North Carolina, not wholly credible. The published church records do, however, give occasional hints of opportunities for botanizing. "Sept. 19 [1814]. Br. von Schweinitz went today on a visit to Hope. The next day, in company with Br. Kramsch, he botanized in that neighborhood, returning to Salem in the evening." "June 18 [1819]. Professor [Elisha] Mitchell, from the University at Chapel Hill, came to stay for some time so that he might gather more knowledge of botany from Br. von Schweinitz." This certainly was not written by Schweinitz. "Nov 6 [1820]. Br. von Schweinitz passed with Br. Herman on their return from the Pilot Mountain." "Mar. 20 [1821]. Br. von Schweinitz, with Br. Denke, made a botanizing trip to the Sauratown Mountains, thirty miles from Salem, returning on the 22nd."[6,7] "June 13 [1821]. Br. von Schweinitz, accompanied by Br. Meinung, went to court at Germantown, and on into Virginia. He returned on the 18th." (**13**, pp. 3229, 3402, 3461, 3468, 3470). The fact is that at Salem he accumulated an extensive—one might say appalling—collection, not only of fungi, but of all groups of plants,[8] from North Carolina. These he worked

[6] Rev. Samuel Gottlieb Kramsch had been one of Schweinitz's instructors at Nazareth Hall, and probably the one who had introduced him to *Lichen digitatus*. Rev. Christian Friedrich Denke was an older schoolmate as well as a botanophile (**28**, **29**).

[7] "On one of these tours, he discovered, among the [Sauratown] Mountains . . . a most beautiful waterfall which for many years bore his name" (**18**, **64**)—De Schweinitz Cascades (**55**), or Schweinitz Falls; now simply the Cascades, and within the boundaries of Hanging Rock State Park. It is likely that he made there a unique collection of an aquatic lichen, which later turned up as *Ephebe lesquereuxii* (**55**).

[8] This is not the place to attempt a summary of his work with phanerogams, especially since most of it remains unpublished. One of his happiest discoveries was the sweet pinesap, which he found near Salem, described in his herbarium notes as *Monotropsis odorata* (**61**), and sent to Stephen Elliott. The latter published Schweinitz's description and names in 1817 (**37**), suggesting that the genus might better be called *Schweinitzia*. The name *Schweinitzia* was adopted un-

over, packeting, identifying, arranging, cataloguing, exchanging, as does any addict to systematic botany. He entered into correspondence with other American and European botanists, giving and receiving botanical treasure and identifications of the same. Botanical treasure may have been what he chiefly owned. On their arrival in Salem a room had been provided for the Schweinitzes in one of the common dwellings. On March 2, 1814, the Salem community had decided that "in the Gemein Haus . . . the present guest room under the roof shall be fitted up for Br. and Sr. von Schweinitz." And only in 1819, two and a half years after the birth of their first son, did they move into a house inhabited by them alone (**13**, pp. 3178, 3233, 3399).

Before that, Schweinitz had been made a Doctor of Philosophy by the University of Kiel, June 22, 1817 (**14**). He has been said to be the first American to hold a Ph.D., an assertion easy to disprove by a single example, if one exists, but at this date probably unverifiable. The degree was conferred in absentia, for his work as administrator, his cultivation of natural science, and the *Conspectus;* although perhaps it need not have been so. For in that year he was chosen delegate to the synod of the Unitas Fratrum to meet at Herrnhut June 1, 1818. The family left Salem in September 1817, and in November sailed from Philadelphia for Liverpool; they reached Liverpool after only 25 days. By March 9, 1818, they were in Herrnhut (**13**, pp. 3323, 3324, 3360). On September 1st of that year Schweinitz was ordained presbyter by Bishop Albertini (**13**, p. 3571)—a long diaconate, according to the customs of other churches. What ecclesiastical business he was engaged in during the space of almost a year spent in Europe does not concern us. But one event is of importance to mycology. He carried with him from Salem a list of 1373 fungi of North Carolina, carefully arranged, with descriptions of all those believed to be new and specimens of at least most of the latter. These he left with his friend Christian Friedrich Schwägrichen in Leipzig (**59**, letter of VI-24–1820). Schwägrichen is one of the fathers of bryology [9]; he was professor of natural history at Leipzig and presently director (there was no president) of the Naturforschende Gesellschaft zu Leipzig; and the Gesellschaft was about to publish a journal. What followed was the appearance, four

equivocally by Nuttall in 1818 and preferred by Rafinesque at about the same time, and may be the correct name for the plant. In any case, it is enough to invalidate the fungus generic name *Schweinitzia* Greville 1823, which consequently was replaced by *Cauloglossum,* and which is a synonym of *Podaxis.*

[9] He was also sufficiently interested in fungi to have sent specimens to Persoon (Syn. Meth. Fung. 210) and Kunze (Myk. Hefte 1: 47).

years later, of Schweinitz's private list as the "Synopsis fungorum Carolinae superioris" (**40**), the first considerable publication on American fungi and one of the great early mycological works.

But that was in the future. The return voyage, Bremen to Baltimore, required 45 days (**13**, p. 3361); they arrived in Salem January 31, 1819 (**13**, p. 3392), to take up Schweinitz's former duties. In November he was elected a trustee of the University of North Carolina by the assembly (**13**, p. 3391) and continued until 1822 (**4**, p. 823). That office required his going to Chapel Hill at least once, in June 1820 (**13**, p. 3439); there, as is to be expected, he did some botanizing. Furthermore, several of the accounts of Schweinitz's life (**24**, **64**) report that at some time during his stay in North Carolina he was offered the presidency of the university. The minute-book of the trustees makes no mention of such an offer, but the history of the University of North Carolina (**4**) states that in 1816 "the office was tendered to Rev. Lewis von Schweinitz, D.D., LL.D., of the Moravian church", who declined it, presumably unwilling to give up his ecclesiastical duties. (It is to be hoped that the statement is more accurate than the degrees; no evidence of his having received either a D.D. or an LL.D. exists in the archives of the church, and his Ph.D. was conferred in 1817).

In 1821 appeared the first botanical paper of which Schweinitz was the sole author (**38**), twenty-seven pages describing all known North American hepatics, including some new ones. There is also a ten-page paper "On two remarkable hepatic mosses" published in 1822 or 1823 (**41**). During 1821 he submitted a monograph of thirty-three printed pages on the genus *Viola* in North America (**39**); this also appeared in 1822. Both papers have worn remarkably well; the paper on *Viola* presented a taxonomic assessment of the violets greatly differing from Torrey's contemporary one; Schweinitz recognized over 30, rather than Torrey's 7 or 8, American species (**29**), and his opinion is confirmed by current work. There is also in existence a *Flora salemitana* in manuscript, a list of the plants of the vicinity of Salem, dated 1821 (**28**). Only the fungi are missing, quite surely because his fungus list was in Leipzig.

In 1821 Schweinitz was appointed senior pastor at Bethlehem and "Proprietor of the Church Estates in the North." "Out of obedience and against his will" (**13**, p. 3480) he left Salem November 20th and reached Bethlehem December 13th (**13**, pp. 3475, 3476). There he assumed duties even more arduous. The Unitas Fratrum is above all a missionary church, and Schweinitz must supervise—and visit—con-

gregations and future congregations in Pennsylvania, New Jersey, and New York. Indian missions and new churches in the western states—in Ohio and even Indiana—required visitations, and negotiations on their behalf required visits to Washington. And yet the botanical work continued. In 1822, as already noted, the "Synopsis fungorum Carolinae superioris" (**40**) appeared in print. In 1823 he identified and prepared a report on the plants brought back by the Long expedition through the Northwest Territory; this report, published in 1824 (**44**), comprised mostly vascular plants, including a few new species, but also two bryophytes and four lichens. And in 1824 Schweinitz published a "List of the rarer plants [that is, vascular plants] found near Easton, Penn." (**42**); "An analytical table to facilitate the determination of the hitherto observed North American species of the genus *Carex*" (**43**); and in 1825 or 1826 "A monograph of the North American species of *Carex*" (**46**). The second of these, the analytical table, gave him especial delight (**59**, letters of IX·21, 25·1823); in an obscure German local flora he had discovered that ingenious aid to taxonomic work the analytical key, and had employed it in sorting out the difficult genus *Carex*. One account credits Schweinitz with the first important use of such a key, but Lamarck published keys in 1779, in the *Flore françoise* and John Ray as early as 1682, in his *Methodus plantarum*. In 1825 appeared Schweinitz's "Description of a number of new American species of Sphaeriae" (**45**). C. G. Lloyd once observed that a mycologist who described a new species implied that he knew all of the old ones. The *Syn. Fung. Car.* listed 235 American sphaerias; by 1825 Schweinitz had 330, a good sample, at least, of those known in the world. (Fries had compiled 550 in 1823.) The new ones are not presented with mere diagnoses, but carefully described, discussed, and illustrated. Even *Sphaeria pocula,* which turns out to be an aberrant polypore, can be recognized without uncertainty.

While still at Salem Schweinitz had conducted a wide correspondence and exchange of specimens with other botanists on both sides of the Atlantic (**3**, **30**, **58**). One of his most extensive, and perhaps most fruitful, exchanges had been with John Torrey, early a pupil of Amos Eaton's, subsequently the teacher of Asa Gray, in 1819 a young physician just beginning practice in New York City, and later professor of chemistry, geology, and mineralogy at the Military Academy at West Point, at Columbia in New York City, and at Princeton. The published correspondence (**59**) of the beginner and the established master provides an informative and amusing account of early-nineteenth-century botany and of the efforts of both to obtain dependable

identifications for their finds. One exchange is especially relevant: In October of 1821 Torrey wrote of having recently received from Sweden the first volume of Fries's *Systema mycologicum,* probably the first copy in America; he offered to lend it. On the next May 15th Schweinitz wrote, "You cannot imagine how much I am delighted with Fries—I know I ought to have returned it before this—but unhappily I have been so much occupied with official duties that I have not yet got thro'. . . . I most earnestly beseech you to procure the book and its continuation for me at any price. The system I think very conformable to my own observations." By January 17, 1823, Schweinitz possessed, as he wrote to Fries, S.M. 1; on Apr. 15, 1824, Fries sent him S.M. 2 (57); and the Sphaeriae in the 1825 paper are "arranged according to the system of Dr. Elias Fries."

From June, 1820, Schweinitz repeatedly mentions plans to prepare, alone or with collaborators, a cryptogamic flora of North America, to complete Pursh's phanerogamic *Flora.* The 1821 paper on hepatics, whose formal title begins *Specimen florae Americae septentrionalis cryptogamicae* (38), was intended as a first contribution and a model for this work (38, preface). He indicates the need for specimens to fill out his own collections—and apparently received a fair number from Torrey. From others in America he acquired much less (although he had great numbers of European and other foreign specimens), and of associates, who might undertake the treatment of groups of cryptogamic plants in whose study they were proficient, none at all. By April of 1828 the work had been narrowed down to a synopsis of the fungi, something that Schweinitz was quite capable of completing by himself. On January 16, 1825, however, Schweinitz was writing Torrey of "your purpose of a Joint Crypt. Flora" (diplomatically?; it had been Schweinitz's idea June 24 and October 22, 1820, and January 11 and April 19, 1821), and planning to see him in New York "to chalk out some feasable plan." Such a meeting was to be made possible by a third journey of Schweinitz's to attend a synod of the Unitas Fratrum at Herrnhut; but although Torrey came to New York for the meeting, his leave ran out and Schweinitz was obliged to sail from New York without their seeing each other (59, letter of III·30·1825).[10] On

[10] Schweinitz and Torrey did not meet until 1827. One Barratt asserts that the three of them met in New York early in October, 1825, at the Moravian Church where "Mr. Schweinitz had been preaching that evening" (63). But Schweinitz had not returned from Europe until November 25th. According to a letter of Torrey's dated April 2, 1827 (34), "Dr. Barratt . . . accompanied Mr. S[chweinitz] to this place," presumably West Point.

August 18th Schweinitz was ordained Senior Civilis at Herrnhut (**13**, p. 3571), the last man on whom that august office was bestowed. It conferred on him the duty of representing the Moravian Church in its relations with the government: "to inspect the decorum of the respective congregations and their observance of the national laws, and when necessary, to prevent any fringement of the rights and privileges granted them by the government" (**10**, footnote 10). The office seems to have combined the duties of an ambassador or nuncio with those of the censor and of the tribune of the people in the Roman republic; it is no wonder that there has been no senior civilis since (**15**, **20**).

Schweinitz returned to New York November 25th, 1825, after a voyage of 32 days (**16**, p. 3740), and to Bethlehem to take up again his duties in the Moravian Church and to continue the preparation of his work on North American fungi. In March 1827 he wrote Torrey that he would be in New York later in the month "seeing our worthy Bishop on board of a vessel in which he is to depart for the West Indies (by the by, the finest chance I have as yet had of getting West Ind. Plants)"; his business would not "prevent an attempt of storming West Point . . . . I trust you will not find anything Arnoldish in the present negotiation." The meeting took place as planned, except that in the hurry of departure from West Point Schweinitz left behind the index to his herbarium (**59**, letters of IV·17·1827, IV·11·28). It was arranged that Torrey should spend a part of his vacation at Bethlehem, but the latter's removal to New York City prevented the visit. Between October 2nd and November 3rd of the same year Schweinitz traveled on church business to Lake Erie (**59**, letter of XII·5·1827), in the neighborhood of Erie, Pennsylvania, and as usual brought back specimens, including the ones earlier mentioned from the hulls of Perry's fleet. Early in his stay at Salem he had returned from Raleigh "seriously ill with dysentery, and for several days his life was in danger" (**13**, p. 3222), but otherwise had enjoyed good health. From about May 1st 1830 until May 1831, however, he was seriously ill, part of the time "strictly confined to [his] room." "I was enabled," he wrote, "to be active with my pen & among the rest completed the Synopsis of the American Fungi." This work (**47**), comprising 3098 species, and later printed on 177 quarto pages and two plates, was submitted to the American Philosophical Society April 15, 1931. An enumeration of North American genera of fungi, extracted from the ms. of the synopsis, appeared under Schweinitz's authorship in the 1831 American edition

of Lindley's *Introduction to the Natural System of Botany* (**48**).[11] On May 4th he wrote, "My health is not yet by any means reestablished . . . accordingly . . . I shall commence by the advice of doctors a long journey and have chosen the westerly direction, proposing to go as far as the state of Indiana . . . I have prepared myself if my strength admits to botanize on this journey with as much zeal as possible."

The journey (**51**) proposed had as its objective, in addition to the restoration of the invalid's health and the securing of botanical specimens, the establishment of a new church in the wilderness at Goshen (now Hope) in south central Indiana and visitations to Moravian churches earlier established in east central Ohio. Schweinitz left Bethlehem by stage May 13, 1831, passed through Philadelphia, and by two steamers and a canal-boat reached Baltimore. From Baltimore, as he wrote, "one travels the first eleven miles to Ellicott's Mills by rail . . . [a] drowsy ride in the rather uncomfortable railroad coach, which, in spite of its size and load (about twenty persons), was drawn by only one horse." Thence he traveled by stage west through Maryland, Pennsylvania, and the narrow northern spur of what is now West Virginia to Wheeling on the Ohio River, and there, ten days after the beginning of the journey, took passage on a river boat. After stops at Cincinnati, Madison (Indiana), and Louisville he disembarked at Madison on the 27th. There being no available means of leaving the town immediately, he was constrained, as a visiting minister, to be present at "a so-called four-days' 'meeting' " of a fire-and-brimstone sect, for which his charity almost conceals his aversion. Four days later he secured the means of continuing his journey, traveling through giant forests of beech, sugar maple, and tulip trees in a sleigh body attached to a wagon bed, and reaching Goshen June 2nd. There he conducted services, saw to the organization of a mission and the settlement of its minister, survived the rains, the mosquitos, and the enmity of a frontier bad man, and left for Ohio on the 20th. On the return journey he traveled to Madison, by boat to Cincinnati, and by carriage, stage, and canal-boat across Ohio to Gnadenhuetten, "where," as he noted, "eight years ago I spent four interesting weeks" (cf. **59**, letter of V·25·1823[12]), and thence southeast to Steubenville, where on

[11] Two more titles complete Schweinitz's botanical bibliography: notes on European plants naturalized in the United States (**49**), including observations from his 1831 journey to Indiana, submitted in January 1832 but not published until after his death; and a catalogue of plants of the Poconos (**50**), provided for Prince Maximilian when he visited Schweinitz in 1832, and published in 1839.

[12] The journey was neither to the Muskingum River nor to Muskingum County, but to Gnadenhuetten on the Tuscarawas "which we usually incorrectly

July 14th he crossed the river into Virginia (that is, West Virginia). His travel across Pennsylvania was broken long enough to permit the study of a local herbarium at Economy, below Pittsburgh. On July 21st he reached Bethlehem. Seventy days; 2100 miles; since, as he had written before setting out (**59**, letter of V·4·1831), "my legs are still very feeble," by stage, river boat, and backwoods rig; "by the advice of doctors." And Schweinitz did botanize, "as many little botanical excursions as circumstances permitted," one of the circumstances being that "I had to deny myself all strenuous walking." He mentions Goshen in Indiana, Gnadenhuetten and Dover in Ohio, and more generally western Ohio, where he saw his first prairie; undoubtedly there were little excursions all along his route. Berkeley and Curtis (**7**) and later Arthur and Bisby (**2**) found the specimens, properly labeled but unpublished, in his herbarium. Furthermore, he reported the tour "very beneficial to my health (altho' unfortunately during the last days I have again caught a violent cold, which threatens in part to deprive me of those benefits)" (**59**, letter of VII·31·1831).

Schweinitz's recovery was scarcely more that what is called a remission, but he was permitted one more extended journey—among the hills of eastern New York, forty and more miles northeast of Albany, to look into the establishment in Camden Valley of a Moravian church (**20**, p. 359). In March, 1832, Schweinitz was beginning "to think that . . . all my other complaints of the chest &c. might possibly give way;" in April he was "almost entirely recovered in [his] health;" in May he complained only of "a stiffness in the lower extremities which greatly impedes me in walking" (**59**, letters of III·29, IV·12, V·17·1832). He died in 1834, presumably of consumption, and was buried in God's Acre in the Moravian settlement at Bethlehem, under a stone like all the others, reading "Lewis David de / Schweinitz / Senior Civilis / He was born / the 13th of February 1780 / at Bethlehem, / departed this life / the 8th of February 1834" (**16**, p. 4126; **8**; **25**; **27**; **65**).

About Schweinitz's mycological works there is a great deal to be said, and some of it is to be said here. The first work is of course the *Conspectus fungorum in Lusatiae superioris agro Niskiensi crescentium* (1) (Survey of the fungi growing in the region of Niesky of upper Lusatia) with 400 pages and 12 colored plates, published in Leipzig in 1805. The first question about the book is, who did it (**5**)? So far as I can discover, the senior author, Albertini, published little else on

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call the Muskingum"; the church lands were held by "the so-called Muskingum Society" (**51**).

any phase of natural history (22),[13] though he did leave two manuscript lists of "cryptogamic plants" (bryophytes?). Schweinitz not only prepared the illustrations for the 93 species figured but engraved the plates (31) and saw to their coloring—they were colored by hand, as was usual or perhaps inevitable at the time—and wrote some part of the text. Ricken, in his monograph of central European agarics (33), implies that Schweinitz was the principal author of the work. But that is not what Schweinitz says. His diaries (31) record on September 9, 1801, his purchase of a copy, only recently off the press, of the mycology of the period, Persoon's *Synopsis,* apparently as a foundation for the *Conspectus*[14]; his collecting of "the so-long-desired and vainly sought Spitz-morchel" (*Morchella conica*), first in the soup, and immediately after in the field; his taking his pupils for a walk and finding a new *Onygena* on the carcass of a raven; his discovery of a productive stack of mouldy straw, and also, in the manner of mycologists, a fine lot of manure piles; and his work on the plates. There were difficulties with the first bookseller approached, who refused to publish the book unless it were written in German; but Albertini "pointed out . . . the need for our use of the world-language, Latin." On November 29, 1803, "Albertini . . . announced that he was beginning his part of the work;" and on December 11th Schweinitz "read more of Albertini's work; the beautiful style will surely win high praise." So much is recorded, and we are unlikely to learn any more of the history of the *Conspectus.*

[13] Albertini seems to have been a prince among teachers, a great preacher and pastor, an able administrator, a philosopher and poet, and (what is more important for us) a devoted field botanist, collecting in a countryside ill adapted for agriculture but offering delectable harvests of fungi. It has been said or implied that he never published another line on natural history (22), but one biographer (54) credits him with contributions to two local floras and a flora of Germany and to three numbers of the magazine of the local scientific society. A manuscript *Flora Niskiensis* also formerly existed.

[14] Persoon's *Synopsis* was not the whole of the mycological library at Niesky, but it certainly constituted by far the most important part of it; witness the title of the *Conspectus,* "E methodo Persooniana", and the well-deserved eulogy in the introduction, "a man eminently deserving of universal mycology". Works of Schrader, Tode, Hoffman, Hedwig, Withering, and Gärtner (1, pp. III, IV) seem also to have been available. But many of the classics were not: "If nonetheless any fungi described by others long ago have crept in among our new local species, we hope that we rustics, too remote from metropolitan literary treasures and valuable illustrations—Bulliard, Sowerby, Bolton, Schäffer, Micheli, Batsch, etc.—to use them, shall obtain from fair judges not too difficult forgiveness of error" (1, p. IX). Later Schweinitz possessed a botanical library remarkably complete for its time (6), more than 90 works, of which at least 23 were useful for mycological studies.

Among other things it is notable for the careful accounts of the natural history of the fungi, perspicacious and lucid notes on season, substratum, habitat; for the suggestion that uredia and telia belong together (the principle of pleomorphism)[15]; and for the employment of spore-color for the characterization of agarics.[16] Killermann (22) has published more recent names for most of the 127 new species. One other item: Where is Niesky? In Saxony, due north of Zittau, which is very near the point where Germany, Poland, and Czechoslovakia now touch, and approximately east of Leipzig.

The manuscript of the "Synopsis fungorum Carolinae superioris" (40) was not intended for publication at all. When Schweinitz, then in Bethlehem, received a parcel of reprints of his paper he was, according to his letters, completely astonished. The paper included nearly 1400 species, all but 7 from North Carolina, and about a quarter of them new. Since most accounts of Schweinitz's work err in one or more respects concerning this important paper, certain corrections need to be made. First, be it noted that most of the mycologists who read and subsequently quoted it never saw the original publication in the *Schriften der naturforschenden Gesellschaft zu Leipzig;* quite surely Schweinitz never did, nor Fries. By them and others it was usually

[15] After noting the occurrence of a *Uredo* mixed with *Puccinia Valantiae* and one with *P. mucronata* (= *Phragmidium*), the authors wrote, "Hence some food for the suspicion, which Persoon mentions under *Uredo linearis* (Syn. p. 216), still merely hypothetical but yet most urgent: in very many plants, grasses, for example, Junci, Circaeae, Polygona, Faba, Galium, etc., are not Uredines *younger* fungi (paler in color, and mostly aestival), than the same that later having become *perfect* (darker, and more autumnal) are called Pucciniae? In either event a worthy hypothesis, which should be zealously investigated by repeated consideration and further observation" (1, pp. 131–134). Should this be attributed to the authors or to the author? In a later note (40, p. 65) Schweinitz wrote, "Marvelous is the variety of their forms, which I have long since recorded in the Conspectus fungorum Nieskyensium; and also in these lands [Carolina] it is completely confirmed and I should consider it to be not at all doubtful, that Pucciniae in a younger state have been Uredines." How much beyond the variety of the forms of the rusts is implied as the object of *commemoravi* (I have recorded)?

[16] In [*Agaricus*] the genus by far the largest and most entangled of all there seems to be a monstrous lack of characters suitable for establishing the chief primary tribes. We certainly know but one really constant and never, so far as it has been possible to observe, subject to change, based indeed upon the *color* of the *powder,* commonly considered *seminal,* and it not so difficult to test, since most species . . . will in the space of a day and a night brightly and readily stain paper . . . placed beneath with that copiously discharged powder. Whence some time ago it occurred to us, could not the Persoonian tribes here and there (wherever it should have seemed necessary) be reduced to second rank below certain chief families of the *Leucospermi, Erythrospermi, Melanospermi,* etc? (1, p. 144).

referred to either by the numbers given to the several species or by page from the repaged separate publication. Second, the reprint includes all of Schweinitz's writing that appears in the original, but lacks the eight-page introduction written by his friend and editor, Schwaegrichen. That introduction says that the two colored plates are the work of a draughtsman whom Schwaegrichen employed to illustrate Schweinitz's specimens. When Shear and Stevens (**58**) undertook to interpret the Schweinitz illustrations of the genus *Clasterisporium* by the use of Schweinitz's microscope, they went wrong in assuming that the illustrations had been made from specimens seen under that microscope. As a matter of fact Schweinitz brought the instrument back from his 1817–18 visit to Europe and used it the rest of his life, but not for the *Syn. Fung. Car.* And third, the date. This has most commonly been given as 1818, even in a very recent history of American botany, and sometimes as 1820 and 1823. A number of years ago evidence was accumulated showing that it was published in 1822 (**35**), probably not before July 18th, and certainly some time before November 24th. More recently I have seen in the library of the University of North Carolina a letter from Schweinitz to Elisha Mitchell at Chapel Hill, accompanying a copy of the paper, and dated November 15th, 1822. July 18th to November 15th is still a considerable time. How long would a parcel of reprints have been on the way, in 1822, from Leipzig to Bethlehem? At an estimate, from the time needed for Schweinitz's journeys at least 6 or 8 weeks. Some day I hope to find out, and anyone who tries to straighten out the nomenclature of fungi will know why: priority. At present we can be reasonably sure that the *Syn. Fung. Car.* appeared after the first part of Persoon's *Mycologia europaea* and before the first part of the second volume of Fries's *Systema mycologicum* (**36**). Perhaps that is enough.

The "Description of a number of new American species of Sphaeriae" (**45**) appeared in the June number of the Journal of the Academy of Natural Sciences of Philadelphia. So much is easy; but even so, a highly responsible bibliography lists it as published February 15th; that is the day when it was read, not the publication date. It is later than Pers. *Myc. eur.* and Link's mycological contribution to the 4th edition of the *Species plantarum* and earlier than the Fries *Syst. orb. veg.* Probably there are no conflicts in any case.

Schweinitz's fourth mycological work, the "Synopsis fungorum in America Boreali media degentium" (**47**) is correctly dated 1832, and some time between May 24th and August 29th. It is in all probability earlier than the final part of the *Systema mycologicum.* It was not pub-

lished in 1831, as often indicated; that is the date of receipt of the manuscript; nor in 1834, as shown on the recent reprint edition; that is the year when volume 4, new series, of the Transactions of the American Philosophical Society was completed. Perhaps 80% of the species described as new really are new. This is a remarkable batting average. Anyone can name and claim new species, but Schweinitz sent identified specimens by the hundreds to capable workers from Upsala to Paris (**58**), and his publications were confirmed by his material.

One other question has been presented by a student of vascular plants concerning Schweinitz's work: Where did he collect his specimens? Is a herbarium sheet marked "Schweinitz, Alabama" correctly labeled? Very briefly, he collected in central North Carolina, Virginia, Pennsylvania, New York, New Jersey, Ohio, and Indiana. He could have collected in Delaware, Maryland, West Virginia, and Kentucky. And that's the lot. Specimens from elsewhere were acquired from others, and in his papers the collector is usually indicated. Almost all of his published work concerns his own collections in North Carolina and Pennsylvania; he touched Kentucky and visited Indiana too late to include material from those states in his last mycological work, though there are Indiana specimens in his herbarium.

Anyone glancing over the Farlow and Trelease "List of works on North American Fungi" (**11**, **12**) might wonder at the characterization of Lewis David de Schweinitz as the first American mycologist. There are more than thirty titles entered that appeared earlier than Schweinitz's first Synopsis, beginning with Plukenet in 1691; and the list (as is almost inevitable) is incomplete. Furthermore, Wasson and Wasson refer to works written as early as 1543 in which new-world mushrooms are mentioned. Schweinitz's primacy is nevertheless unassailable. Without an enumeration of all the titles that have turned up, these early works can be dealt with by classes. First, there are those in which a fungus is evidently referred to, and from which it is even perhaps identifiable, without its being given an acceptable name. Such is the "spunk" growing on the trunk of black birch, reported by Josselyn in *New-Englands Rarities,* 1672. Second, there are works including lists of names of fungi, without any descriptions or only the briefest, derived from Linnaeus or later Persoon. Such are, for the most part, Muehlenberg's catalogues of 1793, 1799, 1813 and 1818, and Torrey's early list (**62**). Third, in a class by themselves, are Rafinesque's aberrations published from 1808 to 1820: a plethora of names with a paucity of description: sometimes guessable, but almost never identifiable. Fourth are

clear and detailed accounts of one or a few well-marked fungi, wholly acceptable, insofar as the rules of nomenclature permit, to more recent mycologists. Bosc's 1811 paper (**9**) with an unmistakable description of *Lycoperdon heterogeneum* (*Calostoma lutescens*) and several others among its fourteen species, is a notable example. Fifth, there are works that must be included in a complete bibliography of North American mycology because their authors had the good judgment to take over, with or without renaming, nuggets of fact from works in the fourth group. C. G. Nees von Esenbeck's *System* of 1816, a very important and beautiful work, comes under consideration here for only this reason. The difference between pre- and post-1822 American mycology can be briefly exemplified thus: Muhlenberg's 1818 *Catalogus* (**26**) lists the names only of about 325 fungi; Schweinitz's *Syn. Fung. Car.*, completed at the same time, lists 1373 species, mostly with notes on substratum, habitat, or other useful information; of these over 300 are described.

There are many opinions—perhaps the word might be appreciations—of Schweinitz recorded by his contemporaries and successors. With respect to his personal qualities there seems to be unanimity: he was peaceful, charitable, and notably good company. With respect to his stature and accomplishments as a mycologist there is equal unanimity, and opinions from the one side of the Atlantic are no different from those from the other; he is one of the small number of the early fathers of the science. I have seen more studies of the species, or the specimens, of Schweinitz than of those of any other botanist except Linnaeus. I find three only of what might be called notes of dissent: the one from Rafinesque, who rather sourly disapproved of his use of tobacco; one from Asa Gray, who at the age of nineteen spent a day with "old Bishop Schweinitz; gave him a Carex which he said was new, but I told him it was Carex livida, Wahl.[17] (and I was right)" (**19**, **1**: 17); and one from a pair of twentieth-century historians of natural history in the United States, who only grudgingly say that "his pioneer work as a mycologist might well rank him as a scientist" (**60**).

A passage in Elias Fries's scientific autobiography is pertinent. Of his earliest years at the university Fries wrote: "Two men, the lumi-

[17] Probably the plant described in 1834 as *Carex Grayana* Dewey, having "a remote resemblance to *C. livida*." Schweinitz may have suggested this name or a similar one; on March 8th, 1833, Gray wrote Schweinitz thanking him for "the honor you do me in giving my name to that beautiful Carex I supposed to be C. livida. I had supposed it to be an undescribed species for some time. I sent it to Dewey . . . labeled *Carex livida*?." The letter continues with notes on the differences between Gray's plant and *C. livida* (**56**).

naries of botany at Lund, greatly enlightened and fostered my studies, one setting (A. J. Retzius), the other rising (C. J. Agardh), both of whom at once treated me with extraordinary good will and kindness; the latter lent me Persoon's *Synopsis fungorum,* which I soon learnt by heart, and the former Albertini's *Conspectus Fungorum Agri Niskiensis,* a book which taught me knowledge of more things than any other" (**17**). What might be taken as an invidious curtailing of the authorship of the *Conspectus* is remedied in a letter to Schweinitz: "Quantum tibi debet mycologia certe meam superat laudem" (**57**)—"How much mycology owes to you indeed surpasses my praise." And there are expressions of esteem in a number of Fries's mycological works—e.g., Syst. orb. veg. 203: "Confr. *Schwein. Syn. Carol. !,* opus Mycologiam eximie illustrans."

Here we have a verifiable segment of the apostolic succession in mycology: Schweinitz acquired Persoon's *Synopsis methodica fungorum* at the beginning of his work on the *Conspectus* (and made it the foundation of his *Syn. fung. Car.*); the *Conspectus* taught Fries knowledge of more things than any other book: Persoon to Schweinitz to Fries. And as the apostolic succession does not proceed from one to only one, there have been many since, dead and living, who have an authentic part in it. Let us now praise famous men.

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LITERATURE CITED

1. **Albertini, J. B. de, and L. D. de Schweinitz.** 1805. *Conspectus fungorum in Lusatiae superioris agro Niskiensi crescentium. E methodo Persooniana. Cum tabulis XII aeneis pictis, species novas XCIII sistentibus.* Auctoribus I. B. de Albertini L. D. de Schweiniz [!]. Lipsiae sumtibus Kummerianis. xxiv + 376 pp. *pl. color. I–XII.*
2. **Arthur, J. C., and G. R. Bisby.** 1918. An annotated translation of the part of Schweinitz's two papers giving the rusts of North America. *Proc. Amer. Philos. Soc.* **57**: 172–292. *fig. 1.*

3. **Barnhart, J. H.** 1935. The botanical correspondents of Schweinitz. *Bartonia* (**16**) : 19–36.
4. **Battle, K. P.** 1907. *History of the University of North Carolina . . . 1789–1868.* vol. 1. Raleigh.
5. **Benedict, D. M.** 1935a. Lewis David von Schweinitz, the mycologist. *Bartonia* (**16**) : 12–14.
6. ——. 1935b. Schweinitz' botanical library. *Bartonia* (**16**) : 14–19.
7. **Berkeley, M. J., and M. A. Curtis.** 1856. A commentary on the Synopsis fungorum in America Boreali media degentium, by L. D. de Schweinitz. *J. Acad. Nat. Sci. Philadelphia* **II.** 3 : 205–224.
8. **Bethlehem Church Register.** Tom. III. 1802–1937. Sterbe Register. Manuscript in Archives of the Moravian Church, Bethlehem.
9. **Bosc, [L. A. G.]** 1811. Mémoire sur quelques espèces de champignons des parties méridionales de l'Amérique septentrionale. *Mag. Ges. Naturf. Freunde Berlin* **5** : 83–89. *pl. 4–6.*
10. **Coleman, C. B.** 1927. Introduction. *In* Schweinitz, L. D. de. The journey of Lewis David von Schweinitz from Bethlehem, Pennsylvania, to Goshen, Indiana, in 1831. *Indiana Hist. Soc. Publ.* **8** : 205–212.
11. **Farlow, W. G.** 1888. A supplemental list of works on North American fungi. *Harvard Univ. Libr. Bibliogr. Contrib.* (**31**). [p. 3, "supplementary".]
12. ——, **and W. Trelease.** 1887. List of works on North American fungi, with the exception of Schizomycetes, published before 1887. *Harvard Univ. Bull.* (**37**) : 444–458 ; (**38**) : 50–65.—*Issued also as* A list of works on North American fungi. *Harvard Univ. Libr. Bibliogr. Contr.* (**25**).
13. **Fries, Adelaide, L.,** Ed. *Records of the Moravians in North Carolina.* 1941. Volume V. 1784–1792. 1943. Volume VI, 1793–1808. 1947. Volume VII, 1809–1822. Raleigh.—Continuously paged.
14. ——. 1947. Reverend Lewis David de Schwenitz. (Editorial sketch.) *In* Fries, A. L. *Records of the Moravians in North Carolina* **7** : 3569–3572.
15. ——. The last senior civilis. Manuscript in Salem Moravian Archives.
16. ——, **and D. L. Rights,** Eds. 1954. *Records of the Moravians in North Carolina.* Vol. VIII, 1823–1837. Raleigh.
17. **Fries, E. M.** 1857. Historiola studii mei mycologici. In his *Monographia Hymenomycetum Sueciae* **1** : V–XI ; reprinted in his *Icones selectae Hymenomycetum nondum delineatorum* **2** : I–IV. 1884.
18. **[Gore, J. W.]** 1886. A sketch of the life and scientific work of Lewis David von Schweinitz. *J. Elisha Mitchell Sci. Soc.* **3** : 9–26. *portr.* (frontisp.).
19. **Gray, Jane L.,** Ed. 1893. *Letters of Asa Gray.* 2 vols. Boston and New York.
20. **Hamilton, J. T.** 1900. *A history of the church known as the Moravian Church, or the Unitas Fratrum, or the Unity of the Brethren, during the eighteenth and nineteenth centuries.* Bethlehem. (*Trans. Moravian Hist. Soc.* **6**).
21. **Johnson, W. R.** 1835. A memoir of the late Lewis David von Schweinitz, P.D. with a sketch of his scientific labours. Read before the Academy of National Science of Philadelphia. May 12, 1835. Published by order of the Academy. 39 p. *portr.* Philadelphia.
22. **Killermann, S.** 1932. Das Pilzwerk von J. B. von Albertini (1805). *Z. Pilzk.* **16** [= II. **11**] : 58–62. *pl. 9* (portr.).

23. **Kirchen-Buch der Gemeine in Bethlehem.** Tom. II. 1756–1780. Manuscript; in Archives of the Moravian Church, Bethlehem.
24. **Lehman, E. A.** 1904. Sketch of Rev. Lewis David de Schweinitz. Read before the annual meeting of the Wachovia Historical Society, Oct. 27, 1904. *The Wachovia Moravian* **13** (142): [4–6]. Dec.
25. Memoirs of Brother Louis David de Schweinitz, who departed this life at Bethlehem, Pennsylvania, on the 8th of February, 1834. *United Brethren's Missionary Intelligencer* **5**: 97–103. 1834.
26. **Muhlenberg, H.** 1818. *Catalogus plantarum Americae septentrionalis, huc usque cognitarum indigenarum et cicurum.* 2 ed. Philadelphia.
27. **Obituary** [of Lewis D. de Schweinitz]. 1834. *Amer. J. Sci. Arts* **26**: 218. [repr. from Poulson's Daily Adv[ertiser] Feb. 15].
28. **P[ennell], F. W.** 1932. Gift of Schweinitz record-books. *Bartonia* (**13**): 50–52.
29. ——. 1935. The botanist Schweinitz and his herbarium. *Bartonia* (**16**): 1–8.
30. ——. 1938. More unpublished works of Schweinitz. *Bartonia* (**19**): 49.
31. Preparation of the "Conspectus fungorum Lusatiae" by Lewis David de Schweinitz and John Baptist von Albertini. Taken from the Diaries of L. D. von Schweinitz, on file in the Salem Moravian Archives. Manuscript—Probably extracted and translated by Adelaide L. Fries, archivist.
32. **Rafinesque, C. S.** 1836. *New flora and botany of North America.* Pt. 1; pt. 2, [1837]; pt. 3, [1838]; pt. 4, [1838]. Philadelphia.
33. **Ricken, A.** 1915. *Die Blätterpilze (Agaricaceae) Deutschlands und der angrenzenden Länder, besonders Oesterreichs und der Schweiz.* Leipzig. 2 vol.
34. **Robbins, Christine C.** 1969. John Torrey (1796–1873) his life and times. *Bull. Torrey Bot. Club* **95**: 515–645. *portr., fig. 1–18.* "1968."
35. **Rogers, D. P.** 1944. On the dates of publication of Schweinitz's Synopses. *Mycologia* **36**: 526–531.
36. ——. 1952. Bibliographic note for the reprinted edition. *In* Fries, E. M. Systema mycologicum. [Facsimile ed.]. New York.
37. **Schweinitz, L. D. de.** 1817. *Monotropsis.* Schweinitz. *In* Elliott, S. *A sketch of the botany of South-Carolina and Georgia.* **1**: 478. Dec.—Vol. 1, "1821"; Vol. 2, "1824"; dates of parts from Stafleu, F. A. Taxonomic literature, p. 128. 1967.
38. ——. 1821. *Specimen florae Americae Septentrionalis cryptogamicae; sistens: muscos hepaticos huc usque in Am. Sept. observatos.* Or: Specimen of a systematic arrangement and description of the cryptogamous plants of North-America; comprising a diagnostic description of all of the hepatic mosses hitherto observed in North-America; with ampler descriptions of a number of new species. By Lewis D. de Schweiniz [!], D. P. Raleigh: printed by J. Gales. 1–27 p.
39. ——. 1822. Attempt of a monography of the Linnean genus Viola comprising all the species hitherto observed in North-America; by Lewis D. de Schweinitz, of Salem, North-Carolina. *Amer. J. Sci. Arts* **5**: 48–81.—*Footnotes:* Received July 26, 1821. Now (April 1822,) of Bethlehem, Penn.
40. ——. 1822. *Synopsis fungorum Carolinae superioris secundum observationes Ludovici Davidis de Schweinitz.* Soc. nat. cur. Lips. etc. etc. sodalis.

Edita a D. F. Schwaegrichen. *Schriften Natur. Ges. Leipzig* **1**: 20–131. *pl. 1, 2.*—Generic index, pp. 231, 232 of the same volume. Pp 20–27, editorial introduction by D[r]. [C.] F. Schwaegrichen. Separately issued (Synopsis . . . Scweinitz [!] . . . E commentariis Societatis Naturae Curiosorum Lipsiensis excerpta) without the introduction, and with the first page occupied by the title, etc.; pp. [1]–105. *pl. 1, 2.* n.d.

41. ——. [? 1823]. On two remarkable hepatic mosses found in North Carolina, by L. D. Schweinitz [!]. Read November 26, 1822. *J. Acad. Nat. Sci. Philadelphia* **2**(2): 361–370. *fig. 1, 2.* "1822."
42. ——. 1824. List of the rarer plants found near Easton, Penn.; by the Rev. Lewis De Schweinitz, of Bethlehem. Communicated by Mr. John Finch, 126 Broadway, New York. *Amer. J. Sci. Arts* **8**: 267–269.
43. ——. 1824. An analytical table to facilitate the determination of the hitherto observed North American species of the genus Carex. By the Rev. Lewis D. de Schweinitz. Read Dec. 8, 1823. *Ann. Lyceum Nat. Hist. New York* **1**: 62–71.
44. ——. 1824. A catalogue of plants collected in the North-Western Territory by Mr. Thomas Say, in the year 1823. By Lewis D. de Schweinitz. *In* Keating, W. H. *Narrative of an expedition to the source of St. Peter's River, Lake Winnepeek, Lake of the Woods, &c. &c. performed in the year 1823, by order of the Hon. J. C. Calhoun, Secretary of War, under the command of Stephen H. Long, Major U.S.T.E.* Philadelphia. H. C. Carey and I. Lea. vol. 2, appendix, pp. 379–400.—Also published in London. Whittaker. 1825: vol. 2, appendix, pp. 105–123.
45. ——. 1825. Description of a number of new American species of *Sphaeriae.* By Lewis D. de Schweinitz. Read February 15, 1825. *J. Acad. Nat. Sci. Philadelphia* **5**: 3–16. *pl. 1, 2.*
46. ——. [? 1826]. A monograph of the North American species of Carex. By the Rev. Lewis D. de Schweinitz. Edited by John Torrey. Read December 13, 1824. *Ann. Lyceum Nat. Hist.* New York **1**: 283–374. *pl. 24–28*[bis]. "1825."—P. [374], a letter from L.d.S. asking that the paper "be considered . . . in all respects, as the joint production of Dr. Torrey and myself," dated Dec. 20, 1825. Listed in "Contents of part the second" as "By L. D. De Schweinitz and J. Torrey."
47. ——. 1832. Synopsis fungorum in America Boreali media degentium. Secundum observationes Ludovici Davidis de Schweinitz. Communicated to the American Philosophical Society, Philadelphia, 15 April 1831. *Trans. Amer. Philos. Soc.* II. **4**: 141–316. *pl. 19.*—Issued with cover reading: "Vol. IV. New Series.—Part. II. Art. VIII. . . . 1832." as well as in the completed volume, whose title-page is dated 1834.
48. ——. 1831. Fungi; *in* J. Torrey. Catalogue of North American genera of plants . . . ; *in* J. Lindley, *An introduction to the natural system of botany.* . . . First American edition, with an appendix by John Torrey, M.D. New York.—Pp. 352, 353; cf. p. iv.
49. ——. 1835. Remarks on the plants of Europe which have become naturalized in a more or less degree, in the United States. By the late Lewis D. de Schweinitz. Read January 1832. *Ann. Lyceum Nat. Hist. New York* **3**: 148–155.—Title-page: 1828–1836; dated 1835 in Mem. Torrey Bot. Club **16**: 288.

50.——. 1839. Catalogus plantarum in monte Pokono (North-Hampt. Pennsylvaniae) observatarum a L. D. Schweinitz. *In* [Wied-Neuwied], Maximilian [A. P.] Prinz zu Wied. *Reise in das innere Nord-Amerika in den Jahren 1832 bis 1834.* **1**: 631–636. Coblenz.

51. ——. 1927. The journey of Lewis David von Schweinitz from Bethlehem, Pennsylvania, to Goshen, Indiana, in 1831/Report. *In* Gerber, A. The journey of Lewis David von Schweinitz to Goshen, Bartholomew County in 1831/Translated by Adolph Gerber. *Indiana Hist. Soc. Publ.* **8**(5): 203–285. —Pp. 213–285. Introduction (pp. 205–212) by C. B. Colman. Manuscript report in Archiv der Brüder-Unitat, Herrnhut, Saxony.

52. ——. 1947. Account of the journey of Br. Ludwig von Schweinitz and his wife from Herrnhut to Bethlehem in Pennsylvania, from June 4 to September 16, 1812. [Diary in the Salem Moravian Archives, trans. by A. L. Fries, in her] *Records of the Moravians in North Carolina* **7**: 3021–3043. *portr.*

53. ——. 1947. History of the building of the place congregation Salem, written for the celebration of the congregation in Salem, February 19, 1816. [Manuscript in Salem Moravian Archives; transcribed verbatim] *in* Fries, A. L. *Records of the Moravians in North Carolina* **7**: 3044–3058.

54. **Seidel,** ——. 1923. Johann Baptista von Albertini und Ludwig David von Schweinitz. Zwei Lebensbilder. *Z. Pilzk.* **2**: 221–225.

55. **Shallert, P. O.** 1935. Schweinitz' collecting-ground in North Carolina. *Bartonia* (**16**): 8–12.

56. **Shear, C. L.** 1905. Letter of Dr. Asa Gray to Lewis D. de Schweinitz. *Rhodora* **7**: 141–143.

57. ——. 1949. Schweinitz-Fries letters. *Mycologia* **41**: 456–461. *fig. 1, 2.*

58. ——, **and N. E. Stevens.** 1917. Studies of the Schweinitz collections of fungi—I, II. *Mycologia* **9**: 191–204. *pl. 8, 9*; 333–344.

59. ——, **and** ——. 1921. The correspondence of Schweinitz and Torrey. *Mem. Torrey Bot. Club.* **16**: 119–300. *fig. 1–3.*

60. **Smallwood, W. M., and Mabel S. C. Smallwood.** 1967. *Natural history and the American mind.* New York. [repr. of 1941 ed.].

61. **Spawn, W.** 1940. Notes on *Monotropsis. Bartonia* (**20**): 7–11. *fig. 1–2.*

62. **[Torrey, J., D. V. Knevels, and C. W. Eddy.].** 1819. A catalogue of plants, growing spontaneously within thirty miles of the city of New York. Albany.

63. **Weatherby, C. A.** [1922]. Barratt, Torrey and Schweinitz: a correction and a discrepancy. *Rhodora* **23**: 300–301.

64. **[Youmans, W. J.]** 1894. Sketch of L. D. von Schweinitz. *Pop. Sci. Monthly* **44**: 833–840. *portr.* (facing p. 721). *Also in his* Pioneers of science in America/sketches of their lives and scientific work. New York. 1896.—Pp. 167–175. *Portr.*

65. Zum Gedächtniss des am 8ten Februar 1834, in Bethlehem, selig entschlafenen Bruders Ludwig David von Schweinitz.—Service program; folio; in Archives of the Moravian Church, Bethlehem.