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CONSTANTINE SAMUEL RAFINESQUE, son of a French citizen and of a Grecian mother, was born at Galata, a suburb of Constantinople, in 1783, and died in very straitened circumstances in Philadelphia in 1840. His mother's maiden name was Schmaltz and during the time that he lived in Palermo, Sicily, 1805–1815, he published under the name of Rafinesque Schmaltz. This was a period of very unsettled political conditions in Sicily, Rafinesque himself stating: 'Prudent considerations had already induced me to add the name of *Schmaltz*, my mother's name, to my own and to pass for an American.'[1] He was a resident of Philadelphia from 1802 to 1804, and of various parts of the United States, chiefly New York, Philadelphia, and Lexington, Kentucky, from the latter part of 1815 until his death. He is the most controversial figure in the annals of American descriptive biology because of the myriads of nomenclatural proposals published by him from 1803 to 1840; and it seems to be entirely safe to place him as also the most controversial figure in the history of world biology, for his nomenclatural proposals touch the floras and to a less degree the faunas of all parts of the globe. His proposals, largely ignored at the time his numerous papers were published, are still too often ignored; that is, if the essentially equitable rule of priority approved by the international organizations of both botanists and zoologists means what it says.

From time to time individual biologists have resurrected early Rafinesque names and have accepted them in the sense that he applied them. But because of the erratic and at times distinctly sketchy work of Rafinesque, and perhaps also because of the weight of authority of more stable authors who later characterized the same groups, both genera and species, under other names, Rafinesque has received scant credit for his often correct conclusions. It is not uncommon in the annals of descriptive biology to note that this or that individual, who, perhaps, recognized too many genera and species on the basis of very inadequate characters, is referred to as Rafinesquian, the term being one of reproach.

[1] *A Life of Travels* (Philadelphia, 1836), p. 34.

Thus it is that even although in very many cases priority is clearly with Rafinesque many systematists continue to ignore his proposals, priority rules or no priority rules. It is admitted that his descriptive work was of such a nature that it is often difficult to gain any clear conception of the limits of some of his proposed new genera and many of his new species, for the descriptions are usually short, inadequate, undocumented or only very sketchily documented, and his actual types are, for the most part, not extant. Yet his many many thousands of proposed names encumber the literature, and they were, for the most part, validly published (not always, however, for valid reasons); many of them are distinctly worthy of consideration.

Criticisms of Rafinesque's strange publishing activities and his thousands of nomenclatural proposals commenced at an early date and have continued unabated up to the present time. It must be admitted that in many cases severe criticism was warranted. Preserved in the library of the Arnold Arboretum is a series of thirty letters written by Henry Muhlenberg of Lancaster, Pennsylvania, addressed to Stephen Elliott at Beaufort and later at Charleston, South Carolina, between the dates 9 November 1808 and 10 April 1815. Muhlenberg (1753–1815) was the outstanding American botanist of his time, and Stephen Elliott (1771–1830), an eminent citizen of South Carolina with a keen interest in botany, was the author of the distinctly remarkable *Sketch of the Botany of South Carolina and Georgia* (1816–24). The earliest criticism of Rafinesque seen by the present writer, and this is a mild one, occurs in one of these letters, dated 16 June 1809:

> Have you seen what Mr. Rafinesque Schmal[t]z had printed in the New York Medical Repository and what he promises to publish hereafter? He makes a wonderful change and havoc amongst our plants and will do much harm if he keeps his promise. I know him personally and find a great number of my plants, which I gave him, superficially described without mentioning a word from whence he had them. Very often he makes a genus where hardly a species can be made, and where his specimen was quite imperfect. There is a medium in everything. In botany the *festina lente* is very necessary.

It is abundantly manifest that the conservative and scholarly Dr Muhlenberg's motto *festina lente* was never followed by Rafinesque, for from the very beginning of his publishing career in 1803 he did not hesitate to express his ideas. He was a non-conformist, uncontrolled and uncontrollable, and apparently considered himself to be thoroughly competent in an extraordinarily wide field of human endeavor.

For several years the present writer has concerned himself with an intensive consideration of all of Rafinesque's nomenclatural proposals for the genera and species of plants. He originated more new generic names than any other single botanist in the entire history of the science, about 2700. Linnaeus, who established the binomial system in 1753, is a poor second with less than 1500, and the majority of these were merely taken over by him from proposals made by his predecessors in the dark ages of systematic nomenclature before he evolved the simple and practicable binomial system. In addition Rafinesque published about 320 new subgeneric names, 6700 new specific names, and 900 new varietal ones. An extraordinarily small percentage of these were ever accepted by his contemporaries and successors, a fraction of one percent. Perhaps as a measure of how far Rafinesque's systematic work in botany has been ignored, after a lapse of more than a century it is noted that no less than about 740 of his new generic names and nearly 2600 of his species names still remain unlisted in our standard indices. The writer's projected 'Index Rafinesquianus,' the manuscript of which is now finished, is an attempt to remedy this unflattering situation. A former associate has recently accused Professor M. L. Fernald of resurrecting obscurely described species from 'outdated' literature. This is wishful thinking, for there is no such category in the literature of systematic botany as long as early authors conformed to the general rules appertaining to the publication of new names. Overlooked descriptions of new species cannot thus simply be disposed of.

Rafinesque himself did not hide his light under a bushel, for he did not hesitate to express his own ideas regarding his ability and accomplishments. Thus in his suppressed *Western Minerva*, which was printed in Lexington, Kentucky, then known as 'The Athens of the West,' he states his opinion regarding some of his associates and himself, in the form of a letter addressed to Bory St Vincent, thus:

> A set of unfortunate individuals, who have two eyes; but cannot see: their minds are deprived of the sense of perception: they are astonished and amazed at my discoveries, are inclined to put them in doubt and even to scoff at them. . . . Our cat-fishes, eels, shads, sturgeons, &c. are for them mere fish to fill their stomach! and moreover they are all of European breed, and were carried here by Noah's flood direct from the Thames, the Seine and the Rhine! — I let them rail to their heart's content, and I laugh at them. . . . It is only in Europe that my labors and discoveries may be fully appreciated: here I am like *Bacon* and *Galileo*, somewhat ahead of my age and my neighbors. . . .[2]

[2] I (1821), 71.

Perhaps this is one of the reasons why the *Western Minerva*, one of his many abortive attempts to establish a scientific periodical, was suppressed by the irate printer, for Rafinesque states that he was able to salvage only three copies, and of these only a single copy is now known to be extant. It may well be that there was a shadow of truth in Rafinesque's evaluation of some of his fellow townsmen, but considering the time and place of publication, Lexington, Kentucky, in 1821, it was at least tactless; Rafinesque, however, was apparently never noted for his tact. Equally striking is the following quotation from his *Life of Travels*:

> Versatility of talents and of professions, is not uncommon in America; but those which I have exhibited in these few pages, may appear to exceed belief: and yet it is a positive fact that in knowledge I have been a Botanist, Naturalist, Geologist, Geographer, Historian, Poet, Philosopher, Philologist, Economist, Philanthropist. . . . [*sic*] By profession a Traveller, Merchant, Manufacturer, Collector, Improver, Professor, Teacher, Surveyor, Draftsman, Architect, Engineer, Pulmist, Author, Editor, Bookseller, Librarian, Secretary. . . . [*sic*] and I hardly know myself what I may not become as yet: since whenever I apply myself to any thing, *which I like*, I never fail to succeed if depending on me alone, unless impeded and prevented by lack of means, or the hostility of the foes of mankind.[3]

Still another quotation, from his *New Flora of North America* (1836 [1838]), throws additional light on Rafinesque's estimation of his own qualifications:

> As I think that I am gifted with a peculiar sharp sagacity in discriminating Genera and Species of Plants and Animals, it behoves me to use it in order to rectify these objects and the sciences relating thereto. — It is what I have often done, am now doing, and will continue to do as long as I live, not being prevented by the sneer or neglect of any one whom I consider less sagacious than myself, who cannot discriminate between the most conspicuous characters blended by the Linneists or modern Blenders and Shufflers.[4]

Within the past few decades there has been a marked recrudescence of interest in Rafinesque's work. Some of the modern appreciations of Rafinesque and the significance of his work are excellent, but others are so wide of the mark as to be almost ludicrous. Thus Donald Culross Peattie, *Green Laurels* (1936), states (p. 261) that Rafinesque was 'one of the most prodigious and prophetic scientists of the century 1760 to 1850,' and (p. 263): 'Amongst all of the naturalists who have worked

[3] P. 148. [4] IV, 6.

on the American continent Rafinesque is the only one who might clearly be called a titan.' Again (p. 266): 'If the rules of priority were strictly and justly applied, Rafinesque would be found to have antedated a large part of the work of Say amongst shells, of his enemy Harlan amongst mammals, in botany of Gray and De Candolle.' Professor Fernald remarked in reference to this last most grossly exaggerated claim: 'Whew! Rafinesque himself might have written such a sentence; his introverted brain . . . frequently brought forth such statements.'[6] Rafinesque did have advanced ideas, some originating with him, some, such as his rather clear statement of the principles of organic evolution, more or less reflected from Adanson (1763), but anyone reasonably familiar with the published record and with the available facts can only conclude that if Rafinesque was a titan, he was, indeed, one 'with feet of clay,' and no amount of creative writing and distortion or misinterpretation of the facts will alter the picture.

Much nearer the truth is G. Browne Goode's evaluation of Rafinesque in his appreciative review of Richard E. Call's *Life and Writings of Constantine Samuel Rafinesque.* Goode characterized him as:

> A man whose brilliant intellect, eccentric character and unhappy fate will always cause his career to be looked upon with interest, and whose nervous and appalling energy has been the cause of a myriad of perplexities to students of the nomenclature of plants and animals in Europe as well as in America. . . . The roving habit of mind which soon became a part of his nature led him into mental vagabondage that influenced his career even more than the lack of a permanent place of abode. . . . His precocious mind, unguided and undisciplined, wandered at will over the entire field of books and nature, and by the time he had reached the age of nineteen he had formed his own character and equipped himself for the career which lay before him. . . . Lacking . . . guidance, however, he was by no means fitted to enter upon a scientific career in a country like the United States, so when . . . he crossed the Atlantic [first in 1802, and again in 1815] he brought with him the germs of failure and bitter disappointment. . . . His fatal tendency to 'scatter' was already apparent, and in the work which he did for the 'Specchio' [during his residence in Palermo, 1814–1815] all the weaknesses of his subsequent career were foreshadowed.[5]

Rafinesque was a pioneer in many fields, some of his proposals being logical, others approaching the fantastic. On the credit side he strongly supported a natural system of classification of both plants and animals when all of his associates in the United States were disciples of the

[6] *Rhodora*, XLVI (1944), 20.
[5] *Science*, n. s., I (1895), 384–387.

Linnaean artificial system of classification, one of whom (Amos Eaton) adhered to that outmoded system as late as 1840. He proposed his own system of classification of both plants and animals as early as 1814, in his *Précis des découvertes somiologiques*, with modifications and additions for plants in 1837, but he never followed this system himself, and it was ignored by all biologists. He set up his own rules of nomenclature to which he adhered rather closely, but many of his innovations were never accepted by others. In 1833 he set forth a rather lucid outline of his belief regarding organic evolution — that all existing genera and species of plants and animals were derived from others. Later he frankly admitted that his ideas were taken largely from Adanson's *Familles des plantes* (1763); neither Adanson nor Rafinesque ever received much credit for what they proposed long in advance of Darwin. Rafinesque had advanced ideas on classification and on the segregation of genera and species of both plants and animals, ideas that were, in general, anathema to his associates. He was in advance of his time regarding educational methods and was a pioneer in the United States in advocating the establishment of a College of Agriculture. He was also a pioneer in American archaeology and in the comparative philology of Amerindian languages. He had some conception of the germ theory of disease. He invented the coupon system, and apparently his ideas on banking were lucid and practicable. One can only conclude that no matter what his faults were, and they were indeed many, he was, in general, an individual with distinctly remarkable mental qualifications and one actually well in advance of the time in which he lived.

The exposition of his principles of the philosophy of new genera and new species of plants and animals was contained in a letter dated 1 December 1832, addressed to Dr John Torrey of New York, and printed in his *Herbarium Rafinesquianum* (1833). This is so remarkable that it has seemed desirable to reproduce it. It is followed by a two-and-a-half page exposition of his general ideas on the natural classification of plants. Even though he later admitted that his ideas on evolution were, in part, taken from Adanson, the actual publication of such views in 1833 would have been looked upon by most people of that time as utter heresy. But this mattered very little to Rafinesque.

> I shall soon come out with my avowed principles about G[enera] and Sp[ecies] partly announced 1814 in my principles of Somiology, and which my experience and researches ever since have confirmed. The truth is that *Species*

and perhaps Genera also, are forming in organized beings by gradual deviations of shapes, forms and organs, taking place in the lapse of time. There is a tendency to deviations and mutations through plants and animals by gradual steps at remote irregular periods. This is a part of the great universal law of PERPETUAL MUTABILITY in every thing.

Thus it is needless to dispute and differ about new G[enera] Sp[ecies] and varieties. Every variety is a deviation which becomes a Sp[ecies] as soon as it is permanent by reproduction. Deviations in essential organs may thus gradually become N[ew] G[enera]. Yet every deviation in form ought to have a peculiar name; it is better to have only a generic and specific name for it than 4 when deemed a variety. It is not impossible to ascertain the primitive Sp[ecies] that have produced all the actual; many means exist to ascertain it: history, locality, abundance, &c. This view of the subject will settle botany and zoology in a new way and greatly simplify those sciences. The races, breeds or varieties of men, monkeys, dogs, roses, apple, wheat . . . and almost every other genus, may be reduced to one or a few primitive Sp[ecies] yet admit of several actual Sp[ecific] names [which] may and will multiply as they do in geography and history by time and changes, but they will be reducible to a better classification by a kind of genealogical order or tables.

My last work on Botany if I live and after publishing all my N[ew] Sp[ecies] will be on this, and the reduction of our Flora from 8000 to 1200 or 1500 primitive Sp[ecies] with genealogical tables of the gradual deviations having formed our actual Sp[ecies]. If I cannot perform this give me credit for it, and do it yourself upon the plan that I trace. C. S. R.[7]

In various of his publications issued in the late thirties he mentions his proposed Central University of Illinois, and several of these works are indicated as having been published for that institution; by 1840 he referred to it merely as the 'Eleutherium of Knowledge.' The most extensive statement regarding it known to the present writer occurs in his curious *Celestial Wonders* (1838), in the dedication, p. 2, and in the notice, p. 135. Incidentally, following the title he lists himself as 'Founder of the Central University of Illinois.' The dedication is:

To those worthy minds and benevolent men who have laid with me the foundation of a perpetual Beneficial Institution undertaking to unite Knowledge with Agriculture, and thereby designing to erect and support a great CENTRAL UNIVERSITY *in the fine and flourishing State of* ILLINOIS, *wherein in the course of time all the branches of Human Knowledge shall be made free and gratuitous to all human beings. To such and whoever will join with us to unable* [enable] *us to achieve speedily this useful design I dedicate this small work, another of my attempts to enlarge and enlighten the human mind, and first present of our University to the whole of Mankind.*

[7] P. 11.

In more detail in the notice is this outline:

We propose to establish gradual[l]y five Colleges in Illinois, which shall form collectively this University; such as

1. Normal College of Agriculture and Labor
2. Normal College of Arts and Sciences
3. Normal College of Teachers and Languages
4. College of Medicine and Medical Sciences
5. Eleutherium of free and gratuitous College of Knowledge and Philosophy.

We have already obtained the good wishes and endowments of land from some worthy Citizens of Illinois, we hope to obtain similar helps there and elsewhere, besides deserving the State Patronage, and thus to accomplish our main intentions between 1840 and 1850. Books and Apparatus [his own] valued at $3000 have already been tendered and more are expected.

The institution never materialized, but it is of some significance that as early as the middle of the third decade of the past century Rafinesque had definite ideas regarding collegiate instruction in agriculture, antedating the establishment of the first College of Agriculture (Michigan) in the United States by many years; the Michigan institution was authorized in 1850, organized in 1855, and opened in 1857. It is also significant that of the five proposed colleges of his projected Central University of Illinois, Rafinesque placed that of Agriculture first. This Rafinesque attempt at agricultural education forms a sort of footnote, well worthy of record, to the history of the development of the idea.

In relation to Harvard University it may be noted that when Benjamin Bussey drew his will in 1838, establishing the Bussey Trust in favor of Harvard College, he provided for instruction and research in agriculture two decades before the first College of Agriculture in the United States was opened; thus Benjamin Bussey's idea was contemporaneous with that of Rafinesque. Because the income from the Bussey Trust did not become available to Harvard University until somewhat more than thirty years later, the Bussey Institution was not actually established until 1871; and in the interim most of the State Colleges of Agriculture had been established under the terms of the Morrill Act, which received congressional approval in 1862.

Rafinesque's field of publication was unlimited. His very numerous published papers range from short notes in periodical literature to individual pamphlets and volumes of considerable size on more than seventy-five general subjects. These not only cover most fields of descriptive zoology and botany (and in these fields Rafinesque's thousands

of nomenclatural proposals must or should be considered by systematists), but also such diverse subjects as archaeology, history, comparative philology, astronomy, economics, education, ethics, religion, geology, palaeontology, art, finance, poetry, banking, fireproof construction, hydrography, meteorology, medicine, legislation, and even phrenology and masonry, to mention only a few of them.

He was apparently not accepted as an authority on any subject by his associates and contemporaries, and it is probably true that in many of the areas in which he judged himself to be an authority, especially in comparative philology, history, and archaeology, his publications are of little value. Yet in certain fields other than descriptive biology he was a pioneer in North America. As Fitzpatrick has expressed it, 'to see, to know, to publish, became with him a ruling passion.'[8] Subject to no inhibitions, impervious to criticism, he was limited in his publishing activities only by lack of funds. His income in the first part of the decade between 1830 and 1840 was for the most part modest, and at times very modest. From Rafinesque's own records it is known that his total income for the years 1832 to 1834 was only about $750.00.[9] At that time the chief sources were from the sale of pulmel, his remedy for tuberculosis, and from the sale of his own published works. That there was very little demand for Rafinesque's publications is evidenced by the fact that three years' income from this source was only about $185.00. The years 1836 to 1840 were those of his greatest publishing activity. He stated that in 1835 his divital institution and six percent savings bank was successfully launched, the plan for this institution having been developed by him ten years earlier. It was doubtless from this source that his additional income came, as he served as its actuary; but the institution failed, or Rafinesque was eliminated, for when he died on 18 September 1840 he was practically penniless. When his effects were sold at auction to close the estate, the net result was that the estate was indebted to the executor in the amount of $13.43. Yet in the period 1836–40, which was apparently one of relative prosperity, Rafinesque actually published at his own expense more than twenty volumes on various subjects, these varying in size from about 100 to 264 pages each, as well as numerous small pamphlets.

[8] T. J. Fitzpatrick, *Rafinesque. A Sketch of His Life with Bibliography* (Des Moines, Ia., 1911), p. 60.

[9] F. W. Pennell, 'The Life and Work of Rafinesque,' *Transylvania College Bulletin*, XV (1942), 42.

Most of Rafinesque's contemporaries considered that his publications were worthless and consistently ignored them. The evidence is that at the auction sale of Rafinesque's effects following his death the remainders of his privately published volumes were sold largely as waste paper. It is thus no wonder that after the lapse of more than a century most institutional libraries, even those in specialized fields, are poorly supplied with his publications. At this late date, because of the rarity of all of his works, there is little chance of increasing the stocks in any library. Rafinesque items are seldom offered by dealers; and when this does occur, the prices are exaggerated. Rafinesque sold his little *Précis des découvertes somiologiques* for 25 cents. This was a pamphlet of 56 pages published in Palermo in 1814. In the year of our Lord 1947 an optimistic dealer offered a copy for $250.00 on the basis that there were only 6 listed copies in American libraries. It is a work of relatively very little importance and is available in many European libraries, even if rare with us.

Rafinesque's works were for the most part issued in small editions. The *Flora Telluriana* (1837–38), for example, appeared in 160 copies, the *Autikon Botanikon* (1840) in 100 copies. An exception seems to have been his *Medical Flora* (two volumes, 1828–30), but this was a commercial proposition, actually published and distributed by the firm of Atkinson and Alexander of Philadelphia. The first volume was reprinted by Rafinesque in 1840, the year of his death, and it is reported that both volumes were reissued in 1850. For the time this was apparently a useful work and in demand; moreover, it became a sort of *vade mecum* for the practitioners of the Thomsonian system of medicine which flourished at that time, a system based on the belief that only drugs of vegetable origin should be used for the treatment of human diseases.

Several of Rafinesque's zoological papers were reprinted after his death because of the bearing they had on the publication of new genera and species of shells and fishes, and a very few of his smaller botanical papers were reissued between the years 1908 and 1912. Yet such works as the *Autikon Botanikon*, the *Flora Telluriana*, and the *Silva Telluriana* (1838), which from the standpoint of nomenclature touch the floras of all the continents and the larger insular areas of both hemispheres, are lacking in most European and American libraries and are unobtainable in the original editions. The same situation exists in reference to his *New Flora of North America* (1836–38) and the *Atlantic Journal*

(1832–33). Between the years 1942 and 1946 these five very rare works were reissued under the auspices of the Arnold Arboretum by offset lithography and thus are now available at very modest prices. This will be of interest to professional botanists if not to bibliophiles. For the general reader the most interesting item is the verbatim republication of Rafinesque's *Life of Travels* by the Chronica Botanica Company in 1946. This is Rafinesque's autobiographical account of his own life from his early youth to 1836.

From a purely bibliographic standpoint Rafinesque's numerous publications on descriptive natural history are distinctly worthy of careful consideration, no matter how much the general nature of his work may be criticized; and his work, on the whole, is eminently worthy of severe criticism. In justice to him it is indeed to be regretted that the desirability of considering what he proposed in systematic botany and zoology was not realized at the time he lived. Asa Gray recognized this, stating: 'Many of Rafinesque's names should have been adopted, some as a matter of courtesy, and others in accordance with strict rule.'[10] A century later when one finds that a Rafinesque generic name antedates the one in current use, it has seemed best promptly to add the offending name to the already over-long list of officially rejected ones, and thus avoid undesirable changes in the current use of technical names of plants and animals.

It is widely known that the Harvard College Library of Harvard University is a veritable storehouse of published works on a very wide variety of subjects. In the special fields of zoology and botany its holdings are remarkably extended by the libraries of the Museum of Comparative Zoology, the Gray Herbarium, the Arnold Arboretum, and the Farlow Reference Library and Herbarium. In these fields the University was most fortunate in having had on its staff a series of outstanding individuals, Agassiz, Gray, Sargent, and Farlow, who all realized the significance of library resources, and who, while assembling the standard works and sets of scientific periodicals essential for research, did not forget the significance of acquiring copies of miscellaneous, often obscure publications, in the development of library resources in special fields. The successors of the men who established these libraries have continued to build on the broad foundations estab-

[10] *American Journal of Science*, XL (1841), 234.

lished in some instances over a century ago. The net result is a vast assemblage of the world literature on zoology and botany, unequalled in any other institution in the new world, and equalled in size or importance by only a very few of the older institutional libraries of Europe.

For those who may be interested in the proposals of that strange individual, Constantine Samuel Rafinesque, it is indeed fortunate that so many of his botanical publications had been assembled by Asa Gray during Rafinesque's lifetime: and it is still more fortunate that Charles Sprague Sargent, in establishing a comprehensive botanical library at the Arnold Arboretum, elected to specialize, among other things, in the Rafinesque field. Considering the fact that the actual building up of the Arnold Arboretum Library was for the most part accomplished after 1892, it is indeed remarkable that Sargent was able to acquire so much Rafinesque material. Of the 939 items listed in Fitzpatrick's bibliography (including those papers published in periodical literature), 750 are actually in the library that Sargent so ably developed. This is a collection of published Rafinesque papers unequalled in the holdings of any other private or institutional library in the world. Rafinesque items in other Harvard libraries bring the total for the entire University well up to 900 of the 939 listed by Fitzpatrick. Other rich collections are those of the Library of Congress, the Smithsonian Institution, the Philadelphia Academy of Natural Sciences, and the New York Botanical Garden.

Fitzpatrick based his bibliography on an actual examination of Rafinesque material in about twenty of the more important libraries in the United States. For the rarer individual volumes and pamphlets he listed the libraries in which copies are available. In some cases he located only a single copy or at most two or three copies of a given work, in other cases a dozen or more. During the course of current Rafinesque investigations the present writer has succeeded in locating about 90 items not listed by Fitzpatrick. Nearly all of these are to be found in the several Harvard libraries.

These investigations have served to confirm the remarkable scope of the collection at the Arnold Arboretum with regard to Rafinesque's very numerous writings on botany. Because Rafinesque published in certain periodicals wherein one would not expect to find papers on systematic botany, complete sets, or the necessary individual volumes, were acquired by Sargent, such as the *Cincinnati Literary Gazette* and the *American Monthly Magazine and Critical Review*; while from

Atkinson's *Casket, or Flowers of Literature, Wit & Sentiment* a bound volume of rip-sheets from the issues of the years 1827 to 1832 includes every item that Rafinesque published in that non-scientific periodical. There are also thin volumes of rip-sheets covering the Rafinesque items published in the *Medical Repository* (New York), 1804–11, and the *American Journal of Science*, 1818–19. Again it is of interest to note that among the complete sets of periodicals at the Arboretum are the *Journal de physique, de chimie et d'histoire naturelle* (95 volumes), 1777–1822, and the *Annales générales des sciences physiques*, 1819–21, both sets apparently acquired largely because it was known that Rafinesque had published various short papers in these serials. Such general periodicals containing Rafinesque botanical items as were not included in the Arboretum collection, for example the *Western Review and Miscellaneous Magazine*, the *Journal of the Royal Geographical Society of London*, and Oken's *Isis*, with its *Literarischer Anzeiger*, could in almost every instance be located either in the College Library or in another of the departmental libraries.

In addition to botanical material, the Arnold Arboretum is rich in Rafinesque items in other fields. It may impress the casual reader that a strictly botanical library is a strange place for the deposit of such non-botanical works; but it is desirable to have these publications available when one is concerned with an attempt to evaluate Rafinesque and the quality of his work. Thus on the shelves of the Arnold Arboretum Library are found such items as the following, all very rare and now practically impossible to acquire: *Indice d'ittiologia siciliana* (1810); *Statements Respecting a Six Per Cent Savings Bank, or Institution, to Be Established in Philadelphia* (1832), this apparently being the only known copy in any library; *The Pulmist, or the Art to Cure and to Prevent the Consumption* (1829), and the Lanthois French translation, *Le pulmiste* (1833); *A Monograph of the Fluviatile Bivalve Shells of the River Ohio* (1832), Poulson's translation of Rafinesque's original French version; *The American Nations, or Outlines of a National History, Ancient and Modern* (1836); *Safe Banking, Including the Principles of Wealth* (1837); *The Ancient Monuments of North and South America* (1838); *Celestial Wonders and Philosophy, or the Structures of the Visible Heavens with Hints on Their Celestial Religion, and Theory of Futurity* (1838), 'printed for the Central University of Illinois'; *Genius and Spirit of the Hebrew Bible* (1838), 'printed for the Eleutherium of Knowledge and Central University of

Illinois'; *The Pleasures and Duties of Wealth* (1840); and all of Rafinesque's papers on American antiquities, languages, and comparative philology published in Priest's *American Antiquities*. Incidentally there are five editions of Priest's work, issued between the years 1833 and 1841, in the Library.

To indicate the relative completeness of the Harvard University holdings in Rafinesque publications, it is only necessary to note that in the course of the investigations already alluded to it proved necessary to go outside the University in only a few cases. For the articles in Atkinson's *Saturday Evening Post* for 1827 to 1832 the broken set in the Widener Library was supplemented by other numbers in the Boston Public Library and the Library of Congress; in these combined (but individually incomplete) sets every number was located for the years covered. For the *Kentucky Gazette* items dependence was placed on the Library of Congress set; this was a weekly newspaper published in Lexington. The only known copy of Rafinesque's suppressed *Western Minerva*, mentioned above, is in the Library of the Academy of Natural Sciences of Philadelphia. That institution was also consulted for the second volume of Rafinesque's *Specchio delle scienze o giornale enciclopedico di Sicilia*, since when the investigations were initiated Harvard's holdings of this work were limited to volume one in the Arnold Arboretum and a part of volume one in the Gray Herbarium. Curiously, in 1946 a set of both volumes, lacking only the last number of volume two, with all numbers in their original fascicle covers, was acquired by the Arboretum from a Boston dealer. The record shows that this then unbound set of a very rare Rafinesque item had been discarded from the library of an institution specializing in early Americana. This serial was one of Rafinesque's private ventures, published in Palermo in 1814–15. It contains certain important original natural history papers on the plants and animals of the eastern United States.

In the field of Rafinesquiana there is one special item in the Harvard Library that is worthy of note. Richard E. Call's personal copy of his *Life and Writings of Rafinesque* was acquired in 1905 by Daniel B. Fearing of Newport, Rhode Island, and is in the Fearing Collection in the Harvard College Library. Dr Call expanded this copy to two volumes by inserting about 260 carefully selected engravings and prints, including some early maps. The basis of selection was Rafinesque associations, the views being of cities with which Rafinesque was associated, and the portraits of individuals with whom he corresponded, or

whose published works he discussed. In the volume is a single autograph Rafinesque letter, written 8 July 1810, in Lexington, and addressed to the Western Museum Society at Cincinnati.

Some have claimed that Rafinesque was insane, and on the basis of this assumption have apparently felt themselves free to ignore his proposals. Others have considered him as more or less a genius. At times Rafinesque may have been mentally beyond the pale, but in general one judges that while he was erratic he was not actually insane. Apparently he suffered from a psychic disorder, but this disturbance was neurotic in character rather than psychotic. Perhaps there was one time in his career when he was more or less off balance mentally, this being immediately after his shipwreck on Race Rocks, off Fisher's Island, Long Island Sound, in November, 1815. In this disaster he lost practically everything that he possessed, as expressed in his own words: 'My fortune, my share of the cargo, my collections and labors for 20 years past, my books, my manuscripts, my drawings, even my clothes. . . .'[11] He also stated that for some days after landing in New London he was in a state of utter despair.

It was doubtless then or shortly thereafter that he wrote to one of his correspondents in Tuscany the strange letter that Von Welden later saw. In this he stated that following the shipwreck and while swimming for his life he observed numerous new genera and species of fishes and sea plants which he was then describing. Fortunately he never consummated this strange plan, so we are not bothered with the scientific names of the new genera and species that he saw in his mind's eye on that fatal foggy day, 2 November 1815, in the quiet waters of Long Island Sound. This contribution to Rafinesquiana appears in *Flora* (1822) under the title of 'Curiosa,' or in the table of contents as 'Rafinesque Entdeckung neuer Gewachse im Schwimmen'; Von Welden naïvely remarks that the distance Rafinesque swam must have been 'ziemlich lange.'[12] Incidentally, in his *Life of Travels* Rafinesque states that the ship did not sink on striking Race Rocks and that he reached New London in a rowboat.

Rafinesque was indeed a strange character, and this strangeness is reflected in much that he undertook to accomplish. Stories about him,

[11] *Life of Travels*, pp. 48–49.
[12] V, 719.

such as those of Audubon, will doubtless be retold indefinitely, and in general such anecdotes lose nothing in the retelling. One of these is the amusing incident, when Rafinesque was Audubon's house guest, of his smashing his host's favorite Cremona violin while attempting to capture a bat in his sleeping-room, and another is the hoax perpetrated by Audubon, who drew pictures of purely imaginary fishes, on which Rafinesque based descriptions of new genera and new species. The often repeated story, in proof that Rafinesque was insane, of his having actually named and described new species of thunder and lightning is utterly false, as anyone can determine by examining the paper in the *Western Review and Miscellaneous Magazine*.[13] This was one of Rafinesque's meteorological papers in which he described the forms that lightning flashes take; it is not in any sense classification. As Fitzpatrick well says, 'They only discredit themselves who charge that Rafinesque deliberately described twelve new species of thunder and lightning.'

Rhoads, who has considered Rafinesque's nomenclatural proposals in ornithology, concludes his paper with the following statement:

> With the increase of his publications on all sorts of subjects, many of them relating to hobbies undreamed of by his most versatile fore-bears in biological science, the enemies and pecuniary troubles of Rafinesque increased. He had some friends in Philadelphia, who were willing to overlook his faults and stand by him in his worst extremities, but perhaps no man of his talents suffered more keenly in his closing days the ingratitude and neglect of the world which he had so actively endeavored to benefit and enlighten by his researches. Anyone reading his autobiography and willing to overlook the many egoisms and exaggerations of it, will be impressed with the thought that here was a man striving after truth, a real lover of nature, sincerely endeavoring to impart his interpretation of the cosmos to his fellowmen. At the same time he was sadly handicapped by the necessity of making a living out of his discoveries, his peculiarities depriving him of that patronage and encouragement of wealthy friends which is so essential to the best success in the career of a scientific man addicted to poverty.
>
> In 1842 [1840] Rafinesque died in our City of Brotherly Love, uncared for, unloved, alone, and only through the exertions of Dr. James Mease, his executor, was his body rescued from dissection by medical students, and was interred in Ronaldson's Cemetery. . . . It yet remains for Philadelphia naturalists to help fulfil in this instance the maxim which Rafinesque applied to himself at the conclusion of his Life of Travels: 'Time renders justice to all at last.'[14]

[13] I (1819), 60–62.

[14] C. S. Rhoads, 'Constantine S. Rafinesque as an Ornithologist,' *Cassinia*, XV (1911 [1912]), 1–12.

Rafinesque's remains were located in an unmarked grave in Ronaldson's Cemetery, Philadelphia, in 1919, and a suitable marker was then installed. In 1924, when the cemetery was abandoned, his bones were disinterred and together with the marker transported to a crypt on the campus of Transylvania College, Lexington, Kentucky. This is indeed a logical resting-place for the remains of that restless spirit because of his early association, 1819–1826, with the first institution of higher learning established west of the Allegheny Mountains. But in spite of the fact that within the recent decades of the present century there has been a marked increase of interest in Rafinesque's career and in the significance of his accomplishments, no one can truly claim that his successors have fully rendered justice to him.

Rafinesque was suspicious of the motives of others, and from time to time spoke of his secret enemies. He accused this and that individual of having stolen species from him and claimed that others had benefited from his inventions and ideas that might have yielded a fortune to him. A final quotation from his *Life of Travels* [15] may be taken as epitomizing his attitude, although in all frankness it cannot be claimed that the motto quoted by him, 'Time renders justice to all at last,' has been fulfilled in his case:

> Whatever may yet be my fate, inaction does not suit me. Resigned to the Divine will, I ever act as a Philosopher in doing the best I can. I have already experienced many misfortunes, shipwrecks and losses; I have often been discouraged, but have never dispaired long. I have tryed to serve mankind; but have often met with ungrateful returns. I have tried to enlarge the limits of knowledge; but have often met with jealous rivals instead of friends. I have tried to instruct and enlighten by my writings; but my pen has often been snatched or compelled to be idle for awhile.
>
> With a greater fortune, or if I had not lost my estate several times by revolutions and shipwreck, I might have imitated the Humboldt, Linneus, Pallas, Klaproth. . . .
>
> If I have often gone beyond the actual state of knowledge in my views and opinions, or anticipated on future knowledge, it was with the noble aim of adding my mite to the mental improvement of mankind. If my discoveries and projects have not been speedily admitted, I leave them as a Legacy to those superior minds who will be able to appreciate them, and bestow me the justice often denyed in my days: to the friends of useful sciences, of virtue and peace, to the wise Philanthropists, to the enlightened liberal and impartial men of both hemispheres.

ELMER D. MERRILL

[15] Pp. 113–116.

List of Contributors

Elmer D. Merrill, Arnold Professor of Botany, Harvard University

Elizabeth Cook, Girton College, University of Cambridge

Anna C. Holt, Librarian of the Harvard University Schools of Medicine and Public Health Library

Hamilton Vaughan Bail, Treasurer of the Franklin Institute, Philadelphia, Pennsylvania

Louis M. Lyons, Curator of the Nieman Fellowships, Harvard University

Keyes D. Metcalf, Professor of Bibliography, Director of the Harvard University Library, and Librarian of Harvard College

Theodore Spencer, Boylston Professor of Rhetoric and Oratory, Harvard University

George Sherburn, Professor of English, Harvard University

Harry Levin, Associate Professor of English, Harvard University

Ruth Mulhauser, Associate Professor of Romance Languages, Flora Stone Mather College of Western Reserve University

Robert H. Haynes, Assistant Librarian of the Harvard College Library in charge of the Reference and Circulation Division

Roland H. Moody, Keeper of the Collections, Harvard College Library