DEBUNKING THE *SEQUOIA* honoring SEQUOYAH MYTH

GARY D. LOWE

DEBUNKING the *SEQUOIA* honoring SEQUOYAH MYTH

The naming of the genus of the coast redwood
and the genus of the giant sequoia for 85 years.

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"What is a man born for but to be a Reformer,
a Re-maker of what man has made;
a renouncer of lies; a restorer of truth and good …?"

Ralph Waldo Emerson,
January 25, 1841
Man the Reformer

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Since the publication of “How the Sequoias Were Named” in 2013, attempts by others to falsify the theory that Endlicher named the genus *Sequoia* from a derivative of the Latin verb “sequor”, based on his having classified the genus, along with four other genera, as following a precise recursive numerical sequence of the median number of seeds per cone scale has resulted in additional historical research that recovered hitherto unidentified information. By necessity, “Debunking the Sequoia honoring Sequoyah Myth” is a new book and not a second edition of the earlier work.

6 5 4 3 2 1

The conceptions by which facts are bound together
are suggested by the sagacity of discoverers.
This sagacity cannot be taught.

William Whewell
Philosophy of Inductive Sciences, 1858

debunk – to expose the sham or falseness of a hero legend.
Webster's New Collegiate Dictionary

debunk – to expose or ridicule the falseness, sham, or exaggerated claims of.
The American Heritage Dictionary

debunk – to show that something is not true.
Cambridge Dictionary of American English

"things that are ancient and false and monstrous are called myths"
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H L. Jones' translation of Strabo's *Geograpy*

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Author of the Plant Name *Sequoia* in 1847.

On the occasion of being awarded the Prussian “Ordens pour le Mérite”
in the Friedensklasse, 17 August 1844.
Illustririte Zeitung, 5 July 1845, Vol. 5, No. 105, pp.11-12.

Preface

This study concerns the invention of the botanical name of two trees, whose popular names have settled on coast redwood, *Sequoia sempervirens* (D. Don) Endl., and giant sequoia, *Sequoiadendron giganteum* (Lindl.) Buchholz. From 1854 to 1939, the giant sequoia was classified in the genus *Sequoia*. The genus *Sequoia* was named in 1847 by Stephen L. Endlicher, Professor of Botany from 1839 to 1849 at the University of Vienna, Austria. As in the foregoing sentences, the common names will begin with a lower case letter. Where the word "sequoia," with or without a capital letter, is referring to the word for the name, but not the genus name, italics are omitted. In some historic quotations the word "Sequoia" is used as a spelling of Sequoyah's name. Hopefully, this will lessen the confusion when the common name and the scientific name appear in close proximity or when the common or the personal names are used anachronistically.

Debunking the *Sequoia* honoring Sequoyah Myth is a philological study. Stephen L. Endlicher died in March 1849. In the 170 years that have come and gone, the content of nearly all of his books, botanical, philological, sinological, etc., have for the most part become obsolete, archaic, old-fashioned, antiquated; in a word, ancient. Therefore, working with Endlicher's books is an exercise in philology: the study of ancient texts, focusing on problems of language, anachronism, and the effort to understand the ideas and customs underlying the now ancient texts. Kelley (1991) remarked that "out of philology emerged as well the arts of historical criticism on the basis of which truth might be extricated from myths and corrupt traditions of the past and an authentic modern history might be formed."

Much of the impetus of the history of the naming of the genus *Sequoia* centered round the genus name *Sequoia* for the giant sequoia. The giant sequoia has the honor of having one of the most historically vacillating names of California's plants, both botanical and popular. It is not the intent of this study to discuss the several

botanical or popular names of the giant sequoia, though some are mentioned in their historic context.

Tradition is that Endlicher named the genus *Sequoia* either as a consequence of his botanical practices, deriving the word from the Latin verb “sequor” or to honor the inventor of the Cherokee syllabary, Sequoyah, because of Endlicher’s philological interests. In the last half of the nineteenth century explanations were offered and one dominated the popular literature of the twentieth century. In the second decade of the twenty-first century perhaps equally sagacious scientists, cum historians, each constituting their own superlative endeavor, have approached this narrowly focused topic of the history of plant taxonomy.

Endlicher did not explain his invention of the word “sequoia.” Consequently, the only approach to understanding why Endlicher invented this word is through hermeneutics, the science or art of interpretation. As such, each of the scientists, cum historians’ opinions may be no better than the other. Each may confirm whatever prejudices he or she brings to their research. As Austrian-British philosopher Sir Karl Popper wrote in his [1945] 2013 book *The Open Society and Its Enemies*, “there will always be a number of other (and perhaps incompatible) interpretations that agree with the same records.” However, each of these interpretations should conform to the advice given by Louis Gottschalk in his 1969 book *Understanding History: A Primer of Historic Method* (quoted from Roberts 1996); the use of history to promote [understanding] is valid only if the historian does not falsify the past – the historian must tell children the truth about their heroes – be they coast redwoods, giant sequoias, Endlicher, or Sequoyah.

Acknowledgements

Ascertaining the why and how of Stephen L. Endlicher's naming of the genus *Sequoia* would have been very exhausting and cumbersome at the end of the 1990s when studies of the cultural history of the giant sequoia began. Endlicher's books were scarcely available in California and examination, yet alone using, those precious 36 volumes would have entailed using considerable vacation time and great expense to travel to where copies were held. By the time that Endlicher's Sequence was worked out in 2009, nearly all Endlicher's writings were available on the Internet, either as scanned images, or combined with optical character recognition text versions. By 2010, these volumes could virtually be accessed out of thin air [1].

All but perhaps as few as seven of Endlicher's books, pamphlets, and articles, as well as many of those of his colleagues and contemporaries, have been made available online either through Project Gutenberg, Google Books, or through the Biodiversity Heritage Library, as well as other online repositories. Therefore the highest level of acknowledgement is due the many thousands of individuals that have made this technologically possible.

As stated in the Preface, reconstructing Endlicher's motivations concerning his naming of the genus *Sequoia* has been undertaken by two scientists, cum historians: Lowe (2012) [2], based on the plant's classification falling in a sequence and derivation from the root of the Latin verb "sequor" and by Muleady-Mecham (2017) [3] as an epithet to Sequoyah. In spite of the obvious bias that the title of the present undertaking exudes, considerable thanks are due Muleady-Mecham for exploring and exhausting the possibilities of supporting the view that the genus *Sequoia* was named to honor Sequoyah.

Though not including separate or footnoted elucidations, the methodology of Imre Lakatos (1970) is exhibited in reporting on the investigation. "Endlicher and Sequoia: Determination of the Etymological Origin of the Taxon *Sequoia*", was published in the

Bulletin of the Southern California Academy Sciences, the (*Bulletin*). Therefore, the journal takes ownership of the authority of the article. Since for nonspecialists, this journal article is as readily available through the internet as are Endlicher's publications, something must be said about its very real limitations. This book began as a simple list sent as a 'letter to the editor' dated September 19, 2017, followed by the requested submission as a "Research Note" on September 22, 2017; briefer than the present undertaking. The *Bulletin* and its editors are not members of COPE.

As the present work demonstrates, a major support for the *Sequoia* honoring Sequoyah argument has always been the similarity of the pronunciation of the two words. However, when all the various lines of support are assessed, "there comes a point when an argument finally collapses under the weight of too great a coincidence" [1].

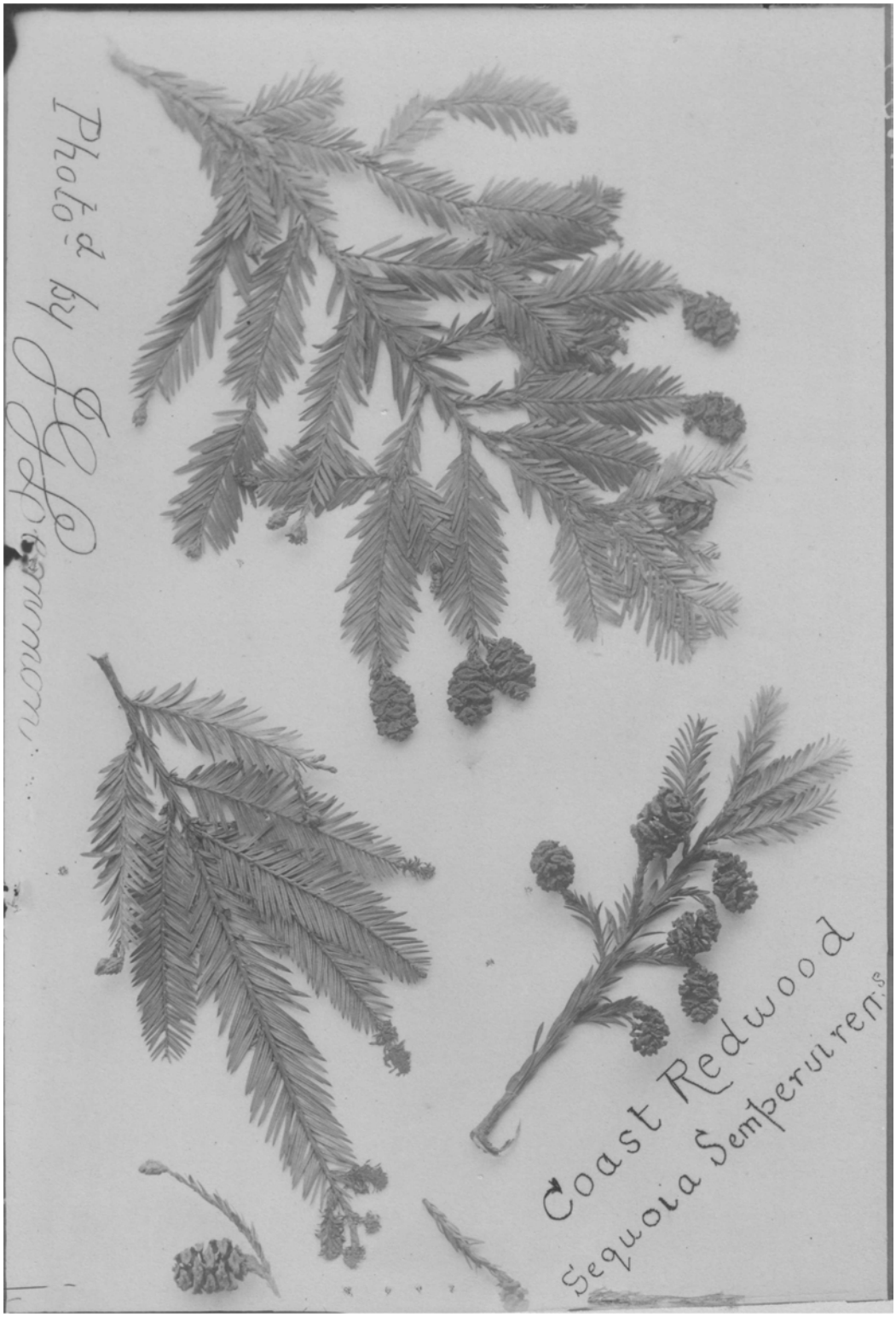
1.) From a phrase used in Peter D. Ward's 2006 *Out of Thin Air*: Joseph Henry Press, Washington, D.C.

2.) Lowe, G. D., 2012, Endlicher's Sequence: The Naming of the Genus Sequoia: *Fremontia*, Vol. 40, No. 1 and 2, pp. 25-35. The article is cited conventionally, as "Lowe (2012)" and can be found at the following URL:

https://cnps.org/wp-content/uploads/2018/03/FremontiaV40.1_40.2.pdf

3.) Muleady-Mecham, N. E., 2017, Endlicher and Sequoia: Determination of the Etymological Origin of the Taxon *Sequoia*: *Bull. Southern California Acad. Sci:* Vol. 116, No. 2, 2017, pp. 137–146. In Part I of what follows, this article is also referred to as "*Bulletin* article" because any authority lies with the peer reviewed journal. Part II merely refers to the article as the "*Sequoia* honoring Sequoyah hypothesis," "the subjective case," or simply as "the argument." The *Bulletin* article can be found at the following URL:

http://scholar.oxy.edu/scas/vol116/iss2/6/



John Gill Lemmon's herbarium sheet of coast redwood.

(see pages 6-8 for Lemmon's involvement in diagnosing the issue of naming the genus *Sequoia*.

WHY *SEQUOIA*?
WHY SEQUOYAH?

Beginnings of the Myth – Beginnings of Etymological Truth

Prologue
Beginnings of the Myth*

Popularity of Endlicher's possible derivation of the name Sequoia from the Cherokee man Sequoyah began in 1868 with publication of *The Yosemite Book* by the Geological Survey of California. In his chapter on "The Big Trees," the author, Josiah Dwight Whitney, State Geologist, clearly states:

> "The genus was named in honor of Sequoia* or Sequoyah, a Cherokee Indian …, better known by his English name of George Guess, … known to the world by his invention of an alphabet and written language for his tribe." For the asterisked "Sequoia*", Whitney footnoted "This is the way the name was spelt in an article published in the 'Country Gentleman' which attracted Endlicher's attention, and led him to adopt this name for the genus. It is also, and more generally spelt 'Sequoyah,' which is the English way of writing it, while the other is what it would naturally and properly be in Latin."

However, this citation is impossible. The first issue of the Albany, New York based magazine *The Country Gentleman* was not published until November 4, 1852 (Mott, 1938), three and a half years after Endlicher's death!

The article that Whitney was referencing had appeared in *The Country Gentleman's* literary page called "The Fireside" in the issue for January 24, 1856: "The American Cadmus. The Sequoia Gigantea - The Great American Tree and the Great American Genius for Whom it is Named." The article was anonymous, but it was attributed "to an esteemed correspondent in Maryland." The anonymous author stated:

> "Pray, Messrs. Editors, where does the name come from? Is it an intentional thing, or is it an accident, that the American tree should bear the name of an American who deserves any such honor … . The honor must be intentional; but if not, the accident is most gratifying." And as a closing statement, "If the huge monuments erected by Nature - the *Sequoia Gigantea*, are dedicated to his name, it is a thing well done."

* – A few of the ellipses are for passing through 19th and 20th century disparagements.

The Fireside.

The American Cadmus.

THE SEQUOIA GIGANTEA—THE GREAT AMERICAN TREE AND THE GREAT AMERICAN GENIUS FOR WHOM IT IS NAMED.

[We are much indebted to an esteemed correspondent in Maryland, for the following very interesting paper.]

MESSRS. EDITORS.—In a late number of the COUNTRY GENTLEMAN, you favor your readers with an article on the great tree of California. *The* great tree it is indeed shown to be, by the wood-cut which represents our tall pines and elms beside it, as chinquepin bushes at the foot of a full grown chestnut. As to the assertion of how many miles of plank road it might be sawed into, &c., the assertions are scarcely illustrations; we don't know how to believe them. THE GREAT TREE! what better name can be given it? There is no danger of any other specimen of vegetable growth venturing to compete for this term of excellence. There is to my ear something in the simplicity of the name akin to the grandeur of the wonder of its genus. As we say *Adam*, that is, simply *man*, when we speak of the first father; so we might say the *great tree*! But botanists could not consent to such simplicity. The great tree must have a more scholarly appellation; and two nations dispute as to what it shall be. Shall it be that of Wellington, the great man of the last age of Englishmen? or of Washington the man of our country and of all ages? As it is our tree, we are naturally disposed to call it what we please; but you say that the English are likely to get the better of us in the matter, having first described it—in botanical language, that is,—for I doubt not it was called the Great Tree in languages forgotten, before that of Wellington was formed. But whether it is to be *Wellingtonia* or *Washingtonia*, it *is* SEQUOIA.

Pray, Messrs. Editors, where does this name come from? Is it an intentional thing, or is it an accident, that the American tree should bear the name of an American who deserves any such honor—who ought to be well known, but who is in fact utterly unknown to the great body of us White Americans? The honor must be intentional; but if not, the accident is most gratifying. *Sequoia* is the name of the American Cadmus,—the inventor of the Cherokee alphabet. It is said that the growth of written language was slow; but in our day a sage of the woods, from his own philosophic mind, gave to his people the permanent right of their thoughts. I have said that his story is too little known, suffer me therefore to tell it. I write from memory, but the main facts of what I write, I know are correct.

About 30 or 40 years ago, in the back part of Georgia, a number of Cherokee Indians were engaged in the discussion of the contrast of the White and Red races. The superiority of the pale faces, was readily acknowledged. Poor things! The wrongs to which they were forced to submit, were proof enough for their conclusion. But to what was this admitted superiority due? Doubtless in part to the ability to talk on paper, and so transmit wisdom from father to son. Next came up the question, How did the pale faces acquire this power? A ready answer was found:—The Great Spirit gave it to him. The answer was accepted by the majority; but one man dissented. He ventured the opinion that the white man found out for himself how to talk on paper; and the red man might do the same for himself, if he would apply himself to the task. The bold assertion met with no favor, but was silenced by ridicule, and the maker of it went away from the lodge with feelings often before known to men wiser than their day. "The breeze which puts out a candle, kindles the mouldering fire;" so ridicule, which would have smothered thought in a weak man, changed conjecture into purpose in the breast of this man. He would do what he was sneered at for supposing possible.

The man was a thorough Indian, in his education and in his habits differing in nothing from his nation, and speaking only Cherokee. Perhaps he was more industrious and more ingenious than the great body of Indians, for he was a kind of tinker, making the nose-rings and ear-rings, and other silver ornaments, which our Indians wear. He was in the habit of marking his work with a stamp which had been made for him by a white man; he knew that white men could express words by signs, and he had a fragment of a spelling book, which was a *sealed* book to him, for he did not even know how these signs expressed the sounds of English. This was all that he had to fit him for the task he had assumed.

It is probable that he supposed the star, (or whatever mark his punch made,) stood for his name—Sequoia—for his first effort was to invent a sign for every Cherokee word. A long while was spent in this effort. As the signs multiplied beyond his power to recollect them, his heart must have sunk;—but he did not abandon his purpose. At length light began to dawn on him. He discovered that his words could be divided into syllables, that the same syllable entered into the composition of many words; that language was made up of but a few sounds, variously combined, and therefore he had but to give signs to these sounds—properly combine them, and his end was gained. He was at this time living apart from his people, absorbed in his labor, seeing no one but a squaw, either a young wife or his daughter, (for he was somewhat advanced in life at the time) who supplied him with food. Once on the right track he made rapid advances. He had already, as he thought, finished his work, when luckily he determined to teach his new science to his young attendant first. She had a more accurate ear than his, and became an aid to him in making more simple her notation of sounds. She detected differences which he had not perceived and pointed out what had escaped him, how certain other sounds were combinations—not simple, and therefore not needing a separate character. Through their joint analysis the whole language is reduced to less than ninety syllables, each having its distinct character. Satisfied, at last, with the perfection of his work, he called together again those whose ridicule had first stirred him up to the effort; and with honest pride declared that he had done what he had said could be done. "I have learned," said he, "how to talk on paper. The red man may hereafter do what the white man has done. You will not believe me! give me ten lads of your own choosing, and I will soon give you proof that any one may learn what I tell you I know."

Of course, however much indisposed to believe, they could not refuse his demand. The boys were chosen; were taught to form the alphabet, and to call the letters by name; when familiar with this much they had learned to read and write. There were no incomprehensible combinations to represent one sound at one time and a different sound at another. Instead of, (as in our tongue) reading being a task for months, or years, and spelling an uncertainty for most lives; a few days sufficed to make these young Cherokees masters of the mystery which costs us so much.

At the appointed time Sequoia and his scholars appeared before the assembled chiefs of the nation. With what triumph must he have seen the astonishment which followed the proofs of his success! Still on the part of some of the more wary there was suspicion. "The boys seemed to read; and they seemed to write; but who could tell that they really did so? Let us be certain that there is no deceit." Accordingly all the scholars were turned out of the lodge, while one of the chiefs made a speech, which the man of letters was required to write down. He did so; and then each of the boys was in turn called in; and when each in turn read off the same words, doubt was at an end: the truth was gladly admitted—the red man can talk on paper! Since 1828 a newspaper has been printed in Cherokee. Many books are also now printed in the syllabic characters of Sequoia, or Jno. Overt, as he is called in English. The white men have given to other tribes a written language—but the Cherokees are indebted to one of themselves for the inestimable boon! History does not furnish a parallel instance of a perfect system of written speech discovered by one untaught.

Sequoia* is, I believe still living—if so, an old man—and now, as always, a simple Indian, scarcely known beyond his tribe. I have a proof of how little known to many an American, for I chance to own an engraved portrait of the man, which I have shown to a great many persons, and have scarcely found any to whom his history was not a thing before unheard of. If the huge monuments erected by Nature—the *Sequoia Gigantea*, are dedicated to his name, 'tis a thing well done.

Agricultural Education.

WRITTEN FOR THE CO. GENT. BY SAMUEL W. JOHNSON.

No. II—TEACHING SCIENCE.

The object of the Agricultural School is to make farmers of high excellence, and to contribute to the general adoption of an advantageous system of Practice. Practice, I conclude, is to be taught, but not performed in our school. Not because the young farmer may be satisfied with a merely speculative theoretical knowledge, but for the reason that the best place, every way considered, to acquire an actual familiarity with farm operations, is the farm itself. The school is reserved exclusively for supplying that which comes from no other source.

Practice should be taught. All that can be gleaned from the whole history of husbandry, from all times and all countries, that is useful, should be brought before the pupil. Practice should of necessity occupy the first rank, and be held up as the great object to be attained; and yet, though every study and exercise must be subservient thereto, it, itself, need not, nay, must not, occupy the larger share of attention. This larger share of attention must be devoted to those studies which form the appropriate preparation to the study of Practice. Practice is to be *studied*. This does not merely mean committing to memory *how* A. B. and C., model farmers, plow, sow and reap—how they stable, fatten and slaughter, but learning *why* they do thus and so. Practice is not only to be *apprehended*, or passively received into the mind, but must be *comprehended*, or understood. Observation and memory must only serve to acquire and retain that whereon the understanding may exercise its analysis.

We wish that henceforth Agriculture shall have less of empiricism, which not only makes the great art fail to fulfil its duty in supporting the physical life of humanity, but, usurping the throne of Reason, keeps our mental life abject, and our spiritual natures incomplete. This important part of Agricultural Education, preparatory to Practice,—which shall introduce the reasoning and understanding elements into husbandry, and it is to be hoped, ere long to establish them there as household divinities,—which shall at once minister to animal necessities, and to higher wants not less needful though less felt,—which is finally the *only* foundation on which a perfect system of Practice can be built, is SCIENCE.

The Agricultural School should require a certain grade of scholarship of all who seek admission to it. The special studies which it is its business to teach, cannot be advantageously pursued without certain previous knowledge and mental cultivation. The applicant should be examined as to his proficiency in the English language, in Arithmetic, Algebra, Geography, Natural History, Chemistry, Geology, Botany and Physiology, and should be expected to possess such a knowledge of these subjects as our Academies and many of our District Schools furnish abundant facilities for acquiring.

"But, my dear sir," say you, "where do you ex-

* Perhaps some of our readers in the Cherokee nation will take the pains to furnish us with further facts in the life of this most remarkable man. EDS. C. G.

"The American Cadmus"
The Fireside literary page in *The Country Gentleman*,
January 24, 1856, page 65.

This article appeared a few months after the bark of the giant sequoia "Mother of the Forest" from the North Grove in Calaveras County, California had been exhibited in New York City's Crystal Palace (Lowe 2007). Henry Wadsworth Longfellow's epic poem *The Song of Hiawatha* and Walt Whitman's *Leaves of Grass* were published during the previous year. This was the age of Romanticism and the Noble Savage. The quote above expresses a noticeable measure of uncertainty in understanding the basis for the naming of the genus *Sequoia*. The author is discussing the controversy of the naming of the giant sequoia as *Wellingtonia* versus *Washingtonia*; that had been settled as *Sequoia*. There is neither mention of the coast redwood, nor mention of Endlicher. Thus, in the popular mind, the association of the Cherokee man Sequoyah was with the giant sequoia of the Sierra Nevada, not the coastal trees considered by Endlicher.

The anonymous Marylander's lack of grasp of the historic facts are evident, "… the syllabic characters of Sequoia, or Jno. Overt, as he is called in English. … Sequoia is, I believe still living – if so, an old man – and now, as always a simple Indian, scarcely known beyond his tribe." The "simple" Indian's Cherokee name was spelled in the English alphabet as "Sequoyah" on the "engraved portrait of the man" from a book by McKenney and Hall (1854 & 1855), yet the anonymous author chose to spell his name Sequoia. Sequoyah's Euro-name, though confused, was George Guess, the surname sometimes spelled Gist, and he had died over a decade prior, in 1843.

In 1860, Thomas Meehan, editor of the journal *The Gardener's Monthly* published an article submitted by J. H. Lippincott, with the title "Sequoia versus Washingtonia." In establishing authority for Lippincott, Meehan states, "Our intelligent correspondent, himself having family relationship with the Cherokees, renders the history the more reliable." In the article, Lippincott writes:

> "Whence is the name Sequoia derived? Has it been intentionally applied, or is it an accident that this American tree commemorates the name of an American, of whom, perhaps, few white men have ever heard. Away with the names Washingtonia and Wellingtonia, and all honor to See-quah-yah, the American Cadmus, the inventor of the Cherokee Alphabet. Surely if the genus were not named in his honor, it should be now."

> "Let the name of See-quah-yah, whose genius towers aloft above that of every other native of this inventive land, live forever in the majesty of the denizens of the primeval forest that bear his name in Sequoia." (followed in square brackets by) [Endlicher does not give, in his *Synopsis Coniferae* (Sic) where he names and describes the genus, any reason for his choice of the name, and as he was no less noted for his philological knowledge than his botanical, it is not at all unlikely that he knew sequoia's (Sic) history, and that L(ippincott) has hit on the secret.

In recounting his version of the Sequoyah syllabary story, Lippincott uses for the spelling of Sequoyah's name, both Sequoia and See-quah-yah in the same "line of set type." This implicates a direct connection between the two words to his English language audience.

In 1862, George Gordon, in the *Supplement to Gordon's Pinteum* provided an etymology for the Genus Sequoia – "The name *Sequoia* is probably derived from "Sequence," separated, or following in order of succession, after Taxodium; from which Genus Professor Endlicher separated it."

Harvard University botanist Asa Gray had a long interest in the genus *Sequoia*, particularly the giant sequoia. He first read of the reclassification of the coast redwood "as a separate genus under the unmeaning and not euphonious name of Sequoia" in 1854. In 1872 Gray presented the Presidential Address to the annual meeting of the American Association for the Advancement of Science held at Dubuque, Iowa; *Sequoia and Its History*, covering the state of the art concerning the geologic and phytogeographic history of the genus *Sequoia*, and not at all concerned with the history of the naming of the genus. In a brief article published in the February 28, 1873 issue of the Saint Louis, *Missouri Republican* (newspaper) attributed to George Engelmann, the statement was made that Endlicher, "had named it Sequoia, in commemoration of the aboriginal linguist." Following Engelmann's death in February 1884, Asa Gray and William Trelease edited a collection of Engelmann's botanical works in 1887. Included in this volume on page 388 is the newspaper article mentioned above. The article supporting the *Sequoia* honoring Sequoyah hypothesis cited this collection of Engelmann's works as: "He (Gray) also edited a book of George Engelmann's work where Engelmann and Gray reiterated the origin of the genus Sequoia for the man, Sequoyah", as

representing Gray's opinion in 1887. Clearly, this was Engelmann's opinion in 1873, and not Gray's as the editor.

Asa Gray and Joseph Dalton Hooker toured California in 1877. Following Gray's visit, John Gill Lemmon published a serial article titled "The Cone-bearers, or Evergreen Trees of California" in the San Francisco based journal *The Pacific Rural Press*. A paragraph from installment No. 5, February 15, 1879 was "picked up" by Meehan's *Gardeners Monthly and Horticulturist* as "Derivation of Sequoia." From his discussions with Gray in 1877, Lemmon concluded that:

> "The generic name Sequoia was given by Endlicher because this genus is a lone follower (*sequi*, to follow) of vast colossal forests. By others said to be derived from 'Sequoya.' The celebrated Cherokee Indian; but this is no doubt an afterthought and unworthy to be kept up."

The matter of the "Origin of the Name Sequoia" was again taken up by Lemmon in the Third Biennial Report (1890) of the California State Board of Forestry. Lemmon carried out his investigation by reviewing the above cited literature and by conducting a minimal opinion poll among "the principal dendrologists of the East and Europe". His "Letter of Inquiry" (also substantially published in *The Gardener's Chronicle*, June 28, 1890, p. 798) Lemmon asked,

> " First, in regard to the origin of the name *Sequoia*. It is current among us Americans that Professor Endlicher so named our Redwood in honor of Sequoyah, a … Cherokee, who had invented an alphabet for his tribe; but as long ago as 1878 Dr. Gray assured me that such a reference was an after-thought; that Endlicher certainly meant by *Sequoia* that our giant tree was a sequence, a follower, as it truly is the rear guard of a past procession of prodigious species.
>
> Now, what is the fact in the case? Did Endlicher leave any statement of his reason for coining the word *Sequoia*?"

Only five replies to his letters were reported. Two of the replies did not respond to the inquiry. Alphonse De Candolle replied:

> "The supposed origin of the word Sequoia is entirely fanciful, having no basis. Endlicher seems never to have said why he had taken this name. … Koch in Dendrologi, 1872, Vol. 2, Part II, p. 173 says: 'It has its origin in California.' He gives no proof of the assertion, but by the appearance of the name it seems to be very probable that the name originated or was taken up

by the natives, and perhaps written more or less correctly. … After all, it matters little, *a name is a name*."

Thomas Meehan responded that on the basis that Gray did not object to the Lippincott article back in 1860, quoted above, that Gray accepted the Sequoyah derivation at that time, but had, if Lemmon had not misunderstood him, changed his mind after 15-16 years. And, Joseph D. Hooker, late Director Royal Botanical Garden, Kew indicated that his opinion was that Gray had accepted the name *Sequoia* honoring Sequoyah. From the conflicting opinions reviewed, Lemmon concluded, "So the name is still a myth" (Lowe 2012). The nineteenth century thus concluded ambiguously.

Continuity in the Twentieth Century

The natural sequences that were considered by nineteenth century authors from which Endlicher might have derived the genus name *Sequoia* were unconvincing and it would take passing of the twentieth century before Endlicher's sequence was discovered. For most of the twentieth century the alternative interpretation that the genus name *Sequoia* was in honor of Sequoyah was in vogue.

The twentieth century opened with national parks having been established to help preserve the giant sequoia. The century would be well underway before equal consideration would be granted to the coast redwood. As a consequence of supporting the parks and further preservation efforts a considerable body of literature was developed, most of which cites the case for the genus *Sequoia* having been named for the Cherokee Sequoyah. What follows is an annotated chronology of some of the twentieth century literature. Some of these bibliographic entries are important for their silence on the subject. Since these sources are mentioned below, they are not repeated in the references at the end of this volume.

1902, left over from 1896 – Charles Sprague Sargent's *The Silva of North America*, volume 14 (previously 10), "The name of the genus immortalizes Sequoyah, the inventor of the Cherokee alphabet."

1907 – Galen Clark, "Discover of the Mariposa Grove of Big Trees, …, and for many years Guardian of the Yosemite Valley"

published his small volume *The Big Trees of California – Their History and Characteristics*. Clark wrote, "The name *Sequoia* is supposed to be derived from Sequoia (or Sequoyah), a Cherokee Indian …, who invented an alphabet and written language for his tribe."

1908 – The monthly magazine *The American Naturalist*, a widely circulating journal intended for young Americans, published an article with the title "Why Named Sequoia." extracted from an article by John D. Ross in the *Los Angeles Times* newspaper, an article that was picked up by several newspapers across the United States: e.g., *Marion Daily Mirror* (Ohio), February 27; *Greencastle Herald* (Indiana), February 28; *The Allentown Leader* (Pennsylvania), March 3. John Ross tells his version of the Sequoyah and Cherokee Syllabary story, and then states:

> "A great American scientist with a soul attuned to the fitness of things Latinized the Indian name to sequoia and gave it to California's great trees. And what name for the greatest of American growths could be more appropriate than that of one of America's early race?"

1908 – In *Forest Trees of the Pacific Slope* by George B. Sudworth, published by the U. S. Department of Agriculture, Forest Service, the naming of the genus *Sequoia* did not enter into the text.

1909 – From *The Trees of California* by Willis Linn Jepson, "(The Cherokee chief, Sequoyah, who invented an alphabet for his tribe.)"

1910 – In *The Silva of California*, Jepson expands this to say, "Endlicher does not explain the origin of the generic name, but that it was given in honor of the Cherokee Indian, Sequoyah, is accepted by authorities as most highly probable and is at least happily appropriate."

1913 – In *California Redwood Park*, compiled by Arthur A. Taylor, for the California Redwood Park Commission, quoting State Forester Homans:

> "In 1847 Endlicher, a German botanist, believing that it was a distinct genus, published it under the name of *Sequoia*. This author, contrary to custom, omitted to give the origin of his name, and botanists have

> conjectured that it was intended to commemorate 'Sequoyah,' a … Cherokee Indian, who, all by himself, invented an alphabet and taught it to his tribe by writing it upon leaves. …"
>
> "It seemed fitting that the redwood should be named for the red man, yet Prof. J. G. Lemmon and others consider it to have been derived from sequor (to follow) alluding to the fact that our redwoods are the followers of a vanishing prodigious race, which Prof. Lemmon considers a much more appropriate and pleasing origin for the botanical name of our monster tree.

With the establishment of the National Park Service in 1916, came visitation promotion and improvements in access, and tourists hungry to be informed about what they were observing. Several privately written and published books attempted to fill this void with monographic volumes of varying scope and merit. These monographs can be found listed in Lowe and Kruska (2016). Stanford University Press came to the rescue with two editions and over ten printings of *Big Trees* by Sequoia National Park management: United States Commissioner, Judge Walter Fry and Superintendent Colonial John R. White.

1930 – First Edition. Reprinted twice, in 1931 and 1935 – *Big Trees* by Fry and White. The first edition of Fry and White's *Big Trees* did not mention plant naming issues.

1938 – Second Edition. Reprinted seven times, in 1940, 1942, 1945, 1946, 1948, 1959, & 1969 – *Big Trees* by Fry and White. The second edition of Fry and White's *Big Trees* added a closing chapter titled, "Naming of the Big Tree":

> " No tree is more happily named than the sequoia. These largest American trees now bear the name of one of the most distinguished American Indians. The name was given through the fortunate chance that an Austrian botanist, Stephen Endlicher, was also a linguist and a student of American History and ethnology." [No verification of this last clause has ever been presented by anyone.]
>
> " … Endlicher was a student of history and languages who knew of the alphabet prepared by the Cherokee Indian, Sequoyah; and he felt that the great Red Man should be honored by having named after him the Great Red Trees. And so the Coast Redwood was named *Sequoia sempervirens*." [Endlicher had never seen a coast redwood and the giant sequoia had not yet been discovered. In his description of the genus *Sequoia*, he did not

mention the bark (corticem, cortex, corticis) or use any of the Latin words for variations of the color red in *Synopsis Coniferarum*, Endlicher 1847; see Appendix C.]

The number of popular books has flourished since the late 1940s, each mentioning or retelling the Sequoyah story. With concerns over giant sequoia regeneration, research funding became available and publications soon followed under the auspices of the National Park Service.

1975 – *The Giant Sequoia of the Sierra Nevada* by R. J. Hartesveldt, H. T. Harvey, H. S. Shellhammer, and R. E. Stecker. These authors provided a more balanced presentation:

> "The name Sequoia has been most popularly represented as the Latinized version of 'Sequoyah,' the name of a remarkable Cherokee Indian from the southern Application Mountains. … Although popular writings often recorded Sequoyah as a chieftain, he held no such position in the Cherokee Tribe."
>
> "Unforgivably, however, Endlicher omitted the etymology of his new genus in his *Synopsis Coniferae* [Sic], contravening [a] recommended procedure of botanical nomenclature. [Providing etymology of plant names was neither required nor customary in Endlicher's lifetime, and were not part of Linnaeus' procedures. International rules that included an etymplogy began taking shape in 1867.] No one has ever found mention in his [Endlicher's] writings of Sequoyah's name or of his unique Cherokee syllabary. It was apparently assumed that Endlicher, a known philologist, admired the Indian for his linguistic accomplishments. The assumption became widespread, and some botanists, such as Asa Gray, searched the Endlicher papers for confirmation, but in vain. French botanist de Candole agreed with Gray that 'the supposed origin of Sequoia from Sequoyah or Sequamal [this name is an enigma] is entirely fanciful' [This is not what de Candole wrote, see above]. Although Koch (1873) believed its origin to lie in one of the California Indian languages, his contention lacks support." [The statement concerning Gray's searching Endlicher's papers is unsubstantiated. Though Gray mentions Endlicher in connection with his May 1887 visit to Vienna where he went 'to a meeting … at the new and immense, but mostly yet unarranged, Natural History Museum, … had a look at the Hofherbarium on the upper floor …' with no mention of Endlicher's papers (J. Gray 1893.]
>
> "Gray thought that the stem of the word had derived from the Latin *sequi* or *sequor*, which means 'following,' and was an allusion to the two extant species as followers or remnants of many related forms now extinct (Bellue 1930 [*Yosemite Nature Notes*, v. 9, n. 8, p. 75 – summarizes what

> has already been said]). If there was an association with Sequoyah in Endlicher's mind, Gray felt, surely it was an afterthought … . De Candolle dismissed the word's origin as unimportant, but others did not, hoping perhaps to rescue a name of American origin for an American tree. Whatever the origin, the name of this remarkable tree has remained generally associated for more than a century with the remarkable Indian, Sequoyah. Perplexity and doubt notwithstanding, let it so remain.

So here we have it. Western thought was long ago advised that,

> "if a myth comes along you must tell it but not believe it entirely; no, make it known for your audience to make of it what they will."
>
> Lucian of Samosata (circa 150-200 C.E.),
> *How to Write History*.

Between the establishment of the national parks in 1890 and establishment of the National Park Service in 1916, the parks were under the protection of military authority. Pseudomilitary uniforms were devised for National Park Service personnel, thus giving them a militaristic authority. Books by General Grant National Park and Sequoia National Park management imply the same officialdom: United States Commissioner, Judge Walter Fry and Superintendent, Colonial John R. White; a firm official command for the name *Sequoia* deriving from Sequoyah was present.

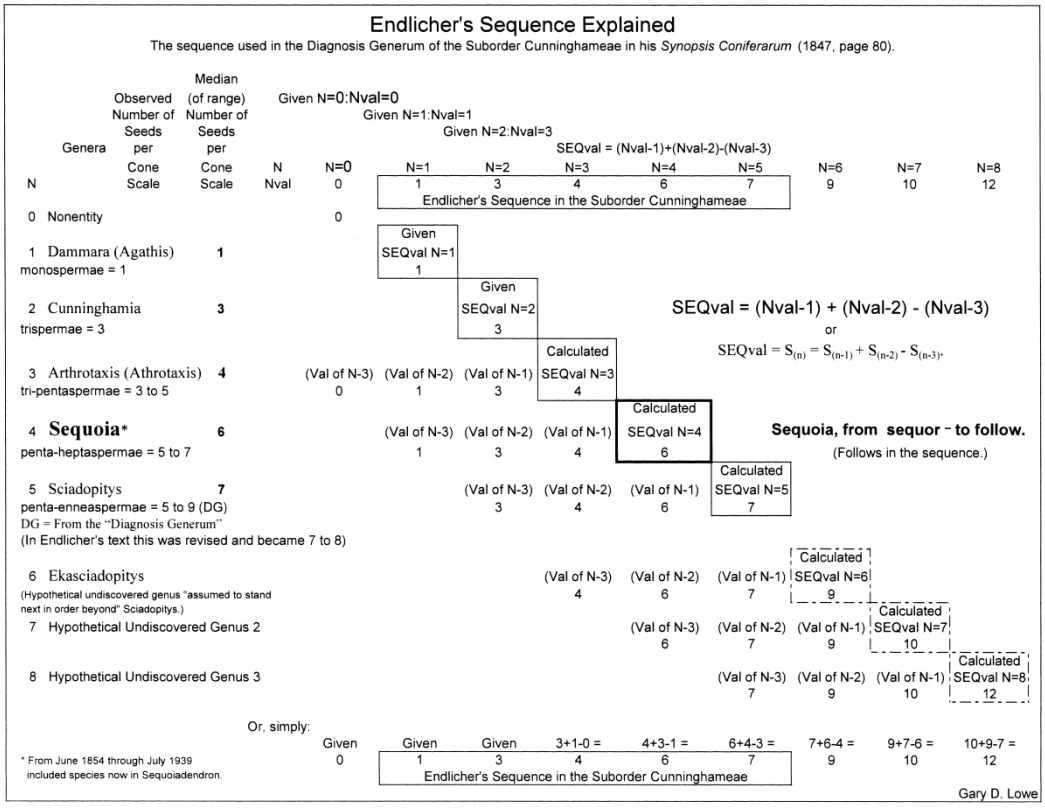
So universal has been the national delight in the myth and under such an imposing governmental aura, the "tremulous voice of mere scholarship protests in vain," and any denial of the *Sequoia* honoring Sequoyah myth receives short shrift, not unlike that afforded the coast redwood throughout the books annotated above. The historical understandings of the origin of the genus name *Sequoia* has persisted into the present century, when the current attempt to equate the name *Sequoia* as an honor to Sequoyah teeters over the ragged edge of verifiable truth!

Chapter 1
Introduction

Through the previous century and a half, there have been two camps of opposing thought concerning the origin of Endlicher's 1847 invention of the word sequoia as a generic name for his taxonomic revision of the coast redwood (and the giant sequoia from 1854 to 1939, when the species was reassigned to the genus *Sequoiadendron).* Lowe (2012) represents the camp preferring a Latin derivation of the genus name *Sequoia* as an attribute of Endlicher's botanical systematic practices and the *Bulletin* article is in the camp that supports the view that the genus name was selected to honor the Cherokee linguist Sequoyah who invented the Cherokee syllabary.

Lowe (2012) presented an objective analysis of the historic contributions concerning the naming of the genus *Sequoia,* and demonstrated that Endlicher's taxonomic researches, which were conducted in the framework of "the science of his times in the Austrian Empire." The background of Endlicher's science was in the realm of the German idealism philosophical movement Naturphilosophie, searching for the "code of nature's numerical order" (Cohen 1985). Endlicher's background science is elucidated in Appendix A. Endlicher's botanical background was directly connected with his choice of the genus name *Sequoia*.

Lowe (2012) showed that Endlicher established his Suborder Cunninghamieae with five genera, with his new genus *Sequoia* in the middle of a precise sequence of genera. The one definitive taxonomic characteristic Endlicher used was the median number of seeds per cone scale. Endlicher arranged these five genera in his taxonomy so that the median number of seeds per cone scale followed a recursive numerical sequence; Endlicher's Sequence: 1, 3, 4, 6, 7. This was akin to Braun's (1831) discovery of morphological characteristics that became known as the Fibonacci and Lucas sequences. Endlicher's establishment of this sequence was used to substantiate the theory that Endlicher had somehow *derived* the name *Sequoia* from the Latin word "sequor" (emphasis added).



Endlicher’s Sequence Explained

The *Bulletin* article makes a subjective case to test the hypothesis that Endlicher's genus name *Sequoia* was selected to honor the Cherokee man Sequoyah. The first sentence of the third paragraph in this article states, "Stephan Ladislaus Endlicher (1804–1849) was born in Pressburg, a German-speaking town in the Austro-Hungarian Empire in 1804." However, the Austro-Hungarian Empire was founded as a result of the Austrian Empire's Hungarian Compromise of 1867 and the border town of Pozsony (Hungarian; Magyar) / Pressburg (German), was in the Kingdom of Hungary. Pozsony was the administrative capital of the Kingdom and up until 1840 the Hungarian laws and all administrative activities were all in Latin; afterwards in Magyar (Barany 1990). This error establishes an incorrect setting for comprehending the culture in which Endlicher lived and worked. This conflict with historic authenticity begs fact-checking of the whole contribution on the etymology of the word sequoia published in the *Bulletin*.

Eight primary assertions were offered in the *Bulletin's* conjecture that Endlicher's genus name *Sequoia* was selected to honor the Cherokee man Sequoyah. These eight assertions fall into categories that are discussed in the following four chapters:

Chapter 2 – Endlicher's knowledge of Indians, Sequoyah, and Native American languages;
Chapter 3 – Endlicher's knowledge of Sequoyan;
Chapter 4 – Disregard for Endlicher's Linnaean Fundamentals.
Chapter 5 – Endlicher's Use of Latin.

Chapter 2 concerns the claim of Endlicher's presumed knowledge of Indians, the man Sequoyah, and Native American languages and includes discussion of the following five assertions:

1.) Endlicher knew of the person Sequoyah.
2.) Endlicher knew of Indians through his work with plants collected by persons that knew something about Indians.
3.) Endlicher communicated and collaborated with Du Ponceau, a fellow sinologist who was an authority on Indian Languages.
4.) Endlicher was "proficient in … American Indian languages."
5.) Endlicher wrote about Indians in his botanical publications.

Chapter 3 discusses the Endlicher's knowledge of modern Sequoyan, the sixth assertion:

6.) The name of the genus *Sequoia* has a direct link to the Interpreted spelling of Sequoyah's name.

Chapter 4 discusses the seventh assertion of the subjective case implying that there were no rules to be followed when:

7.) Endlicher named plants after specific persons.

Chapter 5 discusses the eighth assertion of the subjective case that Endlicher named the genus *Sequoia* because:

8.) Endlicher's "books were in Latin."

John Gill Lemmon's herbarium sheet of giant sequoia.

The species that started the controversy over the naming of the genus *Sequoia*.

(see pages 6-8 for Lemmon's involvement in diagnosing the issue of naming the genus *Sequoia*.

THE TWENTY-FIRST CENTURY COUNTERFACTUAL ARGUMENTS:

Testing the *Sequoia* honoring Sequoyah Hypothesis.

Chapter 2
Endlicher's Knowledge of Indians, Sequoyah, and Native American Languages.

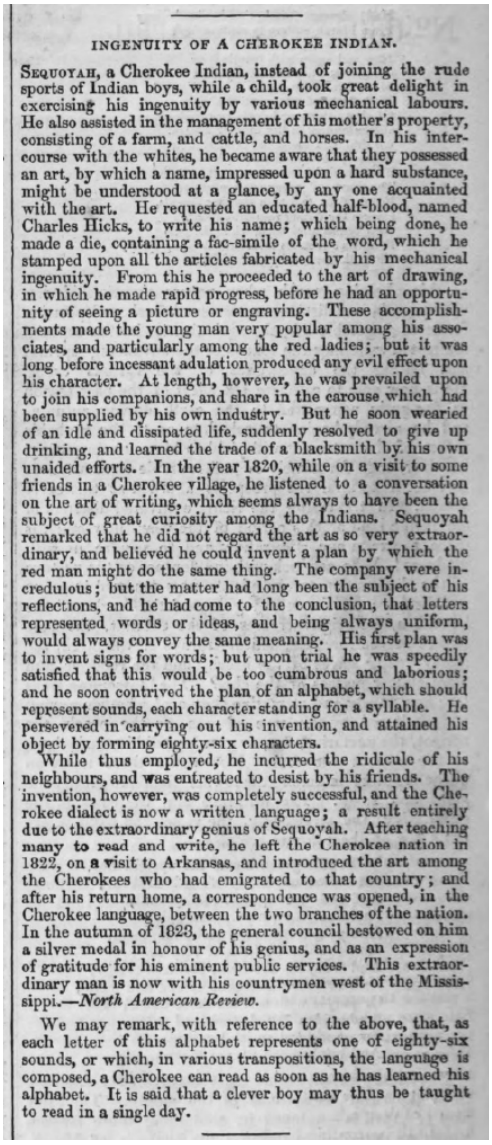
Gathered together in this chapter are the five assertions of the highly subjective case that were offered to substantiate the *Sequoia* honoring Sequoyah hypothesis that rely on Endlicher having had a practical knowledge of Indians, the man Sequoyah, and languages of Native Americans. A common thread through these five assertions is a lack of presentation of any direct evidence leading to the conclusion, specifically a lack of any appropriate citation of published references or archival sources in support thereof.

Assertion 1.) *Endlicher "knew of the person Sequoyah"*

No literary or archival substantiation was offered in support of this statement that, Endlicher "knew of the person Sequoyah". The text states that "There were stories in the German language newspaper [sic, singular] about Sequoyah dated to his time period", though none were cited. The major support for the plausibility that Endlicher may have known about the person Sequoyah, were "English print stories":

> "John William Parker's *Saturday Magazine*, Vol 20, April 23, 1842, [page 160] had an extensive story on the person Sequoyah titled, "Ingenuity of a Cherokee Indian," that was in the Heidelberg Germany Library Archives."

This citation of "an extensive storey" is of a two paragraph article in the London based periodical *Saturday Magazine*, which was extracted from *The North American Review*. This source uses the conventional European spelling of Sequoyah's name and says that Sequoyah invented an "alphabet" representing the "sounds, (of) which … the language is composed", but does not provide any detail of Sequoyah's syllabary. German language literary sources from outside the Austrian Empire that were not cited in support of the argument are mentioned in a following section.



INGENUITY OF A CHEROKEE INDIAN.

SEQUOYAH, a Cherokee Indian, instead of joining the rude sports of Indian boys, while a child, took great delight in exercising his ingenuity by various mechanical labours. He also assisted in the management of his mother's property, consisting of a farm, and cattle, and horses. In his intercourse with the whites, he became aware that they possessed an art, by which a name, impressed upon a hard substance, might be understood at a glance, by any one acquainted with the art. He requested an educated half-blood, named Charles Hicks, to write his name; which being done, he made a die, containing a fac-simile of the word, which he stamped upon all the articles fabricated by his mechanical ingenuity. From this he proceeded to the art of drawing, in which he made rapid progress, before he had an opportunity of seeing a picture or engraving. These accomplishments made the young man very popular among his associates, and particularly among the red ladies; but it was long before incessant adulation produced any evil effect upon his character. At length, however, he was prevailed upon to join his companions, and share in the carouse which had been supplied by his own industry. But he soon wearied of an idle and dissipated life, suddenly resolved to give up drinking, and learned the trade of a blacksmith by his own unaided efforts. In the year 1820, while on a visit to some friends in a Cherokee village, he listened to a conversation on the art of writing, which seems always to have been the subject of great curiosity among the Indians. Sequoyah remarked that he did not regard the art as so very extraordinary, and believed he could invent a plan by which the red man might do the same thing. The company were incredulous; but the matter had long been the subject of his reflections, and he had come to the conclusion, that letters represented words or ideas, and being always uniform, would always convey the same meaning. His first plan was to invent signs for words; but upon trial he was speedily satisfied that this would be too cumbrous and laborious; and he soon contrived the plan of an alphabet, which should represent sounds, each character standing for a syllable. He persevered in carrying out his invention, and attained his object by forming eighty-six characters.

While thus employed, he incurred the ridicule of his neighbours, and was entreated to desist by his friends. The invention, however, was completely successful, and the Cherokee dialect is now a written language; a result entirely due to the extraordinary genius of Sequoyah. After teaching many to read and write, he left the Cherokee nation in 1822, on a visit to Arkansas, and introduced the art among the Cherokees who had emigrated to that country; and after his return home, a correspondence was opened, in the Cherokee language, between the two branches of the nation. In the autumn of 1823, the general council bestowed on him a silver medal in honour of his genius, and as an expression of gratitude for his eminent public services. This extraordinary man is now with his countrymen west of the Mississippi.—*North American Review.*

We may remark, with reference to the above, that, as each letter of this alphabet represents one of eighty-six sounds, or which, in various transpositions, the language is composed, a Cherokee can read as soon as he has learned his alphabet. It is said that a clever boy may thus be taught to read in a single day.

The argument's exaggerated representation of an "extensive storey on the person Sequoyah." *The Saturday Magazine* of April 23, 1842.

When reviewed by Count Sedlnitzky, Director of the Austrian Censors Office, this article would not have survived the scissors because printed matter from "a dangerous republic like that of the United States" (Rath 1957) was completely off limits and the *North American Review* was "to foster American genius, and by independent criticism, instruct and guide the public taste."

Assertion 2.) *Endlicher knew of Indians through his work*

By the middle of the fifteenth century, 350 years before Endlicher's birth, every well educated European knew something about American Indians! The *Sequoia* honoring Sequoyah hypothesis is supported by discussing a few field botanists whose plants Endlicher worked with, either as word descriptions, illustrations, and herbarium or garden specimens, persons who had also written about some aspect of the Indians they had encountered somewhere in their travels. Named individuals include: Thaddeus Haenke's (1761–1816), Eduard Poeppig (Pöppig) (1798–1868), and Carl F. P. de Martius (1794-1868).

Haenke studied natural science, particularly botany, and received his doctorate at Charles University in Prague in 1782 where he continued to study until 1786, after which he studied medicine and botany at the University of Vienna, where he may also have received a doctorate. Haenke was "a very accomplished musician" (Stern 1973). Haenke was approved as a member of Spain's Malaspina Expedition by Holy Roman Emperor Joseph II. When the vessels of the Malaspina Expedition arrived at their northernmost point at Mulgrave (Yakutat Bay, Alaska) in June 1791 (Kendrick 1999), Haenke studied the native Tlingit culture, particularly their music. On the way south, he collected plants in Nootka Sound on the island eventually named Vancouver Island and while coasting along California collected over 250 plants, including the earliest collected seeds and specimens of the coast redwood (Beidleman 2006). Haenke died before Sequoyah finished developing his syllabary and could have known nothing concerning Sequoyah or southeastern American (as in United States) Indians.

Poeppig explored in Pennsylvania in 1824-1826 and earlier in Cuba, and then in Peru, Chile, and Brazil from 1827-1832. He returned to Leipzig with 17,000 dried plants and many ethnographic objects. The first two volumes of his *Nova genera ac Species Plantarum quas in regno, Chiliensi, Peruviano, et in terra Amazonica, annis 1827 ad 1832,* published commencing in 1836, describing the new plants from these three South American regions

was aided by Endlicher who coordinated with the copper plate engravers in Vienna and helped on a few specific plants. How Poeppig's pre-Cherokee syllabary announcement travels in Pennsylvania and his South American ethnographic collections might have helped Endlicher in naming of the genus *Sequoia* for the Cherokee Sequoyah is not stated.

Botanist/ethnologist de Martius collected plants along the Amazon River and coastal mountains of Brazil and prepared the first nine volumes of his *Flora Brasiliensis* with Endlicher as a coeditor. Carl de Martius' also prepared a treatise on the aborigines of Brazil, of which volume 2 was entirely devoted to South American languages, including over 100 vocabularies, however, this information is not mentioned in support of the argument and would not have helped concerning Sequoyah.

Why these three expeditionary/field botanists, knowing and conveying anything about North or South American Indians to Endlicher, might have any bearing on Endlicher's knowledge of the man Sequoyah is a complete mystery.

Assertion 3.) *Endlicher communicated and collaborated with Du Ponceau*

Support of the *Sequoia* honoring Sequoyah hypothesis included the fact that Endlicher, a sinologist as well as a botanist, was nominated for membership by five officers of the American Philosophical Society (APS) in November 1841 based on the March 1841 donation by J. G. Schwartz, the American Consul in Vienna, of Endlicher's 1837 "Directory of Chinese and Japanese coins and books in the Imperial Library." The President of the APS, Peter E. Du Ponceau, one of the nominators, was the American expert on the Chinese language. The support for the *Sequoia* honoring Sequoyah hypothesis states four times that Endlicher had "frequent correspondence" with Du Ponceau, and states once that Du Ponceau was "Endlicher's collaborator". No citations were referenced and no archival records were offered in support of these statements. No letters from Endlicher are contained in the APS's Du Ponceau archive, which was

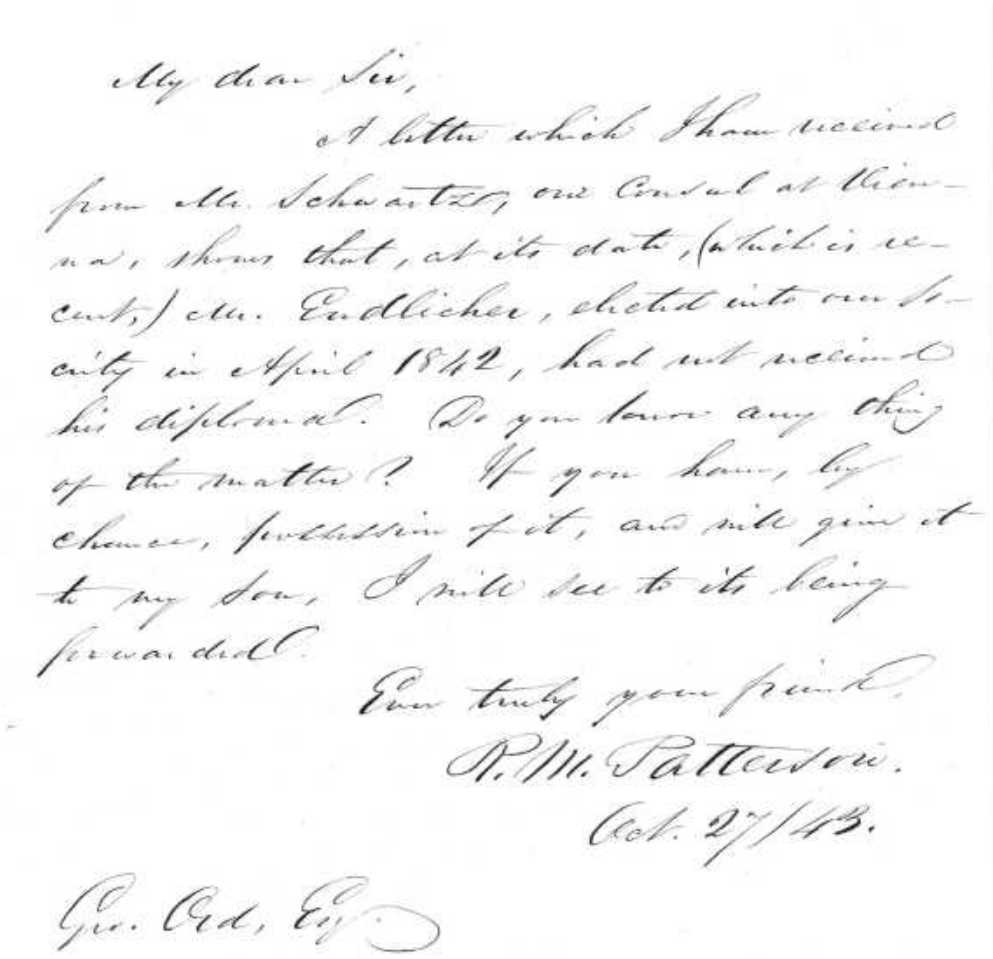
referenced as “Du Ponceau 2016.” The only mention of “the Cherokee” in this online reference is that Elias Boudinot (see below) translated the book that Du Ponceau received from W. S. Coodey. Du Ponceau died on 2 April 1844. Endlicher didn’t mention Du Ponceau’s name in the text to his 1845 *Anfangsgründe der Chinesischen Grammatik*, dedicated 10 August 1844. However in discussing script characters, Endlicher footnoted, on page 26, a “u.s.w.” (etc.) with a short list of comparison citations (man vergl.), including Du Ponceau’s 1837, “Dissertation on the Nature and Character of the Chinese System of Writing.” Endlicher does not mention or cite any collaborative efforts with Du Ponceau. Any correspondence that Du Ponceau may have had with Endlicher concerning the Chinese language would have no bearing on Endlicher’s naming of the genus *Sequoia*.

The argument states that, “Du Ponceau’s authoritative knowledge of the indigenous languages of North America included the Cherokee syllabary created by Sequoyah.” Du Ponceau’s reputation in this area of interest is based on his book *Mémoire sur le systeme grammatical des langues de quelques nations Indiennes de l'Amérique du Nord* published in Paris in 1836. This volume mentions the Cherokee language and Sequoyah on pages 45-47. Sequoyah’s Cherokee syllabary is NOT included in the book.

Endlicher may not even have been aware that he had been elected as a Foreign Member of the APS on 15 April 1842 (member number 1166), as recorded in the *Proceedings* (volume 3, page 228, 1843) until ornithologist George Ord’s trip to Europe in 1843. After Ord’s return to Philadelphia, APS’s new President, Dr. R. M. Patterson, wrote Ord on October 27, 1843, that G. Schwarz, U.S. Consul in Vienna, indicated in a letter “which is recent” that Endlicher had not received his “Diploma of Membership.” In a letter to Ord of the following day, Patterson suggests that the Diploma could be sent into Austria in a parcel from Schwarz as a “mint correspondent,” implying that the letter could be smuggled into Austria, thus bypassing the Austrian censor’s office (see pages 23 & 24). In these pre-steamship and “Postal Arrangement” years (that began in 1846), round trip mail carriers took two to three months or more (Hargest 1975). To this

must be added the correspondent's response time and, in Endlicher's case, the time necessary to process a letter through the censor's office. The real world of the international mails does not leave much opportunity for "frequent correspondence" before Du Ponceau's death on 2 April 1844. If Endlicher collaborated with Du Ponceau on any investigations no bibliographic records have been found.

How Endlicher's nomination as a Foreign Member of the APS and any communications between Endlicher and Du Ponceau, may provide substantiation for the *Sequoia* honoring Sequoyah hypothesis was left both unexplained and undocumented.



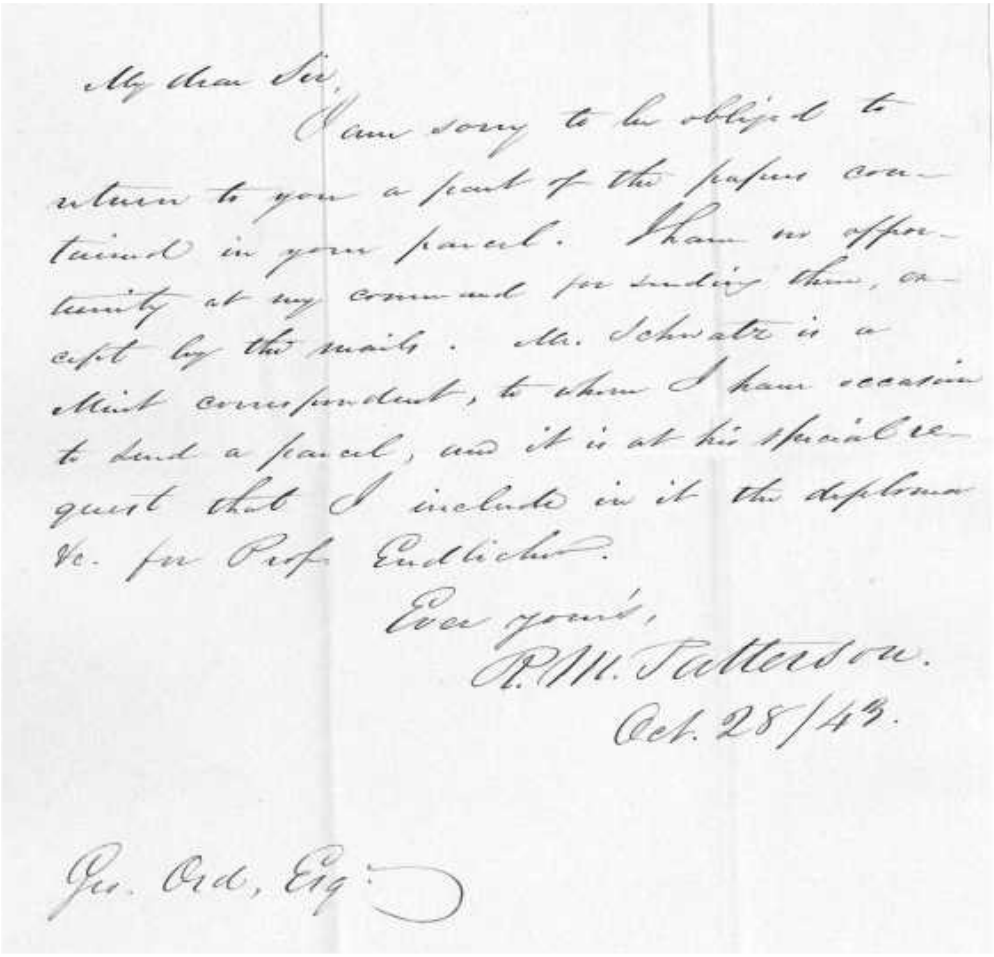
My dear Sir,

A letter which I have received from Mr. Schwartzer, our Consul at Vienna, shows that, at its date, (which is recent,) Mr. Endlicher, elected into our Society in April 1842, had not received his diploma. Do you know any thing of the matter? If you have, by chance, forwarded it, and will give it to my son, I will see to its being forwarded.

Ever truly your friend,
R. M. Patterson.
Oct. 27/43.

Geo. Ord, Esq.

American Philosophical Society President, Dr. R. M. Patterson's Letter of October 27, 1843 to ornithologist George Ord concerning Endlicher not having received his "Diploma of Membership." Courtesy of the American Philosophical Society, Philadelphia, Pennsylvania.



My dear Sir,

I am sorry to be obliged to return to you a part of the papers contained in your parcel. I have no opportunity at my command for sending them, except by the mails. Mr. Schwabe is a Mint correspondent, to whom I have occasion to send a parcel, and it is at his particular request that I include in it the diploma &c. for Prof. Endlicher.

Ever yours,

R. M. Patterson.

Oct. 28/43.

Geo. Ord, Esq.

American Philosophical Society President, Dr. R. M. Patterson's Letter of October 28, 1843 to ornithologist George Ord concerning smuggling Endlicher's "Diploma of Membership" into Austria. Courtesy of the American Philosophical Society, Philadelphia, Pennsylvania.

Assertion 4.) *Endlicher was proficient in American Indian languages*

None of Endlicher's published works nor any of the public domain nineteenth or twentieth century works by anyone that dealt with Endlicher even hint at a mention of an interest in, yet alone him being "proficient in" any of the many hundreds of North or South American Indian Languages. A statement as bold as, "Over time he became proficient in … American Indian languages" sorely needs an explanation!

By 1819, Du Ponceau had observed “that the languages of the Indians of both North and South America are all polysynthetic in grammatical form: that words are constructed by joining root forms so as to make a single word convey what in Indo-European languages requires a number of words related to one another in phrases, clauses, or whole sentences” (Wallace 1999). This language structure of course includes the language of the Cherokee. For our contemporary expert on Sequoyan, the Cherokee language as written in the syllabary developed by Sequoyah, intensively studied her ancestral language for five years in “online language courses, …, studying Sequoyan dictionaries and workbooks, and attending language immersion classes whenever possible, … developed … a very modest measure of speaking ability, though, … (having) far to go before achieving anything like fluency” (Cushman 2011). It is highly unlikely that Endlicher, lacking similar resources, could become “proficient in American Indian languages” outside the presence of native speakers.

Grief, sorrow, and turmoil struck Endlicher’s life in the final stages of preparing *Supplementum Quartum.* This supplement to *Genera Plantarum* is dedicated to Carl F. P. von Martius with whom he had developed a “fellowship” during “recent dreadful times…while I lament my young ‘suavissmae’” (delightful sweet/enchanting) daughter’s death following a long serious illness. Endlicher’s daughter died sometime between Unger’s letter of 16 March 1847 (Haberlandt 1899) and the dedication of the Fourth Supplement on 1 December 1847. There are 32 letters in the Bavarian State Library (Büchler and Schumacher 1990) that indicate that Endlicher’s wife Cäcilie had also developed friendships with members of the von Martius family in Munich while Stephan was working with Professor von Martius on *Flora Brasiliensis*. There are around 200 of Endlicher’s letters that undoubtedly focus on the botanical editing; an example of Endlicher’s “frequent correspondence” as was claimed for correspondence with Du Ponceau. Perhaps Endlicher’s being “proficient in … American Indian languages” was a reference to using von Martius’ 100 South American Indian language vocabularies in parlor games.

Assertion 5.) *Endlicher wrote about Indians*

The *Sequoia* honoring Sequoyah hypothesis is supported with two statements indicating that Endlicher wrote about Indians. The first quoted is that, “He also knew that understanding plant use by ‘Indianer’ [Indians] was important, and specifically mentions North American plants and Indians: “wie in den Wäldern von Nordamerika Plantago major den europäischen Ansiedler verräth, daher diese Pflanze von dem eingeborenen Indianer (aboriginal indian)» die Fußstapfe der Weissen « genannt wird. Die rascheVer” (Endlicher and Unger 1843). The sentence quoted is from page 465 of this book and reads in full:

> In Grönland bezeichnet *Vicia Cracca* noch heute die Wäldern von Nordamerika *Plantago major* den europäischen Ansidler verräth, daher diese Pflanze von dem eingebornen Indianer “die Fußstapse der Weißen” genannt wird. [In Greenland, *Vicia Cracca* and *Plantago major* introduced from Europe into the forests of North America are called by the indigenous Indians "the footsteps of the Whites".]

This quotation has absolutely nothing to do with plant use by the Greenland Inuit peoples, and is opaque as support for the *Sequoia* honoring Sequoyah hypothesis.

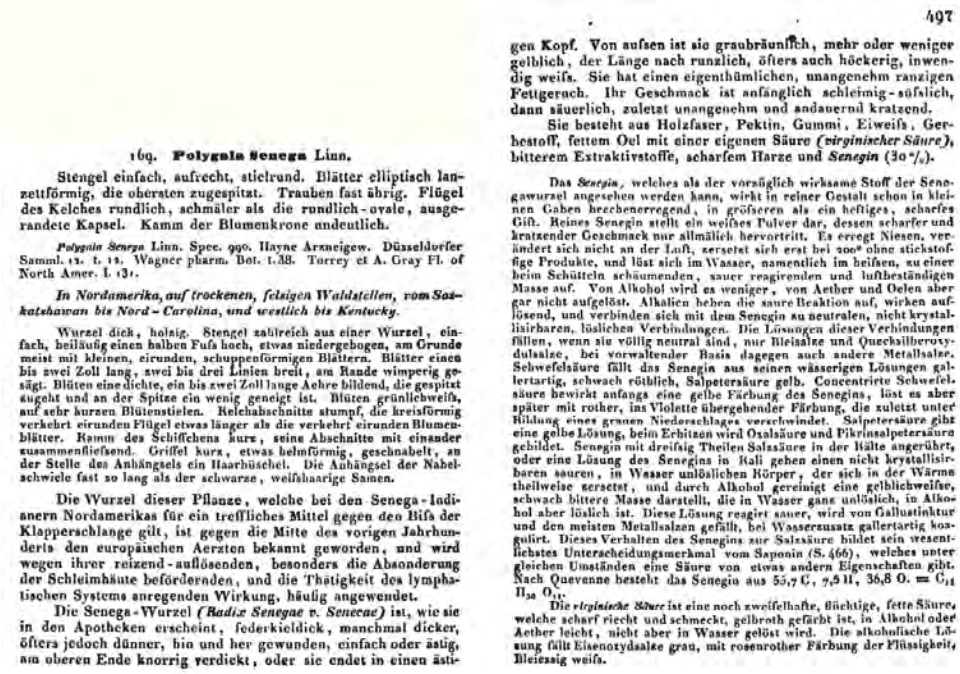
The second statement in the argument indicating that Endlicher wrote about Indians was because, “Dr. Reidl-Dorn noted in Endlicher’s work with plants that he wrote on pharmacopeia and referred to “Seneca the Indianers (this actually says, Senega-Indianern Nordamerikas)” (Endlicher 1842). The mention of the Seneca Indians in Endlicher (1842) is in the discussion of the plant named *Polygaia Senega* on pages 496-497 and its use against rattlesnake bites. Endlicher extracted this information from the literature, including Torrey and Gray’s *Flora of North America* that Gray had brought him a copy of in 1839. This reference is cited at the beginning of the discussion by Endlicher on page 496. Endlicher would also have had access to several seventeenth century and later travel accounts, herbals, and materia medica that discussed North and South American peoples and herbs, e.g., see discussion of *Bryonia affinis* Endl. in Chapter 4.

Misrepresenting What Endlicher Actually Wrote About Indians.

häufung stickstoffhaltiger Producte im Boden. In Grönland bezeichnet *Vicia Cracca* noch heute die Wohnstätte der norwegischen Colonisten, so wie in den Wäldern von Nordamerika *Plantago major* den europäischen Ansiedler verräth, daher diese Pflanze von dem eingebornen Indianer » die Fufsstapfe der Weifsen « genannt wird. Die rasche Ver-

Grundzüge der Botanik. 30

The argument's misrepresentation that Endlicher "also knew that understanding plant use by [Indians] was important" from Endlicher and Unger 1843, page 465.



169. **Polygala Senega** Linn.

Stengel einfach, aufrecht, stielrund. Blätter elliptisch lanzettförmig, die oberaten zugespitzt. Trauben fast ährig. Flügel des Kelches rundlich, schmäler als die rundlich-ovale, ausgerandete Kapsel. Kamm der Blumenkrone undeutlich.

Polygala Senega Linn. Spec. 990. Hayne Arzneigew. Düsseldorfer Samml. 12. t. 12. Wagner pharm. Bot. t. 38. Torrey et A. Gray Fl. of North Amer. I. 131.

In Nordamerika, auf trockenen, felsigen Waldstellen, vom Saskatshawan bis Nord-Carolina, und westlich bis Kentucky.

Wurzel dick, holzig. Stengel zahlreich aus einer Wurzel, einfach, beiläufig einen halben Fufs hoch, etwas niedergebogen, am Grunde meist mit kleinen, eirunden, schuppenförmigen Blättern. Blätter einen bis zwei Zoll lang, zwei bis drei Linien breit, am Rande wimperig gesägt. Blüten eine dichte, ein bis zwei Zoll lange Aehre bildend, die gespitzt zugeht und an der Spitze ein wenig geneigt ist. Blüten grünlichweifs, auf sehr kurzen Blütenstielen. Kelchabschnitte stumpf, die kreisförmig verkehrt eirunden Flügel etwas länger als die verkehrt eirunden Blumenblätter. Kamm des Schiffchens kurz, seine Abschnitte mit einander zusammenfliefsend. Griffel kurz, etwas helmförmig, geschnabelt, an der Stelle des Anhängsels ein Haarbüschel. Die Anhängsel der Nabelschwiele fast so lang als der schwarze, weifshaarige Samen.

Die Wurzel dieser Pflanze, welche bei den Senega-Indianern Nordamerikas für ein treffliches Mittel gegen den Biss der Klapperschlange gilt, ist gegen die Mitte des vorigen Jahrhunderts den europäischen Aerzten bekannt geworden, und wird wegen ihrer reizend-auflösenden, besonders die Absonderung der Schleimhäute befördernden, und die Thätigkeit des lymphatischen Systems anregenden Wirkung, häufig angewendet.

Die Senega-Wurzel (*Radix Senegae v. Senecae*) ist, wie sie in den Apotheken erscheint, federkieldick, manchmal dicker, öfters jedoch dünner, hin und her gewunden, einfach oder ästig, am oberen Ende knorrig verdickt, oder sie endet in einen ästigen Kopf. Von aufsen ist sie graubräunlich, mehr oder weniger gelblich, der Länge nach runzlich, öfters auch höckerig, inwendig weifs. Sie hat einen eigenthümlichen, unangenehm ranzigen Fettgeruch. Ihr Geschmack ist anfänglich schleimig-süfslich, dann säuerlich, zuletzt unangenehm und andauernd kratzend.

Sie besteht aus Holzfaser, Pektin, Gummi, Eiweifs, Gerbestoff, fettem Oel mit einer eigenen Säure (*virginischer Säure*), bitterem Extraktivstoffe, scharfem Harze und *Senegin* (30 %).

Das *Senegin*, welches als der vorzüglich wirksame Stoff der Senegawurzel angesehen werden kann, wirkt in reiner Gestalt schon in kleinen Gaben brechenerregend, in gröfseren als ein heftiges, scharfes Gift. Reines Senegin stellt ein weifses Pulver dar, dessen scharfer und kratzender Geschmack nur allmälich hervortritt. Es erregt Niesen, verändert sich nicht an der Luft, zersetzt sich erst bei 200° ohne stickstoffige Produkte, und löst sich im Wasser, namentlich im heifsen, zu einer beim Schütteln schäumenden, sauer reagirenden und luftbeständigen Masse auf. Von Alkohol wird es weniger, von Aether und Oelen aber gar nicht aufgelöst. Alkalien heben die saure Reaktion auf, wirken auflösend, und verbinden sich mit dem Senegin zu neutralen, nicht krystallisirbaren, löslichen Verbindungen. Die Lösungen dieser Verbindungen fällen, wenn sie völlig neutral sind, nur Bleisalze und Quecksilberoxydulsalze, bei vorwaltender Basis dagegen auch andere Metallsalze. Schwefelsäure fällt das Senegin aus seinen wässerigen Lösungen gallertartig, schwach röthlich, Salpetersäure gelb. Concentrirte Schwefelsäure bewirkt anfangs eine gelbe Färbung des Senegins, löst es aber später mit rother, ins Violette übergehender Färbung, die zuletzt unter Bildung eines grauen Niederschlages verschwindet. Salpetersäure gibt eine gelbe Lösung, beim Erhitzen wird Oxalsäure und Pikrinsalpetersäure gebildet. Senegin mit dreifsig Theilen Salzsäure in der Hälte angerührt, oder eine Lösung des Senegins in Kali geben einen nicht krystallisirbaren sauren, in Wasser unlöslichen Körper, der sich in der Wärme theilweise zersetzt, und durch Alkohol gereinigt eine gelblichweifse, schwach bittere Masse darstellt, die in Wasser ganz unlöslich, in Alkohol aber löslich ist. Diese Lösung reagirt sauer, wird von Gallustinktur und den meisten Metallsalzen gefällt, bei Wasserzusatz gallertartig koagulirt. Dieses Verhalten des Senegins zur Salzsäure bildet sein wesentlichstes Unterscheidungsmerkmal vom Saponin (S. 466), welches unter gleichen Umständen eine Säure von etwas andern Eigenschaften gibt. Nach Quevenne besteht das Senegin aus 55,7 C, 7,5 H, 36,8 O. = C_{11} H_{18} O_{11}.

Die *virginische Säure* ist eine noch zweifelhafte, flüchtige, fette Säure, welche scharf riecht und schmeckt, gelbroth gefärbt ist, in Alkohol oder Aether leicht, nicht aber in Wasser gelöst wird. Die alkoholische Lösung fällt Eisenoxydsalze grau, mit rosenrother Färbung der Flüssigkeit, Bleizucker weifs.

The argument's misrepresentation that Endlicher "wrote … (in his *Medicinal-Pflanzen*) pharmacopeia and referred to "Seneca the Indianers" Endlicher 1842, pages 496-497. Rather, Endlicher wrote about the medicinal plant Polygala Senega Linn.

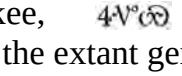
Print version of Sequoyah’s signature, 1839: ᏍᏏᏉᏯ/sisquoya (Cushman 2011).

Chapter 3
Endlicher's Knowledge of Sequoyan

Sequoyan is the modern name of the written or printed version of the Cherokee language using Sequoyah's syllabary. Endlicher lived and worked in a closed absolutist society, the conditions of which gave the governmental "system the trade-name 'police state' " (Kann 1977). There are no records of any Cherokee tribesmen visiting Austria in Endlicher's lifetime and there is no possibility that Endlicher ever heard the Cherokee language being spoken. The sixth assertion of the subjective case to test the *Sequoia* honoring Sequoyah hypothesis is that Endlicher knew the Cherokee spelling of the syllabarist's name.

Assertion 6.) *The Interpreted Spelling of Sequoyah's Name*

The argument offers an anachronistic and unconventional understanding of Endlicher having named the genus *Sequoia* after the man Sequoyah because:

> The name "Sequoyah" has had a variety of spellings, an interpretation of the Cherokee,  ending in "ie," making it Sequoie or Sequoia, a direct link to the extant genus name. [Reference is to a personal communication with Charlie Rhodarmer, director of the Sequoyah Birthplace Museum in 2016.]

This is, of course, metaphorically, putting the cart before the horse. Cherokee words came long before representation in Sequoyan was developed and established. The various Anglo-European spellings of the Cherokee pronunciation of Sequoyah's name were a phenomena of the Euro-American print culture. As previously stated, Ellen Cushman (2011) is our contemporary expert on Sequoyan. Cushman investigated the origin and developmental presentations of Sequoyah's syllabary from his original hand script through to printer's type. At no time has the sound glyph  ever been portrayed as the English sound "ie" or "ia." According to Cushman, "The "h" at the end of Sequoyah is conventional and helps English speakers to pronounce the slight aspiration at the end of his name." Apparently,

Rhodarmer would have readers believe that the “slight aspiration” at the end of the indicated phonemic does not and did not exist; clearly a misrepresentation of nineteenth century and conventional pronunciation.

The spelling “Sequoyah” was generally used in continental European publications. The one exception found was “Seequahyah” in a 1830 geographical-statistical ephemeris, published in Weimar, Thuringia. The above interpretation is inconsistent with the sound (phonetically) arranged character list presented by Gallegine (the buck) Watie, under his personally adopted Euro-name Elias Boudinot. Watie/Boudinot was a nephew of John Ridge, a distant cousin of Sequoyah (Wilkins 1970). The Cherokee syllabary was published in 1832 in *The American Annals of Education and Instruction* and elsewhere over several years.

Watie/Boudinot’s phonetic spelling of his tribesman’s name was “Se-quo-yah” which he foot-noted as “The spelling of the name is conformed to the Cherokee standard.” Boudinot (1832) presented the Cherokee syllabary to the *Annals of Education*:

CHARACTERS SYSTEMATICALLY ARRANGED, WITH THE SOUNDS.

D a	R e	T i	ᏼ o	Ꮥ u	i v
ᏸ ga Ꭷ ka	ᏺ ge	Ꭹ gi	A go	J gu	E gv
ᎯᎭ ha	ᏼ he	ᏻ hi	ᏽ ho	ᏼ hu	ᏹ hv
W la	Ꮂ le	ᏼ li	G lo	M lu	ᏻ lv
ᎰᎵ ma	ᎹᎴ me	H mi	ᎷᎳ mo	ᎽᎳ mu	
ᎾᎿ na ᏐᏂ hna Ꮆ nah	ᏁᏂ ne	ᏂᏂ ni	Z no	ᏧᏂ nu	ᏫᏂ nv
Ꮖ qua	ᏬᏂ que	ᏭᏂ qui	ᏯᏂ quo	ᏬᏂ quu	ᏮᏂ quv
ᏍᏆ s ᏎᏆ sa	ᏏᏂ se	Ꮟ si	ᏐᏂ so	ᏢᏂ su	R sv
ᏓᏆ da W ta	ᏕᏂ de ᏖᏂ te	ᏗᏂ di ᏘᏂ tih	Λ do	s du	ᏪᏂ dv
ᏅᏆ dla ᏧᏆ tla	L tle	G tli	ᏣᏂ tlo	ᏤᏂ tlu	P tlv
Ꮃ tsa	ᏣᏂ tse	ᏐᏂ tsi	K tso	ᏧᏂ tsu	ᏋᏂ tsv
ᏩᏆ wa	ᏫᏂ we	ᏬᏂ wi	ᏭᏂ wo	ᏮᏂ wu	ᏯᏂ wv
ᏈᏆ ya	ᏰᏂ ye	ᏱᏂ yi	ᏲᏂ yo	ᏳᏂ yu	B yv

Thus, for the ᏎᏯᏍᏗ Cherokee, we have:

ᏎᏂ se ᏯᏂ quo ᏍᏗ ya

Endlicher may or may not have had access to other published copies of Sequoyah's syllabary, such as Gallatin's 1836 *A Synopsis of the Indian Tribes Within the United States East of the Rocky Mountains, and in the British and Russian Possessions in North America* published by the American Antiquarian Society of Worcester, Massachusetts. If Sequoyah's syllabary was available in Austria in Endlicher's lifetime, no evidence has been put forth, and as a silent printed document was not helpful as a source for the naming of the genus *Sequoia*, as suggested below.

As the syllabary inventor's name sounded to Watie/Boudinot, the word does not end in "ie" as in Sequoie or "ia" as in Sequoia, as claimed by Rhodarmer almost two centuries later. If working only with the character set of the published syllabary, Endlicher would lose the slight aspiration sound at the end of the word. The transition "ya" to "ia" only works for a mind that "thinks in English." Endlicher would most likely have "thought in German" most of the time and probably also interchangeably in Latin (also see chapter 5). Pronunciations would go something akin to the following.

In German, the published Cherokee syllabary's "ya" would become "ja" as would the "yah" of the Cherokee syllabarist's published name, and pronounced the same in German. In Latin, the published Cherokee syllabary's "ya" might break into two sounds. The letter "y" is a letter borrowed from "the Greek to represent the Greek upsilon (upper case, Y; lowercase, ʊ), and pronounced approximately as the German "ü," "euw," similar to the "o" in the English borrowed word "moue." The "a" could be pronounced as the "a" in "farce," if a long vowel, or, if a short vowel as the "a" in "fatuity." Consequently, the published Cherokee syllabary's "ya" could become "euwo" or "euwa."

In German, Rhodarmer's "ie" would be pronounced like a "long e sound, as in see" in English. Likewise, Rhodarmer's "ia" would be pronounced "eeahh," which would be an awkward pronunciation of the suffix in the botanical word sequoia.

In Latin, Rhodarmer's "ie" and "ia" pose an even more problematical connection. The "ie" sound might not be possible, but if forced might be "ee-e." Rhodarmer's Cherokee syllable "ia"

separates in two, with the “i” joining the sound of the previous Cherokee syllable “quo” becoming “quoi” (cui) followed by “ah.” These would seem to be an equally awkward pronunciation of the suffix in the botanical word sequoia.

Fortunately, the above attempts at pronunciations of Rhodarmer’s “ie” and “ia” syllables are a mute point because Endlicher would only have had the printed word to work with; Endlicher could never have heard a Cherokee pronounce Sequoyah’s name. Therefore, there can be no “direct link to the extant genus name” because there can be no direct link where there was no direct contact!

If we extend international literary access to Endlicher and ignore the censor, the several spellings used in American literature from 1825 through to 1847 might have been available, as follows: Sikwayi, Sequoyah, Se-quo-yah, See-quah-ya, Sequoya. However, Endlicher’s most likely access would have been the spelling of the man’s name as used in continental European publications, and only that spelling need be considered: Sequoyah.

Chapter 4
Disregard for Endlicher's Linnaean Fundamentals

Endlicher established himself as a systematic botanist with publication in 1830 of his 493 page revision and updating of Istiv*á*n Luminitzer's 1791 book of the same title, *Flora Posoniensis*, Endlicher's home province. In this volume Endlicher included a 28 page summary of Linnaeus' sexual system of classification. Each of the 1,574 plants listed was provided with a discussion following Linnaeus' format. As appropriate: generic name, specific name, trivial name, who named the plant, synonymy, habitat, and description. It was in this publication that Endlicher established his own abbreviation as an author of plant names: Endl., on page 485. Plant names followed Linnaeus' rules as laid out in his *Critica Botanica* of 1737, including plants that were named after specific persons. In terms of modern protocol, conspicuously absent is an etymology of the plant name. *Flora Posoniensis*, established Endlicher as fundamentally a Linnaean.

Endlicher's interest in Linnaeus extended beyond his botanical nomenclatural protocols. In 1841 he contributed a preface and notes to a collection of Linnaeus' letters to the father of his predecessor as Professor of Botany at the University of Vienna, edited by Schreibers. In *Flora Posoniensis*, at taxonomic levels higher than the genus, Endlicher began using a system that he referred to as "method naturali dispositas." He more fully developed this method in his *Genera Plantarum* and its five supplements (1836-1850) and in *Enchiridion Botanicum* (Endlicher 1841). Endlicher's "plant system" (Pflanzensysteme) was for decades "used as the basis of public institutions" in Germany (Gmelin 1867).

The seventh assertion of the support for the *Sequoia* honoring Sequoyah hypothesis is the mere fact that Endlicher named plants after people; a claim that is handled in a manner that is insensitive to Endlicher's nomenclatural protocols.

Assertion 7.) *Endlicher named plants after specific persons*

The argument's support for the hypothesis that Endlicher named the genus *Sequoia* after the man Sequoyah included the explanation that "Endlicher showed his propensity to name plant taxa for particular people" and "used his expertise and pattern of naming plants after people to name the coast redwood after the man, Sequoyah." Six examples were provided, two at the species level and four at the genus level. Since different nomenclatural rules for naming genera and for naming species have been followed since 1737, comparing species naming to genera naming is the colloquial comparing of apples and oranges. As examples, only the naming of genera is appropriate to consider when discussing the naming of the genus *Sequoia*. One of the examples used is "Another named plant for a person was *Bryonia affinis*, but the personal etymology is unknown." Since the Latin word "affini" means "allied/related to" (as in affinity), the comment refers to the genus name, *Bryonia*. The genus *Bryonia*, is Endlicher's genus "5130. Bryonia LINN." in *Genera Plantarum* (1836-1840). The citation is to page 68 in Endlicher (1833), which is headed "LXXXII BRYONIA Linn. gen. n. 1480." Endlicher named the species. Linnaeus named the genus *Bryonia* for engraver and publisher Johann Theodor de Bry, who produced botanical prints that appeared in such works as: the 1588 *Brevis narratio eorum quae in Florida, America provincia* (A brief narrative of those things which are in Florida, the province of America) and the 1611 *Florilegium novum* (New book of Flowers) *hoc est : variorum maximeque rariorum florum ac plantarum singularium una cum suis radicibus & cepis, eicones diligenter in aere sculptae & ad vivum ut-plurimum expressae.*

Almost all of Endlicher's contemporary and posthumous colleagues, botanists, naturalists, or zoologists demonstrate a "propensity to name plant taxa for particular people." However, the names are only for a particular group of people, not just any person. As to the possibility that Endlicher named the genus of the coast redwood after the person Sequoyah, Endlicher's Linnaean naming protocols need to be further examined.

68

easdem longitudine duplo fere superantibus, subtus marginibusque piloso-hispidulis. Stylus cylindricus corollae longitudine; stigma breviter bilobum, lobis obtusis crassiusculis reflexis. Fructus magnitudine seminis Aurantii, capsularis, ovatus, acutus, setis rigidulis, retrorsum hispidis obsitus; setis prope basim confertioribus, subpatentibus Epicarpium membranaceum ab endocarpio coriaceo facile solubile. Semen cavitatem explens, ovatum, basi acutiusculum, apice obtusum; embryonis radiculâ brevissimâ retractâ superâ Pedunculus masculus ex eadem cum femineo axillâ, eodem triplo v quadruplo longior, pedicellis corymboso racemosis, 3 lineas longis, summis sensim brevioribus, omnibus ante anthesim nutantibus, demum erecto-patentibus. Calyx et corolla ut in floribus femineis, dempto hypanthio. Antherae 5 monadelphae, apici synematis cylindrici corollae longitudinem aequantis peltatim affixae, uniloculares, intricatae, demum in corpus irregulariter anfractuosum confluentes.

OBSERVATIO. Specimina a Bauero circa Port-Jackson lecta, a norfolkicis vix atque ne vix quidem differunt.

LXXXII. BRYONIA *Linn. gen. n. 1480.*

Flores monoici v. dioici Calyx quinquefidus v. quinquedentatus. Discus calycis fundum vestiens staminifer. Stamina 3, bina antheris bilocularibus; tertium anthera uniloculari. Styli 3 connati. Stigmata libera, capitata v. emarginata. Bacca trilocularis sub6sperma.

* DIPLOCYCLOS. Semina pulposa, zonâ longitudinali annulari duplicatâ cincta.

125. BRYONIA AFFINIS, foliis cordatis quinquepartito-palmatis scabris, laciniis oblongo-lanceolatis, acuminatis mucronato-serratis, petiolis muricatis, pedunculis unifloris filiformibus abbreviatis glabris, floribus intus hirtis, fructibus globosis sanguineo-striatis.

Ferd. Bauer Illustr. pl. Norfolk. t. 125.

Part of Endlicher's 1833 text on *Bryonia affinis* cited in the article. See page 35. Clearly, this is misrepresentation of Endlicher's naming of the genus *Bryonia*, a genus named by Linnaeus. The species that Endlicher named, *Bryonia affinis* Endl. is now reassigned: *Diplocyclos palmatus* subsp. *affinis* (Endl.) P.S. Green, a source of seed oil (Bates, Robinson, and Jeffrey 1990).

Endlicher's Personal Honorific Genera Names

For the English speaking world, John Lindley (1845, 1853) Professor of Botany in the University of London provided a list of genera in *The Vegetable Kingdom*, contemporaneous with Endlicher's *Genera Plantarum* and its five supplements. This list includes 251 genera named by Endlicher, a few of which were named with coauthors. Taking the genus *Sequoia* out of the mix: 194 of these names are based on some characteristic of the plant and 57, 22.7 percent of the total, are named for a person: 25 of these honorees named plants themselves (Brummitt and Powell 1992), and 32 others, most of whom have been identified as connected with the advancement of botany: botanists, herbalists, naturalists, botanical artists, a plant nutritionist, the optician that made the achromatic lenses for Endlicher's microscope, and marine or Naval officers who transported plants, etc. There are no philologists, linguists, orientalists, sinologists, numismatists, etc., among them who were not also connected with botany. The genera named by Endlicher listed in *The Vegetable Kingdom* (Lindley 1853) are included in the tables in Appendix B.

Among the twenty-four of the 25 genera Endlicher named for persons that were also authors of plant names, 17 were formed by adding "ia;" 5 by adding "a;" and 2 by adding "ea" to the end of the full surname of the person being honored. These 24 genera are listed in Table 1 in Appendix B. The last genus included in the Table 1 list was a second genus named for Samuel Schwabe, or perhaps there was a second man named Schwabe to be honored. The "a" ending was already used and presumably Endlicher could have used the "ia" ending (Schwabesia) though "a similar sound (may) give a handle to confusion."

Table 2 in Appendix B lists the 32 genera named for persons not listed in Brummitt and Powell (1992): 23 end in "ia," 6 in "a," and 3 in "ea," each preceded by the person's full surname as a prefix. However, three of these individuals have not yet been identified.

With the genus name *Sequoia* still excluded from consideration, Endlicher named 57 genera after a person by using their full surname

as a prefix. The appended suffix “ia” is used on 40 (70.2%), “a” on 11 (19.3%), and either “ea” or “es” on 6 (10.5%) of the plant names. In applying his honorific naming protocol to the spelling of “Sequoyah” as used in two Leipzig periodical articles (once in 1832 in the magazine Blätter für literarische Unterhaltung and once in *Allgemeine_Literatur_Zeitung* in the September 1847 issue, that came out after *Synopsis Coniferarum* was published), in one London journal, the “Heidelberg Library Archives” copy of *Saturday Magazine*, 1842), and a book on Native American linguistics published in Paris (Du Ponceau 1836), the spelling of the man “Sequoyah’s” name for use as a plant name, would have a probability of 0.7 as being “Sequoyahia;” 0.2 as being “Sequoyaha;” and 0.1 of being either “Sequoyahea;” or “Sequoyahes.” For Endlicher, even if he knew of the man Sequoyah and his achievement and had had a passing thought of naming a plant to honor him changing the known or conventional spelling of his name would have been in strict opposition to his Linnaean fundamentals. Endlicher, the consummate plant taxonomist, would have faithfully followed the Linnaean rules of botanical nomenclature for naming plant genera (Linnaeus 1737, Trans., Hort 1938), as quoted in Stern (1992):

> Linnaeus’ Rule 228 – “Generic names with a similar sound give a handle to confusion.”
>
> Linnaeus’ Rule 236 – “Generic names should not be misused in order to perpetuate the memory of Saints and men distinguished in some other branch of learning or to secure their favor.”
>
> Linnaeus’ Rule 237 – “Generic names taken from poetry or mythology, consecrated names of kings, and names of those who have advanced the study of botany I retain. It must be formed from his surname, not his first name”
>
> Linnaeus’ Rule 238 – “Generic names formed to preserve the memory of a botanist who has deserved well of the science I retain as a religious duty.”
>
> Linnaeus’ Rule 248 – “The terminations of generic names and the pronunciation should be made as easy as possible.”

In Endlicher's genera names honoring persons there is absolutely no evidence that "his work was often centered on patronage, money, and notoriety" as was stated. This would have been in violation of Linnaeus' Rule 236. In the specific context of supporting Endlicher's naming the genus *Sequoia* for the Cherokee syllabarist Sequoyah the implication is made in the above quote that Endlicher anticipated receiving something in return: "patronage, money, (or) notoriety". Though more likely expressions of a debt of gratitude, these attributes are possibly in evidence in some of his book dedications, and in the acknowledgements he embedded in the introductions to some of his books. His Linnaean fundamentals would have prevented him from contaminating his plant names for these purposes.

Chapter 5
Endlicher's Use of Latin

Endlicher's proper use of Latin words and grammar is emphasized as the eighth assertion to support the hypothesis that Endlicher named the genus *Sequoia* honoring Sequoyah simply because:

Assertion 8.) *Endlicher's "books were in Latin."*

The subjective case states, "His books were written in Latin and here he used the Latin 'sequentia' to indicate 'follow'". Not all of Endlicher's books were in Latin. Endlicher authored or edited 20 botanical books and 16 non-botanical books, of which 12 he only claimed editorship: 27 of his books are in Latin and 9 are in German (Lowe 2015). The one German language book in which Endlicher's name does not appear, though advertising for the book states that he was the editor, is printed in Fractur.

If reference to the theory of "*Sequoia* being from the Latin "sequor" (to follow)", the argument brings in discussion from Mark T. Riley, Professor Emeritus of Classics Studies and Latin at California State University, Sacramento. Riley comments:

> "The idea that this is the Latin word for sequence is false. It does look like it should be derived from the verb (and only a verb) sequor 'I follow.' Sequens means 'following' secutus means 'having followed' and so on. You can say 'in sequence' or 'sequentially' by 'per ordinem'"

It is then stated that, "If Endlicher were to name the Coast Redwood (Sic) for its place in a sequence, it would more properly have become *Sequentia sempervirens"* and that "Endlicher had already shown the proper use of the word for 'in a sequence' (sequential [Sic]) and, in this matter, *Sequenta* [Sic] *sempervirens,* would have been more correct and proper." Endlicher demonstrating the proper use of the then current Latin is correct as seen in the general text portions of Endlicher's books, but not in those portions in his publications in Botanical Latin.

The most apropos rejoinder to both of the preceding comments, the quote from Riley and the argument's "it would more properly have become *Sequentia*", is provided in William Thomas Stern's (1992) introductory epigram:

> "Sic enim potius loquamur: melius est reprehendant nos grammatici quam non intelligant populi [Let us rather then declare: it is better that grammarians censure us than that the public does not understand us]. St. Augustine of Hippo (A.D. 354-430) *Ennar. in Psalm. Cxxxviii, 20*

Following is further elucidation of Endlicher's background in the Latin used in his texts and insights into his Botanical Latin.

Stephen Endlicher was born and raised in the Austrian Empire* in the Roman Catholic western portion of the subservient Kingdom of Hungary, in the town of Pozsony (Hungarian) / Pressburg (German), at the Austrian border on the Danube river. Nearly all well versed and educated people in this region were polyglots to some extent. Stephan's linguistic skills developed throughout his early life. At the time of Stephan's birth the teaching of the Hungarian language (Magyar) had become "compulsory in its (i.e., the Empire's) schools" in Hungary (Cartledge 2011). In Hungary, Magyar "was used by the educated classes for all purposes save informal conversation, was still Latin, a circumstance unique in Europe. As well as Latin, the magnates spoke German and French, the burghers, mostly German" (Cartledge 2011). Growing up in the home of a popular physician, who "had knowledge of the educated European languages and a classical education" (Wigand 1865) would have exposed young Endlicher to all of the languages prevalent in his society. Endlicher became proficient with his Latin grammar while being educated in the Empire's Infant and Primary Schools and while at the Gymnasium (equivalent of a College Preparation High School) in Pozsony and in his early university education in Pest. Endlicher moved on to the University of Vienna, where in 1823 he received a PhD at the age of 19. Latin was as much his native tongue, as was German (Lowe 2015).

* For the 51 days from his birth on 24 June 1804 until 14 August 1804, Endlicher was a new born citizen of the Holy Roman Empire.

The continued use of Latin in the Kingdom of Hungary was a holdout on the European scene of the first half of the nineteenth century. Latin, as would have been used in Hungary, and just shy of midway in the evolution of a modified form of Latin that was developing into Botanical Latin was described by Stern (1992) as,

> "a consequence of the survival of Latin as a general-purpose language, used in academic, diplomatic, ecclesiastical and legal affairs and even domestic correspondence, long past the crucial period of the sixteenth century when herbalists became aware of the many hitherto unnoticed and unnamed plants around them. They wrote in Latin about these plants because they wrote in Latin about almost everything else. Latin, admittedly derived from medieval Latin, was then the ordinary generally understood language of educated men. Such indeed it remained all throughout the eighteenth century. It served not only for international communication, as between Linnaeus … and von Haller and (their respective) foreign correspondents, but also for private correspondence between scholars of the same language, possibly because few women then could read Latin."

As indicated above, the support offered in defense of the *Sequoia* honoring Sequoyah hypothesis focuses on Endlicher's use of the Latin word 'sequentia' to indicate 'follow'". In the textual portions of *Genera Plantarum* (1836-1840), Endlicher uses several words stemming from the root word sequor. As ascertained from four online digital copies of *Genera Plantarum* using the optical character recognition (OCR) based search features these are as follows: sequente (8 uses), sequentes (1 use), sequentibis (1 use), sequentis (1 use), and of course the questioned sequentia (4 uses). If the first four supplements are included, the list is longer, adding, among others, "sequor" in Supplement I, page 1369 (see below). The sentence quoted in the argument, "Signa sequentia literis subposita sic intelligenda." does not occur, as cited, in *Genera Plantarum* (searched for using all six component words). This sentence is from a book of copper plate engravings that Endlicher edited that was published in 1838, *Iconographia Generum Plantarum.* The sentence occurs on page VIII, just before five pages of "arranged tables."

There are differences in the regional Latin of northwestern Hungary and Vienna of the 1810s to 1840s and the modern

standardized classical Latin of today. An Endlicher scholar must always bear in mind that after over two decades of immersion in scores if not hundreds of manuscripts in the K. K. Bibliothek, Endlicher was steeped in the grammar of Latin far more ancient than that in use by his contemporaries. It is incongruous for any biologist to posit that any taxonomically oriented botanist or zoologist, contemporary or posthumous to Endlicher, would simply have plucked a word from their lexicon and then to directly apply that word as part of a binomial name for a plant or animal.

The Linnaean binomial names of plants, including all of Endlicher's, as well as the various elements of his diagnoses (synonymy, habitat, and description), are in the domain of Botanical Latin! According to Stern (1992), over time, Latin's "function has gradually became almost entirely nomenclatural and descriptive … [and would ultimately] eliminate from botanical Latin many of the complexities of classical Latin … . The general effect … has been to make botanical Latin … as unintelligible to classical scholars as modern English would be to a Frenchman who had learned only Anglo-Saxon."

The historic literature quoted in Lowe (2012) and in the Prologue, put forth the idea that the plant name *Sequoia* was derived from the Latin "sequor." The historic authors quoted were from an era when much of the educated American population was schooled in classical literature in the original languages. They didn't explain how they thought that the name *Sequoia* came "from the Latin sequor." As Physicist David Park (2005) explains this kind of situation, "It is a fact of history that nobody writes down the things everyone already knows." Lowe (2012) also says that the plant "name *Sequoia* indeed was *derived* from the Latin for sequence" (emphasis added). To say "derived from" is not the same as saying that the word "sequor" was the Latin word for sequence. Casual reading, or intense evaluation, of Lowe (2012) will demonstrate that Endlicher did indeed have a sequence in mind (see pages 12-13) when he worked on his taxonomy presented in *Synopsis Coniferarum* published in 1847. Endlicher had to take his conversational, textual, and historical Latin and utilize it in his personal botanical nomenclatural protocols to invent a suitable

botanical name, derived from Latin and/or Greek following his Linnaean fundamentals.

Riley is quoted, stating that, “sequor” translates as “I follow” and “is a verb.” Recalling that Endlicher was steeped in the grammar of Latin from the ancient manuscripts in the K. K. Bibliothek, it is very important to note that Lindsay (1895) in *A Short Historical Latin Grammar* states in “Chapter 6 - The Verb, Section 6, The Voices” (pp. 94-95):

> The three voices of Greek, Active, Middle, and Passive, are in Latin Grammar reduced to two, Active and Passive. The Latin Deponents [a deponent verb is a verb of active meaning but passive form] however take to some extent the place of the Greek Middle [voice] and sequor is an example of an I[ndo]-Eur[opean] (I.-Eur.) Middle [voice] which appears in the I.-Eur. languages with the Middle or Passive endings. … their distinguishing feature is the letter r (e.g. Lat. sequor, sequitur; …) and there are traces that the passive R-forms were originally restricted to an Impersonal use in which this r was added immediately to the root of the verb.

The Latin word that Endlicher chose to *derive* the prefix of the name for the coast redwood that established what Lowe (2012) called Endlicher’s sequence of five genera in his Suborder Cunninghamieae is indeed appropriate: “I follow, i.e. sequor”. Since in the verb “sequor” the “passive r … was added immediately to the root of the verb”, then dropping the added “r,” leaves the root verb “sequo” to which is added the Latin suffix “ia” used in the naming of plants, yielding the new word *Sequoia* as the name for the plant. The Latin suffix “ia” meaning something derived from, relating to, or belonging to what is conveyed in the prefix.

The question then arises; was Endlicher aware of this specific Latin grammatical nuance in order to derive his prefix? Yes. In the 1837 volume *Analecta grammatica* Endlicher and his coauthor address this specific issue (von Eichenfeld and Endlicher 1837). On pages 173-174, in the book’s fourth part, Incerti Fragmentum Grammaticum de verbo, [section] 42, Incerti Fragmentum Grammaticum de verbo, we find, in discussing the deponent verb ending in OR, the OR “quidem desinit” (ceases), “sed amissa R littera” (but the letter R is lost), and that … “sed non est passivum,

quoniam neque in activum redit, ablata R littera" (but, in taking away the letter R, it goes from passive to active). The phrase "ut sequor" (I follow) is one of their examples.

Among modern texts, Prior and Wohlberg's (1995) *501 Latin Verbs fully conjugated and in all the tenses*, can be found the Latin verb meaning follow, "sequor" (page 407) including the "rare active form" of the Latin verb sequor, the word "sequo."

Following page –

Part of pages 173 and 174 of Eichenfeld and Endlicher's 1837 *Analecta grammatica* demonstrating Endlicher's understanding of the ancient Latin of the manuscript texts allowing him to readily use as a prefix "sequo," the early root of the Latin verb "sequor" by dropping the added "r" and then adding the Latin suffix "ia" to yield the new word *Sequoia.*

42. DE GENERIBUS VERBORUM [1]).

Quae Graeci [87]) διαθέσεις [88]) appellant, Latini genera nominaverunt; διάθεσις autem hoc significat apud [89]) Graecos [90]), quod apud Latinos adfectus. Nam et qui agit et qui patitur mente adficitur. Sed quoniam in nominibus discretionem sexuum genera distinguunt [91]), cum masculinum a femininо per illa segregetur, ideo discernendorum quoque adfectuum notam genera vocitaverunt.

Omne igitur verbum apud Latinos, quod sub proportionis [4]) observationem cadit, aut ·O·, aut ·OR· syllaba terminatur [92]), sicut iam superius dictum est. Si ·O· fuerit terminatum, aut activum est, aut neutrum; si ·OR· aut passivum dicitur, aut deponens, aut commune.

Activum dicitur, quod in ·O· desinit et necesse habet aut dativo, aut accusativo iungi, potestque, ·R· littera recepta, in passivam transire declinationem, ut dico tibi, caedo [93]) te, dicor a te, caedor a te. Neu-

trum dicitur, quod, cum in ·O· desinit, aliquo ex his deficitur, et ·R· accipere non potest [94]), ut volo, vivo, valeo. Passivum dicitur, quod cum in ·R· litteram desinat, amissa ea, potest in activum redire et necesse habet ablativo casui sociari, ut caedor a te, caedo; dicor a te, dico; et ut
col.b. facilius explanetur: activum est, ubi altero agente alter patitur, *passivumque est, quando altero patiente penes alterum est actus; nam multa etiam ·O· terminata passivae significationis sunt, ut algeo, esurio, sed quoniam minime altero patiente penes alterum est actus, ideo nec passiva dicuntur. Rursusque plura sunt in ·O· exeuntia, quibus actus aliquis inest, ut nato, ambulo, curro; sed quoniam minime [95]) altero faciente alter patitur, non activa, sed neutra et absoluta dicuntur; denique nec dativo aut accusativo vel ablativo sociari possunt; nam nec nato tibi, aut te, aut curro tibi, aut curro te, nec esurio a te, aut algeo a te, vel vapulo a te dicimus, quod non est [96]) latinum, sed vapulo te caedente. Deponens dicitur, quod in ·OR· quidem desinit, sed amissa ·R· littera latinum esse minime [97]) potest, habetque interdum aliquam actionem, quamvis passiva sit declinatio, ut sequor, luctor, loquor, intueor, demolior, et itidem passionem tantummodo, uti nascor, potior; sed non est passivum, quoniam neque in activum redit, ablata ·R· littera, neque patiente altero, alterius est administratio. Commune dicitur, quod in ·OR· quidem desinit, ut deponens, nec ·R· littera carere potest, sed utramque recipit [98]) significationem, tam [99]) agentis, quam patientis. Denique etiam his [100]) casibus iungitur, quibus activum et passivum, ut criminor te, criminor a te, osculor [1]) te, osculor a te; et haec discretio est inter deponens atque commune, quod deponens quidem alterutram, commune vero utramque [2]) significationem recipit [3]); ideo etiam quatuor temporum participia creat, bina ex utraque producens; deponens vero tria tantummodo; nam caret participio futuri temporis a significatione passiva, ideoque etiam deponens appellari nonnulli crediderunt [4]), vel quod unum ex participiis, vel quod alteram ex significationibus deponat. Multa his similia apud Graecos [5]) etiam reperiuntur; ac primo [6]) neutris,
F.6.v. col.a. ut sunt illa: ἔω, κλουτῶ, ὑπάρχω, ἑορτάζω, τρέχω, ἀριστῶ, *περικατῶ [7]), νοσῶ, ὀφθαλμιῶ [8]); dein deponentibus, ut sunt illa: ἥδομαί σου, φείδομαί σου, ἐπιμέλομαί σου, ἱππάζομαί σοι [9]), μάχομαί σοι [10]), διαλέγομαί σοι [11]), εὔχομαί σοι [12]),

"In ordinary discussion, a true claim or sentence is one that describes how things really are; a false claim is one that misrepresents the world. Some, but not all philosophical treatments of truth follow this familiar idea."

Definition of Truth
Peter Godfrey-Smith
Glossary, in Theory and Reality
Stanford University Lectures, 1992-2003

SEQUOIA AND SEQUOYAH

Chapter 6
Endlicher's Two Sequoias

Endlicher did not uniquely name the coast redwood *Sequoia sempervirens*.

Consensus that Endlicher had named the coast redwood *Sequoia sempervirens* came a few years after his death and was based on determining that inadequate information was available to Endlicher. When Endlicher published his monograph *Synopsis Coniferarum* and the fourth supplement to *Genera Plantarum* in 1847 he included a reclassification of several of David Don's "Pines" that were described in Aylmer Bourke Lambert's *Description of the Genus Pinus*. Among Endlicher's revisions was *Taxodium sempervirens*. There were no specimens of *Taxodium sempervirens* included in the catalog of the herbarium of the University of Vienna that Endlicher published in 1842, though *Taxodium distichum* was in the herbarium. Inside the Austrian Empire, where Endlicher could freely travel, herbarium specimens had been available since 1821 at what is now known as the National Museum/Charles University in Prague that housed many of the specimens returned by Thaddeus Haenke following the Malaspina expedition of 1791 (Rejmánek 2013). The oldest living specimens in Europe were in Spain (Austrich 1987), from seeds returned by Haenke, but would have been unavailable to Endlicher unless fragments from the living trees had been provided by a correspondent. Endlicher relied heavily on the available literature.

In both of Endlicher's 1847 publications the plant listings were presented following Linnaeus' format: generic name, specific name, trivial name, who named the plant, synonymy, habitat, and description. Endlicher adds references to each of his two species in the genus *Sequoia*: *Sequoia sempervirens* and *Sequoia gigantea*. For the genus *Sequoia*, and several others, the habitat was limited to a geographic location. The habitat of *Sequoia sempervirens* was, "in America boreali occidental ad sinum Nutka" (transliterated: in America North West the bay Nutka), based on reports by Menzies, Nee, and Hänke. The habitat of *Sequoia gigantea* was "in California",

1. SEQUOIA SEMPERVIRENS Endl.

Sequoia foliis linearibus ($\frac{1}{2}$ — 1″) obtusiusculis subtus albidis.

Taxodium sempervirens *Lambert Pin. ed. 2. II. t.* 64.
Taxodium nutkaense *Herb. Lamb.*

Habitat in America boreali occidentali ad sinum Nutka. (Menzies, Nee, Hänke.)

2. SEQUOIA GIGANTEA Endl.

Sequoia foliis linearibus (1 $\frac{1}{2}$ — 2″) acutis subtus glauco pulverulentis.

Taxodii species *Douglas in Bot. Mag. Comp. II.* 150.
Abies religiosa *Hook. et Arnott ad Beechey* 160. *non Humb.*
Taxodium sempervirens *Hook. et Arnott ad Beechey* 392. *Hooker Ic. t.* 379.

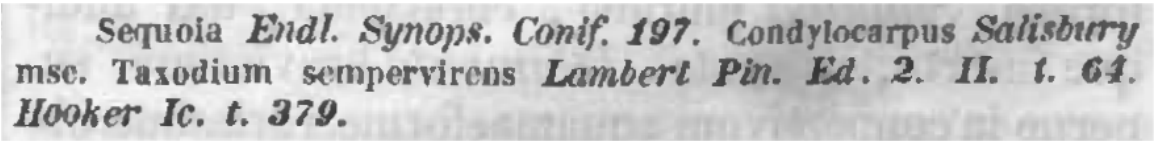
Habitat in California. (Dougl.)

Arbor trecentorum pedum altitudinem attingens, trunci ambitu trigintapedali.

Endlicher's Two Sequoias

Endlicher's descriptions of *Sequoia sempervirens* and *Sequoia gigantea* from page of 198 *Synopsis Coniferarum*.

based on reports by Douglas. In other words, *Sequoia sempervirens* was found in the vicinity of Nootka Sound, Vancouver Island explored by both Archibald Menzies (1792 on the Vancouver Expedition) and Thaddeus Haenke (Luis Née was not present on this part of the Malaspina expedition, 1791), and *Sequoia gigantea* was to be found in California in areas explored by David Douglas. Clues as to how Endlicher came up with this reclassification are found in his references and in his synonymy:


Sequoia *Endl. Synops. Conif. 197.* Condylocarpus *Salisbury* msc. Taxodium sempervirens *Lambert Pin. Ed. 2. II. t. 64. Hooker Ic. t. 379.*

Endlicher's *Sequoia* references from *Genera Plantarum Suppl. IV*


Sequoia *Endl. Gen. pl. Suppl. IV. inedit.* Condylocarpus *Salisbury msc.* Taxodii *sp. Lamb.*

Endlicher's *Sequoia* references from *Synopsis Coniferarum*

The seemingly circular referencing is because *Genera Plantarum Suppl. IV* was finished but not yet published (inedit.) when *Synopsis Coniferarum* was published, presumed to be the dedication date: 14 May 1847. The dedication date of *Genera Plantarum Supplementum Quartum* was 1 December 1847. "Condylocarpus Salisbury msc." is a genus name followed by the plant name author that was hand written (manuscript) but never published and so can be ignored, now as then. The references cited for *Sequoia* in *Synopsis Coniferarum* refers to Taxodii sp. Lamb. and in *Genera Plantarum Suppl. IV* as *Taxodium sempervirens* Lambert, showing progressive revisions in his work.

Endlicher's synonymy for *Sequoia gigantea* clarifies *Taxodii* sp. Lamb as *Taxodii* species Douglas citing William Jackson Hooker's journal *Companion to the Botanical Magazine*, volume 2, 1836, page 150. This page appeared in an extensive memorial to David Douglas and was Douglas's letter to Hooker datelined, "Monterey, Upper California, Nov. 23rd 1831." In this letter Douglas writes:

> "But the great beauty of Californian vegetation is a species of Taxodium, which gives the mountain a most peculiar, I was going to say awful,

> appearance – something which plainly tells that we are not in Europe. I have never seen the Taxodium Nootkatensis of Nees, except some specimens in the Lambertian Herbarium, and have no work to refer to; but from recollections I should say, that the present species is distinct from it. I have repeatedly measured specimens of this tree 270 feet long and 32 feet round at three feet above the ground. Some few I saw upwards of 300 feet high; but none of which the thickness was greater than those I have instanced. I possess fine specimens and seeds also."

In *Genera Plantarum Suppl. IV*, Endlicher's first reference is, "Lambert Pin. Ed. 2. II. t. 64." This is Aylmer Bourke Lambert's *A Description of the Genus Pinus,* Second Edition Volume 2. The "t. 64", tabula 64 (picture 64) indicates that Endlicher had available a copy of the 1832 edition, since *Taxodium sempervirens* was indicated to be illustrated on "Tab. 7, Fig. 1" in the 1828 edition, though the plate numbering system is somewhat confused. Endlicher did not have a copy of Lambert's *Genus Pinus* when he was working on fascicle 4 (that includes genus [No.] 1794. Taxodium L. C. Rich on page 259) of *Genera Plantarum* that was published in October 1837 (Stern 1947).

Endlicher did not take note that Lambert expressed appreciation of David Don's contributions in his preface: "I have here to acknowledge my obligations to Mr. David Don, for the pains he has taken in forming the descriptions of the new species, and the accurate manner in which the whole has been executed." Don, not Lambert, gave the new species the name *Taxodium sempervirens* and described the fragments of the plant that were available for description thusly, "having only a single imperfect specimen of this species for examination … I have been enabled to give the accompanying figure from a specimen obligingly communicated to me by my friend Mr. Menzies, who collected it on the north-west coast of America during his voyage on board the expedition of the celebrated Vancouver." As a location, Don recorded the "Habitat in Orâ occidental Americæ borealis." (transliterated this says: habitat in rim western America North; translated as: coastal western North America).

Endlicher's second reference in *Genera Plantarum Suppl. IV* is to "Hooker Ic. t. 379." This reference is to Hooker's *Icones Plantarum; or Figures, with Brief Descriptive Characters and Remarks of New or*

TAB. 64.

TAXODIUM SEMPERVIRENS.

EVERGREEN TAXODIUM.

TAXODIUM SEMPERVIRENS, foliis distichis linearibus acutis perennantibus coriaceis glabris opacis.

Habitat in Orâ occidentali Americæ borealis. *Menzies.*

DESCRIPTIO.

Arbor sempervirens. *Ramuli* angulati, foliosi, glabri. *Folia* lineari, acuta, disticha, coriacea, glabra, utrinque opaca, lucida, subtùs nervo medio carinata, margine plana, semi vel nunc ferè pollicem longa, semilineam lata, basi decursiva. *Galbuli* terminales solitarii, subrotundi, basi squamus brevibus imbricatis muniti: *squamis* trapezoideis, peltatis, crassis, fungoso-lignosis, suprà rugosis, atque radiatim striatis, centro depressis, basi in pedicellum crassum angulatum desinentibus. *Semina* ad singulam squamam numerosa, angulata, gilva.

Having only a single imperfect specimen of this species for examination, it is not without some hesitation, that I have referred it to *Taxodium*. I have thought the plant too interesting, however, to omit in the present work, leaving it to future observations to determine, whether or not the place I have assigned to it be correct.

The tree appears intermediate between *Taxodium* and *Cupressus*, agreeing with the latter in the indefinite number of its seeds. The late Mr Salisbury considered it as forming a new genus, and had applied to it the name of *Condylocarpus*.

This plant, I propose to call *sempervirens*, from its evergreen leaves, so different from the *Taxodium distichum*, whose leaves are deciduous.

I have been enabled to give the accompanying figure from a specimen obligingly communicated to me by my friend Mr. Menzies, who collected it on the north-west coast of America during his voyage on board the expedition of the celebrated Vancouver.

David Don's description of *Taxodium sempervirens* in Aylmer Bourke Lambert's *A Description of the Genus Pinus,* Second Edition Volume 2, t. 64, issued in 1832.

David Don's illustrations of *Taxodium sempervirens* in Aylmer Bourke Lambert's *A Description of the Genus Pinus*, Second Edition Volume 2, t. 64, issued in 1832.

Rare Plants, Selected from the Author's Herbarium, Volume 4, 1841, tabula 379 – "Taxodium sempervirens, Lamb. ?" Here Hooker includes the following statement in his description:

> "It does not so well accord with Taxodium sempervirens of Lambert, as to induce me to consider it decidedly that plant."

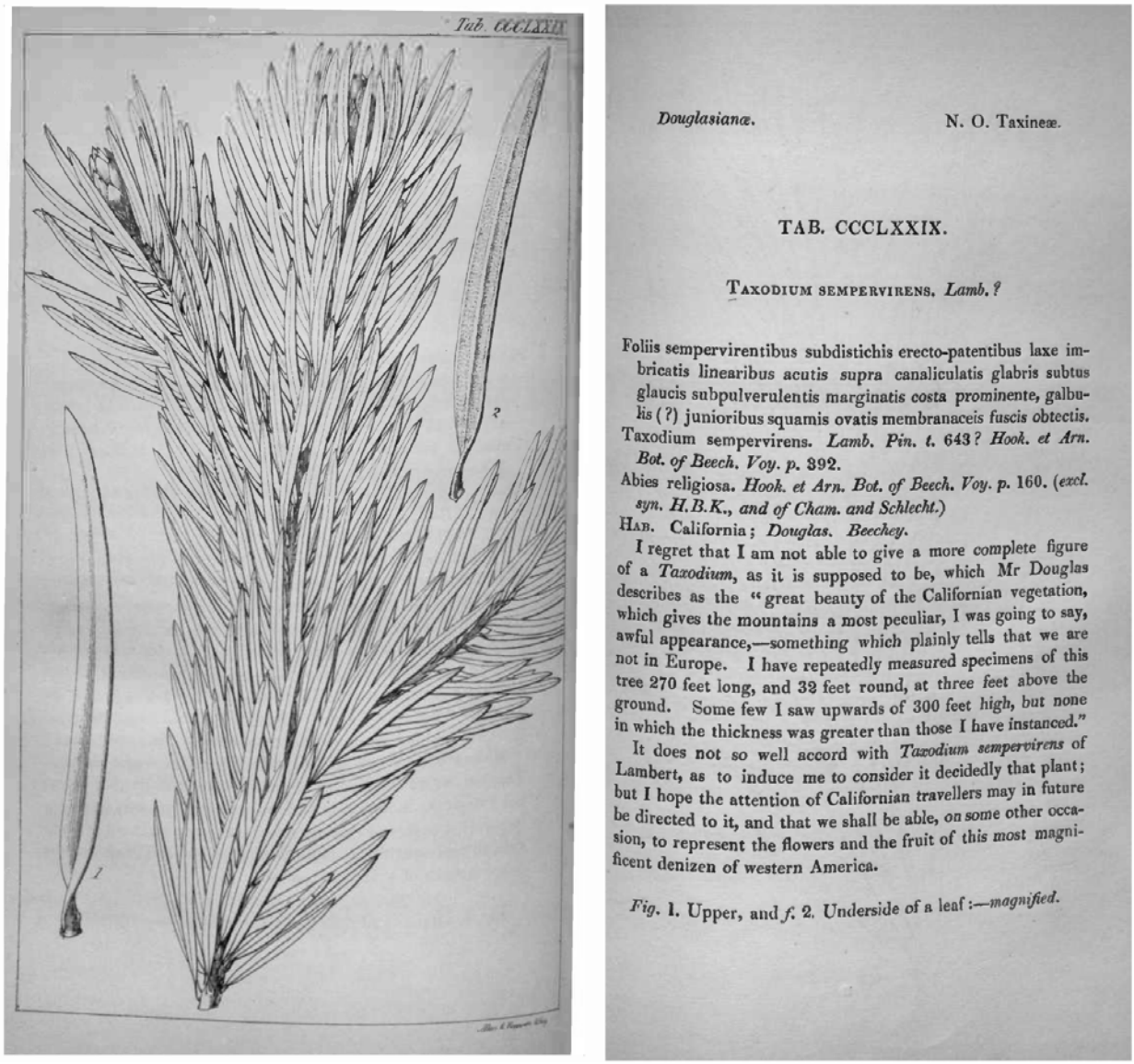
This uncertainty regarding identification was not resolved until four years after Endlicher's death. Hooker wrote in *Curtis's Botanical Magazine* (volume 80 of the whole work) in the issue for April 1, 1854 (Wellingtonia gigantea. Tab. 4777, 4778):

> "I was disposed to refer barren branchlets of a *Conifera*, sent home by Douglas, to this monster tree, which I published in the *Icones Plantarum* tab. 379, as the *Sequoia sempervirens*,* and probably the tree in question. Time, and our increased and increasing knowledge of California trees, proved that I was in error, and that the subject of my plate in reality belonged to Abies bracteata (Botanical Magazine, Tab. 4640).
>
> * Mr. William Lobb (see 'Gardner's Chronicle,' 1854, p. 22) has shown that Douglas's monster tree could not have been the Wellingtonia [now *Sequoiadendron giganteum*], for he was not within 120 miles of its locality, but that it was really and truly the Sequoia sempervirens. Sequoia gigantea, therefore, of Endlicher, taken up from our figure, is a nonentity."

Mystery solved. But not for Endlicher! The only botanical collector's name mentioned in Hooker's *Icones Plantarum* tab. 379 of 1841 was that of David Douglas. David Don in Lambert's *Genus Pinus* only mentioned one botanical collector's name, Archibald Menzies. Only one of Endlicher's two species of the genus *Sequoia* mentions Douglas: *Sequoia gigantea*. Habitat descriptions and citations are needed to define the species. Hooker's declaration that it was a nonentity, in 1854, was only narrowly correct. Endlicher's text and other references indicate that,

Endlicher named the coast redwood *Sequoia gigantea*.

Additionally, Endlicher's synonymy for *Sequoia gigantea* also twice cites a plant described, but not illustrated, in Sir W. J. Hooker and G. A. W. Arnott's, *The Botany of Captain Beechy's Voyage, comprising*



Douglasianæ. N. O. Taxineæ.

TAB. CCCLXXIX.

TAXODIUM SEMPERVIRENS. *Lamb.?*

Foliis sempervirentibus subdistichis erecto-patentibus laxe imbricatis linearibus acutis supra canaliculatis glabris subtus glaucis subpulverulentis marginatis costa prominente, galbulis (?) junioribus squamis ovatis membranaceis fuscis obtectis.

Taxodium sempervirens. *Lamb. Pin. t.* 643? *Hook. et Arn. Bot. of Beech. Voy. p.* 392.

Abies religiosa. *Hook. et Arn. Bot. of Beech. Voy. p.* 160. (*excl. syn. H.B.K., and of Cham. and Schlecht.*)

HAB. California; *Douglas. Beechey.*

I regret that I am not able to give a more complete figure of a *Taxodium*, as it is supposed to be, which Mr Douglas describes as the "great beauty of the Californian vegetation, which gives the mountains a most peculiar, I was going to say, awful appearance,—something which plainly tells that we are not in Europe. I have repeatedly measured specimens of this tree 270 feet long, and 32 feet round, at three feet above the ground. Some few I saw upwards of 300 feet high, but none in which the thickness was greater than those I have instanced."

It does not so well accord with *Taxodium sempervirens* of Lambert, as to induce me to consider it decidedly that plant; but I hope the attention of Californian travellers may in future be directed to it, and that we shall be able, on some other occasion, to represent the flowers and the fruit of this most magnificent denizen of western America.

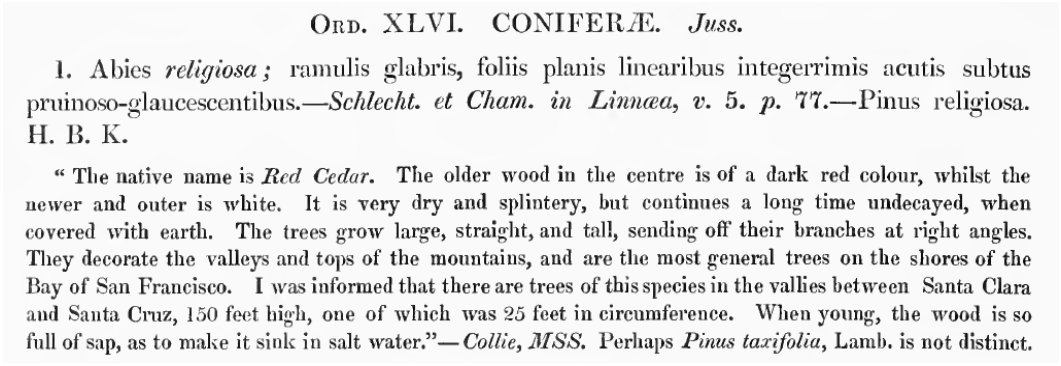
Fig. 1. Upper, and *f.* 2. Underside of a leaf:—*magnified.*

"*Taxodium sempervirens*, Lamb. ?", in Sir William Jackson Hooker's *Icones Plantarum* Volume 4, 1841, tabula 379. Now, the Santa Lucia Fir, *Abies bracteata*, historically named *Abies venusta*, *Pinus venusta*, *Pinus bracteata* and *Picea bracteata*.

an account of the plants collected by Messrs Lay and Collie, and other officers of the expedition, during the voyage to the Pacific and Bering's Strait, performed in his Majesty's Ship Blossom under command of Captain F. W. Beechey, R.N., F.R., & A.S. in the years 1825, 26, 27, and 28. The completed volume was published in 1841. On page 160, in a fascicle first published in 1833, they describe *Abies religiosa*, and on page 392, in the "California Supplement", in a

fascicle first published in 1840, they describe *Taxodium sempervirens*.

Since Endlicher cited *The Botany of the Capitan Beechey's Voyage*, one can safely assume that he had a copy available for reference. In anachronistic hindsight, one may conclude that, the plant described on page 160 is clearly the coast redwood, based simply on the geographic information in the citation. In support of his reclassification of the genus *Taxodium* to his new genus *Sequoia*, one may also conclude that Endlicher did not have available any of the several maps published before 1847 that show some west coast features (Wheat 1942): *Map of North America Exhibiting Recent Discoveries"*, Wyld, London, 1825; "Upper California, to illustrate the paper by Dr. Coulter," *Journal of the Royal Geographical Society*, John Murray, London, 1835; especially the "Map of the Indian Tribes of North America", Cambridge, 1836, to illustrate Albert Gallatin's

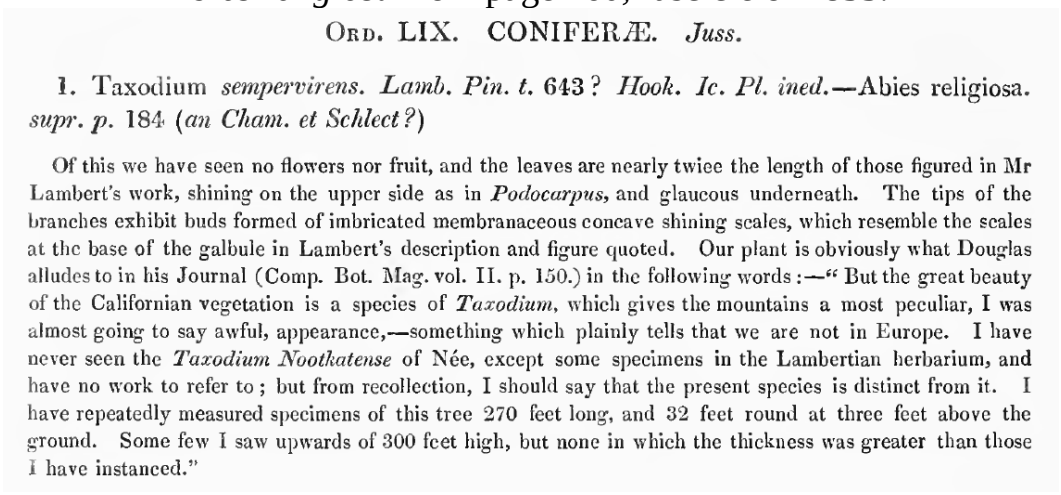


ORD. XLVI. CONIFERÆ. *Juss.*

1. Abies *religiosa;* ramulis glabris, foliis planis linearibus integerrimis acutis subtus pruinoso-glaucescentibus.—*Schlecht. et Cham. in Linnæa, v. 5. p. 77.*—Pinus religiosa. H. B. K.

" The native name is *Red Cedar*. The older wood in the centre is of a dark red colour, whilst the newer and outer is white. It is very dry and splintery, but continues a long time undecayed, when covered with earth. The trees grow large, straight, and tall, sending off their branches at right angles. They decorate the valleys and tops of the mountains, and are the most general trees on the shores of the Bay of San Francisco. I was informed that there are trees of this species in the vallies between Santa Clara and Santa Cruz, 150 feet high, one of which was 25 feet in circumference. When young, the wood is so full of sap, as to make it sink in salt water."—*Collie, MSS.* Perhaps *Pinus taxifolia*, Lamb. is not distinct.

Abies religiosa from page 160; fascicle of 1833.



ORD. LIX. CONIFERÆ. *Juss.*

1. Taxodium *sempervirens. Lamb. Pin. t.* 643? *Hook. Ic. Pl. ined.*—Abies religiosa. *supr. p.* 184 (*an Cham. et Schlect?*)

Of this we have seen no flowers nor fruit, and the leaves are nearly twice the length of those figured in Mr Lambert's work, shining on the upper side as in *Podocarpus*, and glaucous underneath. The tips of the branches exhibit buds formed of imbricated membranaceous concave shining scales, which resemble the scales at the base of the galbule in Lambert's description and figure quoted. Our plant is obviously what Douglas alludes to in his Journal (Comp. Bot. Mag. vol. II. p. 150.) in the following words:—" But the great beauty of the Californian vegetation is a species of *Taxodium*, which gives the mountains a most peculiar, I was almost going to say awful, appearance,—something which plainly tells that we are not in Europe. I have never seen the *Taxodium Nootkatense* of Née, except some specimens in the Lambertian herbarium, and have no work to refer to; but from recollection, I should say that the present species is distinct from it. I have repeatedly measured specimens of this tree 270 feet long, and 32 feet round at three feet above the ground. Some few I saw upwards of 300 feet high, but none in which the thickness was greater than those I have instanced."

Taxodium sempervirens from page 392; fascicle of 1840. From *The Botany of the Capitan Beechey's Voyage*, (Hooker and Arnott 1841).

"Synopsis of the Indian Tribes of North America", published by the American Antiquarian Society, a volume that Endlicher is implied to have had available by the proponents for the idea that the naming the genus *Sequoia* was in honor of Sequoyah. This last map shows the locations of bays at Monterey, San Francisco, and Nootka Sound.

Further complicating concerns for Endlicher's *Sequoia gigantea* is that the plant illustrated by Hooker in *Icones Plantarum* Volume 4, 1841, tabula 379 and used by Endlicher to characterize *Sequoia gigantea* was already described. Dr. Thomas Coulter had provided specimens that David Don had described in Lambert's *Genus Pinus* as *Pinus bracteata*. Don's description included:

> "Habitat in California, in montibus Sanctæ Luciæ, alt. 3000 ped. Coulter. … This curious and interesting species of Fir was discovered by Dr. Coulter on the sea side of the mountain range of Santa Lucia, about 1000 feet lower down than [*Pinus*] *Coulteri*."

And, if that's not enough, Endlicher had included *Pinus bracteata*. Don on page 89-90 of *Synopsis Coniferarum.* In his synonymy he referenced Lambert's *Genus Pinus* "III. T. 91," indicating that the plant was illustrated. He also referenced Don's article in Volume 17 of the *Transactions of the Linnaean Society*., pp. 439-444, "Description of Five New Species of the Genus Pinus, discovered by Dr. Coulter in California. Read 2nd June 1835." Further referencing was to Douglas's letter to Hooker datelined River Columbia, Oct. 23, 1832, published in Hooker's *Companion* Volume 2 1836, p. 152 where he wrote:

> "I will now mention another new *Pinus* to you (*P. venusta*), which I discovered last March, on the high mountains of California. … As my notes are not at hand, I must describe from memory." [This is followed by a description.]

Endlicher's final synonymy was the citation "Picea bracteata Loudon Arboret. IV. 2348. F. 2256. No one could possibly doubt that taxonomic confusion reigned due to a lack of adequate plant material and information!

Turning now to Endlicher's synonymy for *Sequoia sempervirens* where he lists two previous identifications:

> *Taxodium sempervirens* Lambert Pin. Ed. 2 II t. 64. and *Taxodium nutkaense* Herb. Lamb.

Neither of these two synonyms is helpful in identifying what plant growing in the vicinity of Nootka Sound, Vancouver Island when explored by both Menzies and Haenke that Endlicher is referring to. Both *Taxodium sempervirens* in Lambert's *Genus Pinus* and Douglas's mention of seeing *Taxodium nutkaense* specimens in Lambert's Herbarium in his November 1831 letter to Hooker have been discussed above.

Endlicher's habitat of *Sequoia sempervirens* at Nootka Sound is credited to Menzies, Née, and Haenke. Menzies collected plants near Nootka Sound in the spring and summer of 1792 when the Vancouver Expedition sailed in the area and Endlicher would have read his name in the works that he cited. Née is mentioned in connection with *Taxodium nutkaense* by David Douglas, but Haenke is not mentioned in any of Endlicher's references. Haenke had previously collected there in July 1791 as a member of the Malaspina Expedition. Since Haenke had to have had the Emperor's permission to join the Malaspina Expedition it can be assumed that some information on the Expedition was available to Endlicher in Vienna. Luis Née, not to be confused with Endlicher's associate C. G. Nees von Esenbeck, can be pardoned for any of the confusions since he separated from the Malaspina Expedition at Acapulco on the way north so as to collect in Mexico, and was picked up again on the way south.

Since Haenke had been a student of, and housed by, Endlicher's predecessor as Professor of Botany at the University of Vienna, Nicolaus Joesph von Jacquin and had published in Jacquin's journal, Haenke was well enough known in Vienna. Stern (1973) makes note that:

> "Much of Haenke's material went astray or got damaged in transit and none seems to have reached Europe after 1795. In 1821 seven chests, which had lain neglected at Cadiz and then at Hamburg, were acquired by the recently founded Bohemian National Museum at Prague and thus came into the hands of his compatriots. Count Sternberg at once took in hand the classification of the plants, which amounted to about 4000 species represented in all by about 15,000 specimens. …

> Unfortunately, Haenke had not provided individual labels for his specimens but had written the name of the locality only on the outside of a parcel of specimens from a given place; hence labels based on the wrappers had to be written by other hands; some of these certainly became misplaced and the localities stated cannot always be trusted, as has been noted by many specialists."

Clearly not enough was known about the *Sequoia sempervirens* strictly from the published record that Endlicher cited. He would probably have had to have had access to the Haenke specimens that had been stored at the National Museum/Charles University herbarium in Prague. This plant material provided the basis of K. B. Presl's *Reliquiae Haenkeanae* (Stern 1973), unfortunately the coast redwood was not among those described.

David Don's 1828 illustration of *Taxodium sempervirens* bears prominent flattened needlelike leaves with the needle leaves longest in the middle portion of each twig. Also present at the base of the twig to which the needlelike leaves are attached are scale-like leaves (appressed) that are also present on the twig ending in a seed cone. The needlelike leaves are spirally arranged, and have their attached bases at the twig twisted to bring the needles into a flattened row on either side of the twig (decurrent), thus appearing to be in an alternate arrangement. Among the coastal conifers found in the vicinity of Nootka Sound, three might possibly, if never seen before, be confused with the coast redwood of Don's illustration from pressed dried needle bearing twigs without any other structures being present: *Abies grandis* Lindley 1833, *Taxus brevifolia* Nutt. 1849, and with *Tsuga heterophylla* (as *Abies*, Raf. 1832) Sargent 1898 possibly coming closest. In *Synopsis Coniferarum* Endlicher had included *Abies grandis* as *Pinus grandis* Douglas and *Abies heterophyla* was designated a "species penitus dublae", a very doubtful species. *Taxus brevifolis* had not yet been reported. However, with seed cones, none of these Nootka Sound conifers would even come close to being confused with coast redwood, Don's *Taxodium sempervirens*; Don had illustrated a seed cone.

Because of either Haenke's poor packing, or rummaging through parcels hanging around the quay for upwards of a quarter of a century by longshoremen, and the conflicting state of the literature, the

geographic location of Haenke's specimens was confused, at best. However, Endlicher was convinced that this species of *Sequoia* had come from Nootka Sound; "a fanciful mental illusion". Therefore, one must conclude that:

Endlicher named a chimera *Sequoia sempervirens*.

Don's illustration of Menzies' specimens of *Taxodium sempervirens* in Lambert's *Genus Pinus* showed primarily the exterior of a single cone and his description mentioned the seeds: "Semina as singulam squamam numerosa, angulata, gilva" (Seeds as numerous on a single large scale, angular, yellowish). Hooker's tabula 379 was of foliage only. Endlicher would have needed actual herbarium specimens to determine that his new genus was "penta-heptaspermae" and would fall in the middle of Endlicher's Sequence, defining the name of the genus *Sequoia*: prefix "sequo" suffix "ia".

This herbarium sheet was featured in *Fremontia* in 2013 in *Sequoia*: Continuation of the Saga by Maecel Rejmánek from a photograph by Jiri Hadinec. "One of the specimens of the redwood collected in California by Thaddeus Haenke in 1791."

According to Rejmánek:
"On the labels are three species names: *Sequoia sempervirens* Endl (on the top, obviously added later), *Taxiphyllum sempervirens* Presl and *Taxodium sempervirens* Lamb."

Curiously, *Taxiphyllum* is a genus of feather moss in the Family Hypnaceae. Who knows why a coast redwood specimen would be so labeled?

Chapter 7
Summary and Conclusion

Ascertaining the why and how of Stephen Endlicher's naming of the genus *Sequoia* has been an intellectual journey attempting to reconstruct Endlicher's thought processes concerning a specific problem. One hypothesis that arose in the mid-1850s was that the genus *Sequoia* had been named after the Cherokee man Sequoyah. A second hypothesis that took root in the 1870s reflected Endlicher's methods of science. Evaluating these alternative hypotheses brings to mind Charles Darwin's "plea for understanding historical figures in the context of their own times, and not in anachronistic reference to ours" (Gould 1981).

When first introduced, the idea that Endlicher had named the genus *Sequoia* in honor of the Cherokee man Sequoyah was inspired by the "Great Tree of California", also contemporaneously know as The Mammoth Tree, or Big Tree; the giant sequoia, and not the coast redwood, referred to by Gray (1872) as the "commoner redwood .. the most important tree in California, …, too good to live long… that judging the future by the past, it is not likely, in its primeval growth, to outlast its rarer fellow-species." Over the century to follow, the idea that Endlicher had named the genus *Sequoia* to honor Sequoyah was almost always presented in connection with the giant sequoia, helping to divert attention away from the plight of the more utilitarian coast redwood. Asa Gray's prediction has been thwarted by human activity; primeval growth no longer exists and we must now talk about old-growth. The coast redwood forests have been reduced by perhaps 95 percent and those of the giant sequoia by about 34 percent: coast redwood retains perhaps 110,000 acres and giant sequoia 23,500 acres.

The alternative interpretation, that Endlicher derived the word sequoia in some manner from the Latin word "sequi" (later restated by others as "sequor") meaning "follow" in some sequence. In the nineteenth century, three possible sequences were proposed: "separated, or following, in order of succession, after Taxodium" in Endlicher's reclassification (Gordon 1862); "a lone follower of vast

colossal forests" (Gray via Lemmon 1879; and "a rear guard of a past procession of prodigious species" (Gray via Lemmon 1890). These three proposed sequences were shown not to be acceptable (Lowe 2012). Subverting Gordon's suggested sequence is the simple fact that Endlicher also separated the genus *Glyptostrobus* "in order of succession, after Taxodium" and the information supporting the two Gray via Lemmon sequences concerning followers of "vast colossal forests" or a succession of "prodigious species" was not available during Endlicher's lifetime. In the early twenty-first century Endlicher's Sequence was found in his taxonomic scheme, thereby firmly supporting the genus name *Sequoia* having been derived in some manner from the Latin word "sequor." The mechanism of this word derivation was not explored (Lowe 2012).

The case for the idea that Endlicher had named the genus *Sequoia* in honor of the Cherokee man Sequoyah has been fraught with vagueness ever since it was first mentioned in January 1856: "The honor must be intentional; but if not, the accident is most gratifying." In 1860, this uncertainty was expressed as, "Surely if the genus were not named in his honor, it should be now." Then in 1879 botanist Asa Gray, reported through J. G. Lemmon, that "this is no doubt an afterthought and unworthy to be kept up."

The twentieth century saw additional contributions to the honorific Sequoyah storey. In 1908 Americans were exposed to the notion that "A great American scientist … Latinized the Indian name;" In 1910 doubts were expressed by California's most preeminent botanist of his generation, the name "is accepted by authorities as most highly probable and is at least happily appropriate." In 1913, the attribution became conjecture during early state park promotion. In 1938, under the need to fulfill popular demand for explanation, some authors began indulging in invention without saying so: Endlicher became "a student of American history and ethnology" and that he "knew of the alphabet prepared by the Cherokee Indian", no longer a mere assumption.

The last quarter of the twentieth century opened with declaring that the name *Sequoia* "has been most popularly represented as the Latinized version of Sequoyah … It was apparently assumed that

Endlicher … admired the Indian for his linguistic accomplishments. … Whatever the origin, the name of this remarkable tree has remained generally associated for more than a century with the remarkable Indian, Sequoyah. Perplexity and doubt notwithstanding, let it so remain."

In addition to the discovery of Endlicher's Sequence confirming Asa Gray's convictions, the early twenty-first century has offered an exacting example of what Dr. Felipe Fernandez-Armesto, William P. Reynolds, Professor of History, University of Notre-Dame, has observed, that an "indifference to accuracy now fills academic books with errors and journals with gobbledegook" (Fernandez-Armesto 1999). Like previous support of the *Sequoia* honoring Sequoyah hypotheses no empirical evidence has been offered. The subjective method employed uses errors of fact, exaggerations, misquotation, miscitations. and obvious anachronism to make its point. The argument presented relies on assertions of Endlicher's presumed knowledge of Indians, including the man Sequoyah; their languages, in which he was declared proficient; nonspecific, nor cited, letter communications with people in the know; nonexistent authorship about Indians in his books; and the unsubstantiated opinions of others. Major alleged support, categorized as a "direct link," is an anachronistic Cherokee pronunciation, and English spelling of Sequoyah's name stemming from changes in dialect which were not available to Endlicher in Austria through a lack of interaction with Cherokee speakers. Equally anachronistic is the assertion that Endlicher spoke and wrote in standardized modern Classical Latin, as opposed to the western Hungarian dialectal descendent of Medieval Latin of his familial community, and that his experience was steeped in the grammar of Latin far more ancient than that in use by his contemporaries derived from his philological studies of the ancient manuscript texts in the Imperial Library, as well as his use of the developing Botanical Latin.

In exemplifying Endlicher's Sequence with the name of the genus *Sequoia* Endlicher's Linnaean botanical nomenclatural practices and his understanding of the ancient Latin of the manuscript texts allowed him to readily use as a prefix "sequo," the early root of the Latin verb

“sequor” by dropping the added “r” and then adding the Latin suffix “ia” to yield the new word *Sequoia* as the name for the genus of conifers that followed within his sequence, Endlicher’s Sequence, of five genera in his Suborder Cunninghamieae; trees that he had never seen in a mature state and was unaware of their precise geographic location or habitat.

For Endlicher to have named any genus to honor anyone not involved in the advancement of botany would have been a deeply rooted violation of his Linnaean fundamentals embodied in his botanical nomenclature protocols; to have named the genus *Sequoia* in honor of the person Sequoyah would therefore have been completely out of character. As Henry Fielding noted a century before Endlicher’s death (as quoted in Roberts 1996):

> I will venture to say, that for a man to act in direct contradiction to the dictates of his nature, is, if not impossible, as improbable and as miraculous as anything which can well be conceived.

The attribution of the name of the genus *Sequoia* honoring the man Sequoyah is an invented tradition; a silent contribution to America’s self-identity as “nature’s nation.” A tradition invented in 1856 by an anonymous citizen of Maryland and marketed by the Harvard University based State Geologist of California, Josiah D. Whitney in 1868, and later by California publicists and boosters. The *Sequoia* honoring Sequoyah hypothesis is heuristically falsified by the support presented in the favoring article. Up until that falsified support was presented in detail, the hypothesis prevailed for over a century:

> “A false hypothesis is better than none at all. The fact that it is false does not matter so much. However, if it takes root, if it is generally assumed, if it becomes a kind of credo admitting no doubt or scrutiny – this is the real evil, one which has endured through the centuries.”
> Johann Wolfgang Goethe, *On General Theory*, 1833.

Afterword

During the American Revolution most Cherokees sided with the British. In 1783 when the war ended with the signing of the Treaty of Paris, Sequoyah was just coming of age. Strife continued for the Cherokees because the Colonial Charters of both North Carolina and Georgia extended all the way west to the Mississippi and neither state recognized the authority of the Federal government to conduct relations with tribes within their boundaries and both of these states made grants of Cherokee land to their citizens who consequently occupied these lands. When the Constitution became effective sole authority over Indian affairs was placed in the hands of Congress and the President. Indian policy under the Washington administration respected their right to exist, but that was about all, allowing Euro-Americans to "expand with honor" into Indian lands, through congressionally approved purchases of land. However, no limits were set to this expansion (Perdue and Green 2005).

Because the Indian's lifestyles were different from that of the contemporary rural Euro-American lifestyle, they were considered uncivilized by the general American population. Though many of the Cherokee people had already recognized this difference as becoming detrimental to their very survival, the United States Indian Policy was to encourage them to become "civilized" and change their way of dressing, acting, speaking, working, worshiping, and their very way of thinking. All this would entail an entire cultural shift; which is to say, to stop being Cherokee (Perdue and Green 2005).

Blending of the Euro-American culture into that of the Cherokee had already been occurring for a few generations before Sequoyah was born. He was himself of English-Cherokee inheritance though he grew up Cherokee. The various ways that the Cherokee lived, and spoke, did not go unnoticed as he matured. Like all people, Sequoyah had decisions to make; he chose to remain Cherokee and not become an American like those encroaching settlers. Another decision that he made was that, though exposed to spoken and written English throughout his life, he would persevere in being Cherokee through "his steadfast refusal to speak English" (Cushman 2011).

Like many Cherokees, Sequoyah recognized that some of the cultural traits of the ever encroaching Euro-Americans had obvious advantages. His epiphany was that if the Americans could communicate on paper, so could the Cherokee. All that remained was to figure out how. Over the course of a decade, beginning about 1809, he undertook an obsessive "monastic pursuit" experimenting with various approaches to solving the problem until he had accomplished developing the Cherokee writing system, now known as Sequoyan, based on the Cherokee syllabary, that, in Cushman's borrowed phrase "would be by, for, and of Cherokees."

Almost another decade would pass during which Sequoyah would demonstrate his writing system, obtain approval of the Cherokee National Council, and teach the people the use and benefits of the written word. By the end of those ten or so years Sequoyah's syllabary would be used to establish a print culture for the Cherokee. More to the point, Sequoyah accomplished what he set out to; remaining Cherokee. "The syllabary works well to unite Cherokees through the language, marking a boundary for outsiders who learned the alphabet [be it English, German, Latin, or from wherever] as part of their first language. The syllabary deliberately does not facilitate communications with whites." Entering the realm of print culture, "the Cherokee developed an identity separate and separable from … the one that the federal government had fashioned for them" (Cushman 2011).

As the Cherokee were being forced off and away from their ancestral homelands, Americans were being entertained at home by a group of New England romantic poets who became known as the "Fireside Poets": Longfellow, Bryant, Whittier, Lowell, and Holmes. It was from the poets that helped enshrine the image of the Nobel Savage that *The Country Gentleman* took the name for its literary column where the idea of the derivation of the genus name *Sequoia* honoring Sequoyah first appeared in a letter from a "correspondent in Maryland" in 1856, "where does the name come from? Is it an intentional thing, or is it an accident, that the American tree should bear the name of an American who deserves any such honor … . The honor must be intentional; but if not, the accident is most gratifying."

Then in 1860, from J. H. Lippincott of Camden, New Jersey, across the Delaware River from the Philadelphia base of the Lippincott Publishing Company, “Surely if the genus were not named in his honor, it should be now.” This was indeed, “Merely an afterthought.” Twenty-first century buttressing of this honor is equally disdainful of consideration being based entirely on counterfactual arguments. A man who resisted Americanization and would not be transformed into an “approved white American” (Berkhofer 1978), who steadfastly refused to speak English, who developed a written form of communication for his people that “deliberately does not facilitate communications with whites” and was above all Cherokee would assuredly not welcome “any such honor.”

Sequoyah’s accomplishment “by, for, and of Cherokees” does not need romantic Americans imagining Austria’s preeminent botanist in 1847 naming herbarium specimens from an unseen tree, a veritable chimera, thought to be from Nootka Sound, in his honor. Continuation of a fictional account of how the genus *Sequoia* was named both tarnishes Endlicher’s botanical excellence and bankrupts Sequoyah’s resistance to the American takeover of Cherokee lands and attempted devastation of the Cherokee culture.

One should remember that “the historian must tell children the truth.”

APPENDIX A

The Science of Endlicher's Times in the Austrian Empire*

Total absolutism was the rule of the Habsburg Empire from 1526 to 1918, with but minor interruptions, such as during part of the European revolutionary year of 1848. At the conclusion of the Napoleonic wars in 1815, "when the impact of public dissatisfaction seemed less dangerous, … absolutism was even more firmly in the saddle"… and "the police played an increasingly pervasive part, which rightly gave the new system the trade-name 'police state.' The chief objective and task of the police, under its new chief, Count Joseph Sedlnitzky (as president of the police and censorship agency from 1817 to 1848) was to check the spread of even faintly liberal ideas that meant potentially revolutionary ideas. This task required a strict system of censorship" (Kann 1977). Printed matter from "a dangerous republic like that of the United States" (Rath 1957) was completely off limits. The year of Endlicher's first arrival in Vienna, 1821, witnessed another change that would later profoundly influence his life, as well as that of all Austria; Emperor Francis I appointed foreign minister Prince Clemens Metternich court and state chancellor, who subsequently "was at least nominally in charge of the whole administration" (Kann 1977).

An example of the restricted access to world ideas can be seen in the letters that passed between two Austrian botanists: Stephan Endlicher (1804-1849), in Vienna and Franz Unger (1800-1870), working primarily at the University of Gratz (Haberlandt 1899). In August 1830, John Lindley (1799-1865), working in London, published the first edition of his *An Introduction to the Natural System of Botany*. Lindley writes in the introduction "All plants are composed of what are called elementary organs, that is to say, of a vegetable membrane appearing under the form of parenchyma or

* – Adapted and expanded after portions of Lowe 2015.

A Comprehensive Plant

(Endlicher and Unger 1843, Figure 49, untitled).

Reminiscent of Johan Wolfgang von Goethe's conceptual Urpflanze, his archetypical plant. The explanatory text for Figure 49 of *Grundzüge der Botanik* parallels part of Goethe's 1790 *Metamorphosis of Plants*.

Endlicher and Unger incorporate Goethe's concepts of einheit (unity); vereinigung (unification); Ausdruck des polaren Gegensatzes (expressions of polar opposition), a strong Linnaean fundamental; and others into their discussion, especially metamorphosirte (metamorphosed) as a means to describe changing growth forms.

cellular tissue in different states… .” In comparison, Unger wrote Endlicher on 14 February 1830 a letter requesting him to review the “attached draft of a ‘natural plant system’ on an anatomical basis” that included the statement, “The plant is a body which is composed of the three elements of earth, water and air in a way that kept all three of their peculiar activity.” Austria was effectively isolated from modern Western European thought.

However, the Austrians were current with the world view in the Germanic states. The four Greek elements were in the primal chaos in the beliefs under the Naturphilosophie of Friedrich Wilhelm Joseph von Schelling (1775-1854), leader in the German idealism philosophical movement. The German idealist philosophy was “based on the assumption that the physical universe is a manifestation of the divine Mind.” Schelling’s colleague, Lorenz Oken (1779-1851), “was the most influential spokesman of the philosophy.” Oken’s 3,562 thoughts (wondrous aphorisms/bald oracular pronouncements) on this matter were published in three volumes between 1809 and 1811 as *Lehrbuch der Naturphilosophie*, revised in 1843, and translated into English by Alfred Tulk in 1847 in London as *Elements of Physiophilosophy*. “One of the most important applications of the idealist philosophy was … an overtly developmental view of the history of life on earth” (Bowler 1989, not in Bowler 2003). Naturphilosophie’s understanding of this approach to interpreting nature is that, “plants aspired to become sentient animals; animals aspired to become men; men aspired to become part of the *Zeitgeist* or world spirit” (Holmes 2008), that is to say progressing along the great chain of being (Lovejoy 1936).

Franz Unger was to become Endlicher’s closest and most sincere friend. Unger had trained under Oken in the early 1820s and he absorbed his teachings, as would Louis Agassiz in the mid 1820s (Laurie 1960; Bowler 1989, 2003). As a student studying abroad under Metternich’s administration, even the Germanic states were not above reproach as Unger found out when he returned home from his studies in 1823 and was imprisoned for seven months for not having official sanction for his travels.

Unger expressed his Okenesque thoughts to Endlicher in the aforementioned letter of February 1830 and in its accompanying draft of Unger's 'natural plant system.' Later during their collaborations, in a letter dated 16 July 1842, Endlicher scolds Unger over speculations in the manuscript to his book, Die Pflanze im Momente der Thierwerdung (The Plant at the Moment of Becoming an Animal) published in 1843 (Haberlandt 1899). Consequently one can surmise the influence of Oken's Naturphilosophie that dominates their thinking in the coauthored volume *Grundzüge der Botanik* (Principles of Botany), also published in 1843.

Here it may be appropriate to resort to Aesop, "A man is known by the company he keeps." In addition to Franz Unger, Endlicher more than merely rubbed elbows with two major followers of Oken's Naturphilosophie: Christian Gottfried Nees von Esenbeck and Karl Friederich Philipp von Martius. Both men coauthored and/or coedited books with Endlicher and both men were close associates with Johan Wolfgang von Goethe (Mueller 1952). Nees von Esenbeck worked closely with Lorenz Oken (Lenoir 1981) and was a past president of the Imperial Leopold-Caroline German Academy of Natural Sciences in Bonn. Dr. von Martius was professor of botany of the Ludwig-Maximilians-Universität in Munich (Mueller 1952) and openly expressed "his admiration for Goethe's work" (R.D. Gray 1952).

Stephen J. Gould (1984/1985) has summarized animal classification under Oken's Naturphilosophie as "taxonomy by fives." Heck (1849, see following page) in summarizing Endlicher's natural system of classification stated that "The philosophical system of Endlicher divides plants into two regions and five sections." Endlicher and other men of his times were devising classifications using what they perceived as "the laws of dynamic motion (that) ruled nature," searching for the "code of nature's numerical order" (Cohen 1985). The Endlicher-Unger plant classification system is a reorganization of the Oken system: Oken's aphorism 1508, plants with or without tubular organization, became Endlicher's Thallophyta (plants with no distinct separation of stem and root) and Coromophyta

NATURAL SYSTEM ACCORDING TO ENDLICHER.

Region I. THALLOPHYTA (frond plant). No opposition of stem and root. No spiral vessels, and no sexual organs. Propagated by spores.

Section 1. *Protophyta.* Developed without soil; deriving nourishment all around; fructification indefinite.

Section 2. *Hysterophyta.* Developed on decaying organisms; nourished internally from a matrix; all the organs appearing at once, and perishing in a definite manner.

Region II. CORMOPHYTA. Opposition of stem and root. Spiral vessels and sexual organs distinct in the more perfect.

Section 3. *Acrobrya.* Stem increasing by the apex, the lower part being unchanged, and only conveying fluids.

Cohort 1. Anophyta. No spiral vessels. Both sexes present. Spores free within spore-cases.

Cohort 2. Protophyta. Bundles of vessels more or less perfect. No male organs. Spores free within one or many-celled spore-cases.

Cohort 3. Hysterophyta. Both sexes perfect. Seeds without an embryo, consisting of many spores. Parasitic.

Section 4. *Amphibrya.* Stem increasing at the circumference. Vegetation peripherical.

Section 5. *Acramphibrya.* Stem increasing both by apex and circumference. Vegetation peripherico-terminal.

Cohort 1. Gymnospermæ. Ovules naked, receiving the fecundating matter directly at the micropyle.

Cohort 2. Apetalæ. Perigone either wanting or rudimentary or simple, calycine or colored, free or adherent to the ovary.

Cohort 3. Gamopetalæ. Perigone double; outer calycine, inner corolline; gamopetalous, rarely wanting by abortion.

Cohort 4. Dialypetalæ. Perigone double; outer calycine, parts distinct or united, free or attached to the ovary; inner coralline, parts distinct or very rarely cohering by means of the base of the stamens; insertion hypogynous, perigynous, or epigynous; sometimes abortive.

Under these sections are enumerated 279 natural orders, grouped under sixty-one classes.

Endlicher's Natural System of Plant Classification as Presented by Heck (1849) and Translated by Spencer F. Baird (1851).

(plants with a distinct separation of stem and root). Oken's aphorism 1511, prelude, "plants ascending by five main positions of the organs" becoming Endlicher's five Sections in the Thallophyta, the sections Protophyts and Hysterophyta; and in the Coromophyta, the sections Acrobrya, Amphibrya, and Acramphibrya, separated on the basis of the nature of the growth increase of the stem.

Classification of the coast redwood based on the median number of seeds per cone scale following in a recursive numerical sequence: 1, 3, 4, 6, 7, and naming the genus using the early Latin prefix "sequo" followed by the suffix "ia" on this basis to form the genus name *Sequoia* fell within what Cohen called the "laws of dynamic motion (that) ruled nature" and searching for the "code of nature's numerical order."

Endlicher's legacy lies in the many plants he named whose names remain valid. His understanding of botany has, of course been superseded. Endlicher and Unger's Natural System of Plant Classification entered the realm of abandoned science almost the day it first left Austria and the German States. Nevertheless, it remained in vogue in Germany for several decades to follow (Gmelin 1867).

Endlicher showed, though not to his discredit, an interest in other areas of the now abandoned sciences. Baron Charles von Reichenbach (1848/1851), an investigator of the Philosophy of Mesmerism, had discovered "a new imponderable, …, to take its station in the company of heat, magnetism, and electricity," a force that "pervades the whole physical universe;" hence its name from the German *Woden*, expressing the notion of an all-pervading power." Reichenbach was given special permission to specifically name Endlicher as one of his observers/witnesses (n.b. – Endlicher was a living contemporary of Reichenbach in Vienna at the time this was first published in 1848) reported encounter's in 1846 with Endlicher where he was demonstrating a sensitivity to thermal polarity in mineral crystals, biological magnetic susceptibility, an observer of "Odic Light," "Odic Incandescence," "Odic flame, and "Odic Smoke" on magnets in general and electro-magnets in particular. Endlicher's fellow botanist Eduard Fenzel, and Fenzel's wife and daughter were also observers. Observations were also made on plants

emanating an Odic luminescence (Reichenbach, Trans. Gregory 1854). This article was cited in the *Harvard Magazine* for January 1855 and by Alfred Russell Wallace (1866). The *Harvard Magazine* noted quite distinctly that Reichenbach was unable to develop an Odometer.

On the title page to Endlicher's 1842 *Medicinal-Pflanzen* he gives an accounting of his qualifying professional status: "Doctor der Medicin, k. k. Professor der Botanik und Mitglied der medicinischen Facultät an der Universitäzu Wien" (Doctor of Medicine and Imperial Professor of botany and member of the medical faculty at the University of Vienna). As mentioned in the text, Endlicher's early university education was undertaken in Pest, across the Danube from Buda. Consequently, medical students from Hungary would naturally congregate around Endlicher, and we can safely assume that students earning their medical degrees during this period were Endlicher's students. Among these students was János Balassa who left the University, for a position in Pest, in 1843 and was the first in Europe to apply general anesthetics in surgery. Lajos Markusovszky, who in the 1848 revolutions created the Hungarian military health service studied with and became a lifelong friend to Ignaz Semmelweiss who graduated in 1844 (Hargittai and Hargittai 2015).

In May 1847, the same month that Endlicher dedicated *Synopsis Coniferarum*, Dr. Ignaz Semmelweiss introduced into Vienna General Hospital the concept of physicians washing their hands between working in the autopsy and unpreserved cadaver dissecting room and the laying-in (birthing) facilities of the Obstetrical Clinic. The editor of the leading Viennese medical journal announced Semmelweiss' findings in December 1847, the same month that Endlicher published his fourth supplement to *Genera Plantarum*. Many medical history references state that "some doctors were offended at the suggestion that they should wash their hands." Hand washing did not catch on for over two decades (Best and Neuhause 2004).

Austrian science was beginning to enter a modern era with the help of Endlicher's students.

APPENDIX B

Tables Listing Genera Named by Endlicher from Lindley's *The Vegetable Kingdom* published in 1853)

Table 1
The 25 Genera that Endlicher Named Honoring the Authors of Plant Names.

(These names are listed in Brummit and Powell (1992). In this list the number following the genus name is the page number in Lindley 1853)

17 ending in "ia"

Cesatia, Endl. 778	Vincenzo Cesati (1806-1883)
Diesingia, Endl. 555	Karl Diesing (1800-1867)
Fenzlia, Endl. 733	Edward Fenzl (1808-1879)
Francisia, Endl. 721	George Francis (1800-1865)
Frivaldia, Endl. 710	Emerich Frivald (1799-1870)
Hollia, Endl. 59	Friedrich (1820-1850) or Frid. C. Holl (1815-18??)
Langia, Endl. 511	Three appropriate Lang
Leiblinia, Endl. 10, 22	Valeris Leiblin (1799-1869)
Macarthuria, Endl. 364	William MacArthur (1800-1882)
Meneghinia, Endl. 656	Guiseppe Meneghini (1811-1889)
Naccaria, Endl. 10, 24	Fortunato Naccar (1793-1860)
Putterlickia, Endl. 588	Alois Putterlick (1810-1845)
Reissekia, Endl. 582	Sigfried Reisseck (1819-1871)
Schleidenia, Endl. 653	Matthhias Schleiden (1804-1881)
Schwannia, Endl. 390	Theodor Schwann (1810-1882)
Ungeria, Sch. & Endl. 361	Franz Unger (1800-1870)
Wickstromia, Endl. 531	J. E. Wickstrom (1789-1856)

5 ending in "a"

Dollinera, Endl. 554	George Dolliner (1794-1872)
Pillera, Endl. 555	Matthias Piller (1733-1788)
Russeggera, Endl. 679	Joseph von Russegger (1802-1863)
Sendtnera, Endl. 60	Otto Sendtner (1813-1859)
Schychowskya, Endl. 262	Iwan Schychowsky (fl 1832)

2 ending in "ea"

Kochlea, Endl. 713	Six appropriate Koch
Schwabea, Endl. 679	Samuel Schwabe (1799-1875)

1 ending in "es"

Schwabes, Endl. 680	Samuel Schwabe (1799-1875)

Table 2
The 32 Genera that Endlicher Named Honoriong Other Advancers of Botany Not Authors of Plant Names.

(The number following the genus name is the page number in Lindley 1853)

23 ending in "ia"

Alania, Endl. 205	Uncertain, possible plant transporter.
Anetia, Endl. 743	Claude Anet (1706-1734) herbalist
Baloghia, Endl. 281	Balogh (1750-1781); Hungarian floristic
Bemonia, Endl. 693	Mr. Prat Bemon, of the French navy, plant transporter.
Berghausia, Endl. 115	Heinrich Berghaus, prepared botanical map, 1845-1848
Blytia, Endl. 59	Captain Bly, plant transporter
Burtinia, Eadl. 779	David Burton (?- 1792) botanist and surveyor in early colonial New South Wales.
Campanaria, Endl. 428	Antonio Campana (1751-1832), author of pharmacopeia
Collignonia, Endl. 507	Jean Nicolas Collignon, (1762–1788) gardener and botanist from the Jardin du Roi, served on the La Pérouse expedition to the South Seas
Fadgenia, Endl. 295	James Mac Fadgen (1838) Flora of Jamaica
Fallugia, Endl. 565	Fallugi, V., Abbot, 1627-1707: Italian botanist
Liebigia, Endl. 672	Justis Liebig, chemist/plant nutritionist, University of Giessen, active circa 1830s-1850s
Manglesia, Endl. 533	James Mangles (1786-1867) Austrian naturalist/botanist
Popowia, Endl. 422	Possibly a variant spelling of Poeppig/Pöppig
Rymia, Endl. 596	Uncertain. May not be derived from a name.
Saintmorysia, Endl. 712	Charles Paul Jean de Bourgevin of Vialart de Saint Morys (1743-1795), potato horticulturalist
Schoutensia, Endl. 441	Dutch navigator Willem Corneliszoon Schoutens, 1567-1625
Schüchia, Endl. 380	Guilherme Schüch, Baron of Capanema, (1824-1908) amateur botanist
Stirlingia, Endl. 533	James Stirling (1791-1865), promoted New South Wales Botanical exploration.
Tollatia, Endl. 712	Johann Tollat de Vorchenberg, in Ger., der Artzney, Vienna, 1497, plant writer.
Ungnadia, Endl. 385	Baron Ungnade (?-?), Austrian Ambassador at Constantinople, introduced Horse-Chestnut into western Europe.
Widdringtonia, Endl.229a	Captain (Cook) Widdrington, plant explorer in Spain
Zehneria, Endl. 315	Jos. Zehner botanical artist

Table 2, continued

6 ending in “a”

Evelyna, Popp. & Endl. 181	John Evelyn (1729-1809), Forester
Frenela, Endl. 229a	Frenel, member French Academy, Paris. Possible Lindley error.
Kotschya, Endl. 554	Karl G. T. Kotschy (1813–1866), Austrian botanist
Lippaya, Endl. 765	Johann Lippay Count Zombar founder of the first garden all italiana in Pressburg the 1660s
Ranmanissa, Endl. 358	Uncertain. Southeast European name.
Trismegista, Endl. 281	Hermes Trismegistus, purported author of the Hermetic Corpus (1620)

3 ending in “ea”

Hockea,Endl. 626	Austrian Director of Central Customs who cleared many plant shipments for botanists. Not indexed in G.P. or the five Supplements.
Plösslea, Endl. 385	Simon Plössl (1794-1868), Viennese microscope lens maker
Plöesslea, Endl. 460	Variant spelling - Simon Plössl

Table 3
Endlicher's 194 Non- Personal Epitaphs Genera Names
(The number following the genus name is the page number in Lindley 1853)

Acanthobotrya, Endl. et Z. 554
Accorombona, Endl. 554
Acramphibrya, Endl. 235
Actinostrobus, Endl. 229a
Adelanthus, Endl. 795
Alaphalantias, Endl. 714
Aleuritia, Endl. 645
Allodape, Endl. 449
Almeja, Endl. 328
Alsinocarpus, Endl. 407
Ambloma, Endl. 765
Ammoseris, Endl. 715
Amoglosson, Endl. 643
Amphiloma, Endl. 534
Androrchis, Endl. 182
Anemanthus, Endl. 428
Angelandra, Endl. 711
Anticbaris, Endl. 684
Antliotrocbe, Endl. 621
Aparisthmium, Endl. 281
Apbanopetalum, Endl. 572
Apliauopappus, Endl. 711
Arcimbalda, Endl. 455
Argyrolobium, Endl. et Z. 554
Aristidium, Endl. 116
Arnocrinum, Endl. 205
Arthrostigma, Endl. 533
Asteroseris, Endl. 715
Athlianthus, Endl. 679
Auricula, Endl. 645
Balanus, EndL 337
Bigamea, Endl. 394
Bilimbi, Endl. 489
Botryodendrum, Endl. 781
Calalsine, Endl. 497
Callerya, Endl. 555
Callicysthus, Endl. 555
Cardiocaryon, Endl. 533
Cardiocrinum, Endl. 205
CaryophVllum, Endl. 498
Ceratotheca, Endl. 670
Chorilaena, Endl. 471
Choristachys, Endl. 531
Chrysocoryne, Endl. 712
Ciclanthus, EndL 791
Clematitis, Endl. 794
Coilostigma, Endl. 533
Contarinia, Endl. 22b
Contarinia, Endl. et Dies. 796
Corethrostylis, Endl. 364
Craepaloprumnon, Endl. 328
Cyathoglottis, Popp. et Endl. 182
Cycnogeton, Endl. 210
Cycnoseris, Endl. 715
Cymanthus, Endl. 498
Cynopsole, Endl. 90
Cynopsole, Endl.. 90
Cyrbasium, Endl. 358
Cyrtostigma, Endl. 533
Dacryanthus, Endl. 449
Dasymalla, Endl. 665
Dethawia, Endl. 778
Diacoria, Endl. 629
Dianthoides, Endl., 636
Diceras, Endl. 372
Dichelachne, Endl. 115
Dichtetanthera, Endl. 733
Didymanthus, Endl. 513
Diplopeltis, Endl. 385
Doryphora, Endl. 300
Drjadanthe, Endl. 564
Dysmicodon, Endl. 691
Elisanthe, Endl. 498
Eljtranthe, Endl. 182
Endotropis, Endl. 626
Epallage, Endl. 531
Eprihizanthus, Endl. 611
Eremosyne, Endl. 568

Table 3, continued.

Eriopogon, Endl. 116
Euharphe, Endl. 765
Eurynema, Endl. 479
Eustrobilus, Endl. 533
Exydra, Endl. 116
Gamelythrum, N. et Endl. 116b
Geopogon, -Endl. 115
Glaphyranthus, Endl. 737
Glischrocaryon, Endl. 723
Glyptostrobus, Endl. 229a
Habrothamnus, Endl. 621
Haematostrobus, Endl. 90
Haematostrobus, Endl. 90
Halodule, Endl. 144
Halyrtophora, Endl. 44c
Haplolophium, Endl. 677
Haplostemma, Endl. 626
Harpephora, Endl. 711
Harpocarpus, Endl. 713
Hemipus, Endl. 116
Hemispadon, Endl. 55*
Hetaeria, Endl. 186
Heterolaena, Endl. 531
Himeranthus, Endl. 622
Himeranthus. Endl. 622b
Hormosira, Endl. 10, 22
Hybanthera, Endl. 626
Hydrobryum, Endl. 483
Hydropiper, Endl. 481
Hymenophylleje, Endl. 80
Hypsanthus, Endl. 533
Kermesia, Endl. 509
Kibara, Endl. 299
Kissi, Endl. 397
Kumbaya, Endl. 765
Libocedrus, Endl. 229a
Linozostis, Endl. 281
Lithoxylon, Endl. 282
Lophocliuium, Endl. 709
Lophophytum, Sch. et Endl. 90
Lyciobatos, -Endl. 622
Lyciothamnus, Endl. 622
Malistachys, Endl. 531
Mallophora, Endl 664
Mallophora, Endl. 664
Malvaviscoides, Endl. 370
Mastacanthus, Endl. 664
Melidepas, Endl. 449
Micrurus, Endl. 116
Mischocaryon, Endl. 533
Misodendron, Endl. 791
Myoxanthus, Popp. et Endl. 181
Myrtillus, Endl. 738
Myurus, Endl. 116
Myxa, Endl. 629
Ochanopappus, Endl. 714
Oenotherea;, Endl. 724
Oliganthera, Endl. 513
Ophiocaryon, Endl. 3F5
Oreomyrrhis, Endl. 779
Oreophylax, Endl. 614
Padus, Endl. 558
Palmia, Endl. 631
Pentapeltis, Endl. 778
Pericalymma, Endl. 737
Petrophile, Endl. 533
Phacelocarpus, Endl. et Dies. 796
Phacelocarpus. Endl 22b
Phenakospermum, EndJ. 796
Pinnaria, Endl. et Dies. 796
Pladaroxylon, Endl. 713
Plexaure, Endl. 182
Plexaure, Endl. 183c
Polemannia, Endl. et Z. 778
Psammochloa, Endl. 116
Pseudachne, Endl. 115

Table 3, continued.

Quintilia, Endl. 672
Rhodospatha, P. Et Endl. 194
Rhynchothecete, Endl. 488
Ribesiacese, Endl. 750
Sacconia, Endl. 764
Samudra, Endl. 632
Saxifragacese, Endl. 569
Scaphyglottis, P. et Endl. 182
Scariola. Endl. 715
Sciadopbysium, Endl. 67
Sciothamnus, Endl. 778
Scirpus, Endl. 119
Scolopacium, Endl et Z. 494
Scvbalium, Sch. et Endl. 90
Sesamopteris, Endl. 670
Sialodes, Endl. et Z. 527
Sipho, Endl. 794
Smegathamnium, Endl. 498
Spelta, Endl. 116
Solenostigma, Endl. 580
Steleocorys, Endl 182
Symphyolepis, Endl. 533
Talerodictyon, Endl. 18
Tetraphyle, Endl. et Z. 346
Thelj-podium, Fndl. 354
Thelychiton, Endl. 181
Thryptomene. Endl. 721
Tonguea, Endl. 354
Toona, Endl. 462
Torpesia, Endl. 464
Trachinga, Endl. 711
Trapea, Endl. 723
Tribonanthes, Endl, 153
Triplathera, Endl. 116
Tripterococcus, Endl. 589
Tritamidium, Endl. 691
Trygonanthus, Endl. 791
Xerostole, Endl. 533
Xerotideje, Endl. 191
Xiphotheca, Endl. et Z. 553

APPENDIX C

Endlicher's Description of the Genus Sequoia in *Synopsis Coniferarum*

VI. SEQUOIA Endl.

Sequoia *Endl. Gen. pl. Suppl. IV. inedit.* Condylocarpus *Salisbury msc.* Taxodii *sp. Lamb.*

Flores in diversis ramulis monoici. *Staminig. Amenta* axillaria globosa, subspicata, perulata. *Stamina* plurima, axi inserta; *filamenta* brevissime filiformia, in *connectivi* squamulam late ovatam, verticalem producta, *antheræ* loculis duobus, connectivi basi continuis, discretis, parallelis, postice longitudinaliter bivalvibus. *Seminif. Amenta* . . . . *Strobilus* subglobosus, *squamis* coriaceo lignosis, suborbicularibus, ungue brevi excentrico peltatis, lamina rugosa margine involuta, medio breviter mucronata, persistentibus. *Semina* sub quavis squama 5—7, infra ejusdem marginem superiorem libere pendula, tuberculis minutis hilo orbiculari inserta, elliptica, compressa, *integumento* subcrustaceo utrinque in alam membranaceam rigidam, latiusculam, basi ad hilum emarginatam, apice versus micropylen deorsum spectantem sensim angustatam producto. *Albumen* carnosum. *Embryo* . . .

Arbores Californicæ, giganteæ. Rami alterni, teretes, foliis abbreviatis anguste lanceolatis longe adnato decurrentibus vestiti; ramulorum foliis linearibus, alternis distiche lineari-subfalcatis, obtusiusculis v. acutis, rigide coriaceis, persistentibus, supra lucidis, sulco longitudinali exaratis,

subtus nervo valido, et utrinque juxta nervum stomatum fasciis albidis notatis. Gemmæ terminales perulatæ, perulis ad innovationes persistentibus. Amenta staminigera in ramulis axillaribus brevissimis solitaria, sæpe spicam foliatam referentia. Strobili in ramulis brevibus, perulis imbricatis tectis ad innovationes solitarii, nucis Avellanæ magnitudine, squamis in rhachi persistentibus.

1. SEQUOIA SEMPERVIRENS Endl.

Sequoia foliis linearibus ($\frac{1}{2}$ — 1″) obtusiusculis subtus albidis.

Taxodium sempervirens *Lambert Pin. ed. 2. II. t. 64.*
Taxodium nutkaense *Herb. Lamb.*

Habitat in America boreali occidentali ad sinum Nutka. **(Menzies, Nee, Hänke.)**

2. SEQUOIA GIGANTEA Endl.

Sequoia foliis linearibus (1 $\frac{1}{2}$ — 2″) acutis subtus glauco pulverulentis.

Taxodii species *Douglas in Bot. Mag. Comp. II.* 150.
Abies religiosa *Hook. et Arnott ad Beechey* 160. *non Humb.*
Taxodium sempervirens *Hook. et Arnott ad Beechey* 392. *Hooker Ic. t.* 379.

Habitat in California. **(Dougl.)**

Arbor trecentorum pedum altitudinem attingens, trunci ambitu trigintapedali.

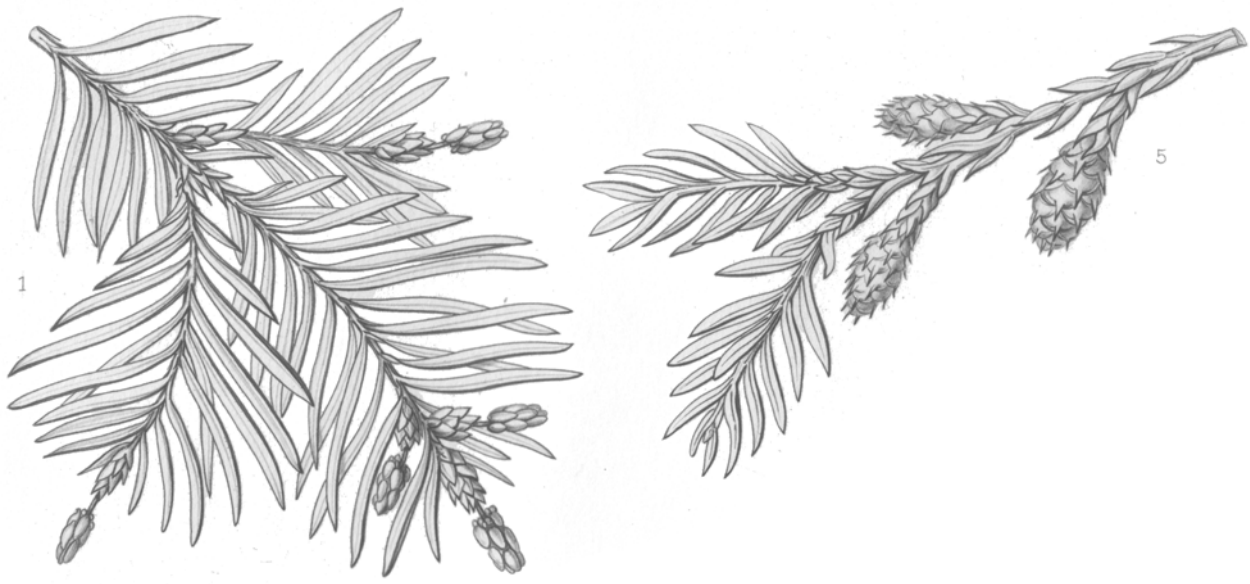
Flores in diversis ramulis monoici. *Staminig.* Amenta axillaria globosa, subspicata, perulata. *Stamina* plurima, axi inserta; *filamenta* brevissime filiformia, in *connective* squamulam late ovatam, verticalem producta, *antherae* loculis duobus, connectivi basi continuis , discretis, parallelis, postice longitudinaliter bivalvibus. *Seminif. Amenta* • • • • *Strobilus* subglobosus , *squamis* coriaceo lignosis, suborbicularibus, ungue brevi excentrico peltatis, lamina rugosa margine involuta, medio breviter mucronata, persistentibus. *Semina* sub quavis squama 5-7, infra ejusdem marginem superiorem libere pendula, tuberculis minutis hilo orbiculari inserta, elliptica, compressa, *integumento* subcrustaceo utrinque in alam

membranaceam rigidam, latiusculam, basi ad hilum emarginatam, apice versus micropylen deorsum spectantem sensim angustatam producto. *Albumen* carnosum. *Em*bryo...

Arbores Californicae, giganteae. Rami alterni, teretes, foliis abbreviatis anguste lanceolatis longe adnato decurren*tibus vestiti*; *ramulorum foliis linearibus, alternis distiche lineari-subfalcatis, obtusiusculis acutis, rigide coriaceis,persistentibus,*supra *lucidis,sulco longitudinali exaratis,* subtus nervo valido et utrinque juxta nervum stomatum fascii albidis notatis. Gemmae terminales perulatae, perulis ad innovations persistentibus. Amenta staminigera in ramulis axillaribus brevissimis solitaria, saepe spicam foliatam referentia. Strobili in ramulis brevibus, perulis imbricates tectis ad innovations solitarii, nucis Avellanae magnitudine, squamis in rhachi persistentibus.

Approximate sentence by sentence interpretation:

"*Flores* in diversis ramulis monoici." – Flowers in different twigs monoecius. Male (staminate) and female (pistillate) flowers borne on the same plant.



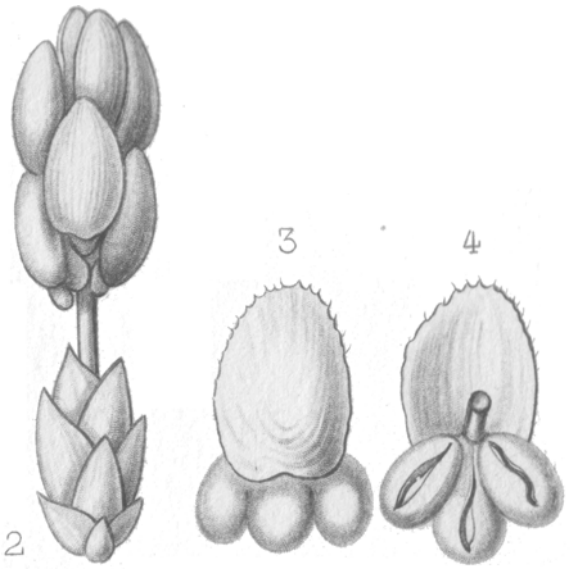
1.) a branch with staminate flowers 5.) a branch with pistillate flowers.
From Sargent and Faxon (1896), Plate 535, Nos 1 & 5.

“Staminig.” – (Male Flowers) [Section heading]

Has male flowers. Stamin = stamen The Latin root ‘ig’ means ‘do.’ Staminig′erous means ‘bearing or having stamens.’

“Amenta axillaria globosa, subspicata, perulata.”

The individual stamens are globular and arranged in a catkin resembling an ear of corn under a scale.



2.) a staminate flower;

3.) a stamen, rear view;
4.) a stamen, front view.

From Sargent and Faxon (1896), Plate 535, Nos. 2, 3, and 4.

Amenta | [Amentum = a catkin, an inflorescence consisting of a dense spike of apetalous, unisexual flowers.]

axillaria | Lat. Axilla = placed at the junction of a branch with the stem.

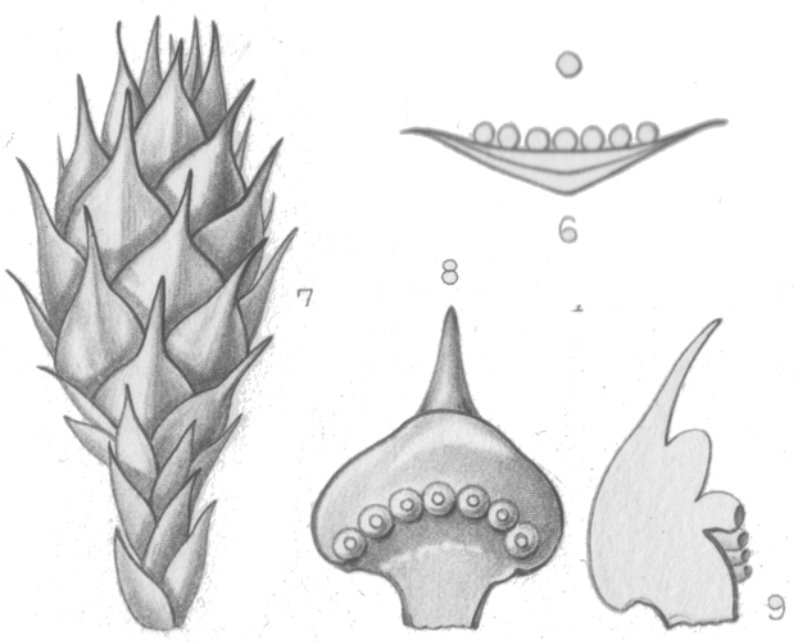
globosa. | Lat. Glabro = a ball, globe shaped, spherical.

subspicata, | sub + spica + ta = [under]+[an arrangement resembling an ear of corn] + [feminine nominitive].

perulata. | scales

“Stamina plurima, axi inserta; *filamenta* brevissime filiformia, in *connectivi* squamulam late ovatam, verticalem producta, *antherae* loculis duobus, connectivi basi continuis, discretis, parallelis, postice longitudinaliter bivalvibus.”

Many stamens inserted on the axis; connected by short threadlike filaments, to broadly ovate scales, stretched in a whorled manner (along the cone axis), anthers split in two cavities, continuously connected at the base, separated parallel to the axis, at the back, longitudinally two chambered.



7.) a pistillate flower;

6.) diagram of a pistillate flower;

8.) vertical section of a scale of a pistillate flower, with ovules, front view;

9.) vertical section of a scale of a pistillate flower, with ovules, side view;

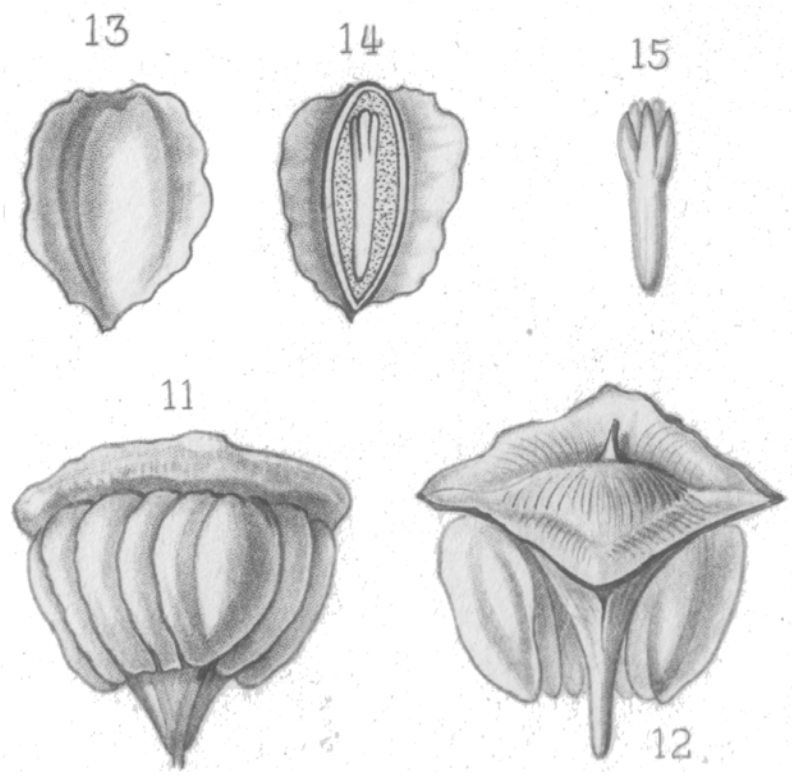
From Sargent and Faxon (1896), Plate 535, Nos. 6-9.

"Seminif. Amenta • • • • *Strobilus* subglobosus , *squamis* coriaceo lignosis, suborbicularibus, ungue brevi excentrico peltatis, lamina rugosa margine involuta, medio breviter mucronata, persistentibus."

Seed-bearing catkins • • • • Cone subglobose, scales woody covered by a leathery skin, subcircular, a short eccentrically pointed shield, the blade edge of the (cone scale) bract are wrinkled, in the middle is a short, sharp, abrupt point (mucro), persistent (on the twig).

"Semina sub quavis squama 5-7, infra ejusdem marginem superiorem libere pendula, tuberculis minutis hilo orbiculari inserta, elliptica, compressa, *integumento* subcrustaceo utrinque in alam membranaceam rigidam, latiusculam, basi ad hilum emarginatam, apice versus micropylen deorsum spectantem sensim angustatam producto. *Albumen* carnosum. *Em*bryo..."

The (number of) seeds under each scale 5-7, freely hanging behind the margin of the (scale) higher (i.e., away from the attaching twig), attached by a circular thread with minute swellings, elliptically compressed, (seed coat) integument hard thin and brittle, on both sides a rigid membranous skirt (i.e., a seed wing), rather broadly, shallowly notched to the hilum (point of attachment) at the base, gradually narrowing at the apex towards the micropyle the bottom is dedicated to this product. The embryo is white and fleshy.



11.) a scale of a cone with seeds, front view;

12.) a scale of a cone with seeds, rear view;

13.) a seed;

14.) vertical section of a seed;

15.) an embryo.

From Sargent and Faxon (1896), Plate 535, Nos 6-9.

"*Arbores Californicae, giganteane.*" – California trees, gigantic.

"Rami alterni, teretes, foliis abbreviatis anguste lanceolatis longe adnato decurren*tibus vestiti*; *ramulorum foliis linearibus, alternis distiche linear-subfalcatis, obtusiusculis acutis, rigide coriaceis,persistentibus,*supra *lucidis,sulco longitudinali exaratis,* subtus nervo valido et utrinque juxta nervum stomatum fascii albidis notatis."

10.) a fruiting branch 16.) a branch with winter buds.
From Sargent and Faxon (1896), Plate 535, Nos 1 & 5.

Branches alternate, tapering, leaves shortened narrow, broader in the middle, tapering to a point lengthwise broadly attached with the epidermal covering of the leaf base extending down along the stem; leafy branches linear, alternate in two rows on opposite sides of the twig, linear to somewhat curved like a sickle, somewhat obtusely pointed, rigidly leathery, persistent, shiny above, longitudinally furrowed with more of less parallel groves, underside robustly veined and nearby on both sides a string of clustered white stomata noted.

“Gemmae terminales perulatae, perulis ad innovations persistentibus.”

> Reproductive buds at the tip covered with scales, new scaly buds persistent.

“Amenta staminigera in ramulis axillaribus brevissimis solitaria, saepe spicam foliatam referentia.”

> Stamen bearing (male) catkins in extremely short solitary axillary branchlets, often calling to mind a leafy tuft.

“Strobili in ramulis brevibus, perulis imbricates tectis ad innovations solitarii, nucis Avellanae magnitudine, squamis in rhachi persistentibus.”

> Cones on short branches, overlapping scales homes to new individuals (meaning developing seeds), nuts (meaning cones) hazelnut size, scales persistent on main axis (of the cone).

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DEBUNKING the *SEQUOIA* honoring SEQUOYAH MYTH

Austrian botanist/philologist Stephen L. Endlicher seldom wrote how he derived the names of the 251 genera that he named, including the genus *Sequoia* that he named in 1847 after a seventeen year career as a fundamentally Linnaean systematic botanist. In 1856, inspired by the "Great Tree of California", the giant sequoia, uncertain wishful thinking began the idea that, because of his philological interests, Endlicher named the genus *Sequoia* to honor Sequoyah, the inventor of the Cherokee syllabary. The *Sequoia* honoring Sequoyah hypothesis continued as the dominate thought through the 20th century.

In the third quarter of the 19th century, botanists proposed that the name *Sequoia* was based on the genus following in some historic sequence, deriving the name from the Latin 'sequi or sequor,' meaning to follow. Endlicher's botanical practices were in the realm of Naturphilosophie; searching for the "code of nature's numerical order." Early in the 21st century Endlicher's sequence was identified in his classification of the coast redwood among genera following in a recursive numerical sequence; 1, 3, 4, 6, 7, based on the median number of seeds per cone scale.

However, in the second decade of the 21st century a detailed argument buttressing the *Sequoia* honoring Sequoyah hypothesis was published based on a wrested chain of counterfactual arguments that are here heuristically falsified.

Parsimoniously, Endlicher's Linnaean botanical protocols and his knowledge of the ancient Latin of manuscript texts, shown in his coauthored 1837 book *Analecta grammatica*, allowed him to readily use as a prefix "sequo," the early root of the Latin verb "sequor" by dropping the added "r" and then adding the Latin suffix "ia" to yield the new word *Sequoia.*

The Department of Special Collections at the Stanford University Libraries welcomes the opportunity to collaborate with Gary Lowe on the publication of this work in the history of botany: the naming of two important native California trees, the coast redwood and the giant sequoia.

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