

**THE TYPE OF *AMSONIA TABERNAEMONTANA* WALTER
(APOCYNACEAE): A DISCOURSE ON THE LIMITS OF
"INDIRECT REFERENCE"**

Daniel B. Ward

Department of Botany, University of Florida
Gainesville, Florida 32611, U.S.A.

ABSTRACT

The argument has been made elsewhere that the type of Thomas Walter's *Amsonia tabernaemontana* (Apocynaceae) is a specimen not seen by Walter but one which has been designated a lectotype now in the Linnaean herbarium, London. The counter-argument, made here, is that Walter did not base his new species on the publication nor specimen of Linnaeus, but rather created a new species whose neotype is held by an institution of the United States. *Phytologia* 92(3): 334-344 (December 1, 2010).

KEY WORDS: Thomas Walter, *Amsonia tabernaemontana*, Apocynaceae.

INTRODUCTION

It is understood that for a new plant species to merit scientific recognition it must be given a two-part name and a Latin diagnosis or description. Though in recent decades it is also obligatory that a new species be represented by a type specimen, this stricture did not apply in the early years. For names published prior to 1958, in those cases where a type is missing, the International Code of Botanical Nomenclature (McNeill et al. 2006) permits any person to designate a lectotype from surviving original materials or, if they are absent, to select a neotype from any source as its replacement. It is vital for future nomenclatural stability that the Code be faithfully followed. At times, as here, that obligation is slighted, and the wayward agent must be called to account.

THE BACKGROUND

In the 1780s, Thomas Walter, a rice-plantation owner in South Carolina, published a small book, *Flora Caroliniana* (1788), in which he described 1056 plant species that he observed about him, 404 of them he believed to be new to science (Ward 2007a; 2007b; 2007c; 2008a; 2008b). Many of his names for these new species are in modern use, and the author designation "Walt." is familiar to all students of the southeastern American flora. One of these names, *Amsonia tabernaemontana* Walt. (Apocynaceae), although the genus, its epithet, and even its author are not in question, has now generated transoceanic dispute as to its type.

Linnaeus (1753), in the first edition of his famous *Species Plantarum*, named and described three species native to the tropics (and themselves not relevant to this discussion). He chose for them the generic name *Tabernaemontana*, the word commemorating a 16th century German herbalist. Linnaeus (1762), in his second edition, appreciably expanded the number of species, including one he named *Tabernaemontana Amsonia*. He described it with four words of his own: "*foliis alternis, caulibus subherbaceis*." But he followed this quite worthless diagnosis with a rather lengthy (35 word) description taken from the *Flora Virginica* of Gronovius (1739: 26). The names of Gronovius' book, as being "pre-Linnaean" (i.e., pre-1753), carry no nomenclatural standing (but see below).

Gronovius noted *Tabernaemontana Amsonia* to occur in "Virginia." The larger part of his *Flora* was based on specimens and descriptions sent to him by John Clayton, a tobacco-plantation owner and county clerk of Gloucester County, coastal Virginia (Berkeley & Berkeley 1963). It was Clayton, on specimens sent by him to Gronovius and other European botanists, who first used the word "*Amsonia*." [This eponym has been traced (Pringle 2004) to a Dr. John Amson, a physician of nearby Williamsburg, Virginia, and presumed friend of Clayton's.]

It is known (Hitchcock 1905: 32; Ward, in ms.) that Walter possessed and faithfully used a copy of Linnaeus' *Species Plantarum*, 2nd edition. (He apparently never saw the somewhat rarer 1st edition.)

He thus would have been familiar with Linnaeus' treatment of the genus *Tabernaemontana* and Gronovius' descriptive text of *T. Amsonia*. He may have recognized the plant he knew in South Carolina to match Gronovius' description. But Walter chose, when including his plant in his own *Flora* (1788: 98), to treat it in a new genus apart from that of Linnaeus. [In this, modern botanists have given him full support (Mabberley 1996: 34, 697).] He then composed a new diagnosis, transposed the two words of the name given it by Linnaeus, and published his plant under the name *Amsonia Tabernaemontana*. It is conventionally recorded in modern botanical works as *Amsonia tabernaemontana* Walt., and carries the vernacular name "Blue-star."

Walter retained no types. A folio herbarium of 690 small, often fragmentary, specimens collected in the Carolinas and Georgia in 1787 and seen at least in part by Walter has often been thought to be Walter's herbarium. It is not! (Ward 2007d). It is wholly the gatherings of John Fraser, the Scottish horticultural explorer, though a few of Fraser's specimens have been selected as lectotypes and neotypes of Walter's names (Ward 2007b). A specimen in the folio (5-C, BM) was labeled by Fraser as "*Amsonia Tabernaemontana*," but there is no indication it was seen or used by Walter. Even so, there is no reason to doubt the plant held by Walter was the *Amsonia tabernaemontana* as understood by modern authors (Woodson 1928; Radford et al. 1968; Ward 2008b). His "*fol. ovatis*" serves to distinguish it from the similar but narrow-leaved *A. tabernaemontana* var. *salicifolia* (Pursh) Woodson. And it is known to occur in the area of South Carolina frequented by Walter.

[In addition to *Amsonia tabernaemontana*, Walter encountered and described a second species, *Amsonia ciliata* Walt. There is no type; a neotype has been selected (Ward 2007c). Though somewhat similar to *A. tabernaemontana*, this second species is uniformly recognized as distinct. Its nomenclature causes no conflict.]

Walter's full diagnosis for *Amsonia tabernaemontana* ("*fol. ovatis utrinque acutis; floribus caeruleis*"), other than indicating the blue flower color, is scarcely useful. It is however quite independent of that of Gronovius. Not a phrase, not a single word, used by Walter appears in the description by Gronovius. [Gronovius did not mention

flower color. And leaf shape was described with different words ("Folia...lato-lanceolata").] In the belief that Walter intended and achieved the formation of a new name for the Blue-star by his publication of *Amsonia Tabernaemontana*, and with knowledge there was no extant type, Ward (2008b) selected a neotype: *Smith 1114, 3 June 1941 (USCH)*, from Witherspoon Island, Darlington County, South Carolina.

THE ARGUMENT

But forces of dispute were gathering in Europe. In the 1980s the Natural History Museum, London, began an effort to typify *all* the thousands of names formed by Linnaeus in his detailed publications (Cannon et al. 1983). This enormous task is now near completion, under the stewardship of Charles E. Jarvis and publication of his voluminous *Order out of Chaos* (2007). However, a small scattering of names of North American plants was bypassed, and their typification has now been redressed by Reveal & Jarvis (2009).

Reveal & Jarvis (2009) dealt with 42 names. For each they gave citation of the original Linnaean name, the modern name, and a neotype or lectotype selected insofar as possible from the Linnaean Herbarium, London. Most of their entries are concise, some as brief as four lines, yet fully sufficient for selection of a type. For *Tabernaemontana amsonia* L. (1762) they spoke at length (46 lines). They designated a lectotype, a specimen in the Linnaean Herbarium (*LINN 304.5*), of the Blue-star (though they do not use that name). This specimen consists of a stem with three large leaves and several smaller ones, as well as a several-flowered terminal inflorescence. The sheet bears "*Amsonia*" as well as "*Solander*" (not visible on microfiche), both words in the hand of Linnaeus (Savage 1945). It is not the specimen (*Clayton 306*) used by Gronovius in the writing of his book; that specimen seems to have been lost.

Reveal & Jarvis considered in some detail the pathway by which Linnaeus may have received the Linnaean Herbarium specimen. They thought it possible that it had been sent by Clayton to Gronovius, then passed on to Joseph Banks, to Daniel Solander, to James Edward Smith, and on to Linnaeus. [This sequence cannot be. Banks did not

acquire the Gronovius herbarium until 1794, after Linnaeus' death in 1778 and long after his 2nd edition in 1762. The probable source is to be found among the Linnaean correspondence (Berkeley & Berkeley 1963: 135). In November 1761, Solander wrote Linnaeus: "All the information I could give relating to *Amsonia* will be seen from the annexed [attached] description made from the living plant which flowered this year...." The specimen (*LINN 304.5*) was thus grown in England and could never have been seen by Clayton. Since this specimen was with Linnaeus before 1762 and thus "original material" (McNeill et al. 2006), it is a suitable choice for designation as lectotype, as was done by Reveal & Jarvis. But, as noted by these authors, their discussion (as is this one) of Linnaeus' source was merely "academic," not serving to advance their argument.]

Reveal & Jarvis (2009) argued that the specimen in the Linnaean Herbarium (*LINN 304.5*) is the type (the lectotype, by their action) of Linnaeus' *Tabernaemontana Amsonia* (1762), as well as Walter's *Amsonia Tabernaemontana* (1788), that the two names are homotypic. They made this linkage through the references they found in *Flora Caroliniana* to Linnaeus and his books. They quoted at length, without translation from the Latin, from Walter's title page and his "praefatio" (preface). They stated these Linnaean extracts demonstrated "clearly indirect references" to Linnaeus' works (and, by implication, to his diagnosis and specimen). They did not cite provisions of the Code (Art. 32.5, Art. 52.1) which were perhaps relevant.

Reveal & Jarvis (2009) called attention to the use in Walter's book of *italic* for most new names and roman for existing names. Since Walter's "*Tabernaemontana*" is in roman, and *Amsonia ciliata*, an undisputed Walter name, is in *italic*, they reasoned that Walter intended his *Tabernaemontana* not to be a new name, but that he considered it to be an existing name.

Reveal & Jarvis (2009) concluded their discussion by faulting the statement of Ward (2008b) that, if Walter's type was the same as Linnaeus,' Walter's name would be superfluous and thus illegitimate. The statement of Ward is of course incorrect. Since Walter was creating a new genus apart from *Tabernaemontana*, his circumscription

would be different and thus not trigger rejection by the Code (Art. 52.1).

[Reveal & Jarvis did not comment on the peculiarity of Walter's *Amsonia Tabernaemontana* being a transposition of Linnaeus' *Tabernaemontana Amsonia*. This unique reuse of old words, never elsewhere employed by Walter, has suggested to some (Pringle 2004; J.S.P., pers. comm., Dec 2005, Mar 2010) that the Walter name must have been based on the Linnaean name. If Walter indeed considered his *A. tabernaemontana* and Linnaeus' *T. amsonia* to be the same species, Walter's name would have the same type as did that of Linnaeus. This would be true even though the Solander specimen now treated as Linnaeus' type was unknown to Walter. But Walter was prolific in his formation of new names for species already named by Linnaeus. And he did not indicate a linkage of his name with Linnaeus' by insertion of a marginal note, as he did elsewhere (see below). Thus an effort to reconstruct Walter's intent in 1788 remains conjectural. Since Reveal & Jarvis' argument rests elsewhere, the significance of this transposition is not further addressed here.]

To their credit, Reveal & Jarvis trusted to the experience of their readers to understand that Linnaeus' epithet "*Amsonia*," though prior to Walter's epithet "*Tabernaemontana*," could not under the Code (Art. 23.4) be transferred to Walter's genus *Amsonia*, else forming the prohibited tautonym *Amsonia amsonia*.

THE COUNTER-ARGUMENT

Little need be said in refutation of the argument put forth by Reveal & Jarvis (2009) that the type of *Amsonia Tabernaemontana* Walter (1788) is identical with the type of *Tabernaemontana Amsonia* Linnaeus (1762). When their claims are fully dissected (as above), persons with nomenclatural understanding will see flaws.

These flaws need be put on record. Reveal & Jarvis (2009) relied most centrally on the linkage they saw in Walter's references to Linnaeus. The 36 words (in Latin) from Walter's title page consist largely of description of the included text, in the exuberant style followed by Linnaeus himself (1753, 1762) and other 18th century

writers. The only mention of Linnaeus on the title page lies in the words "*perillustris Linnaei digesta*" or "well illustrated in the order (or system) of Linnaeus." The 40 words quoted from Walter's preface were neatly translated by Rembert (1980): "When the author of this compendium first undertook his botanical inquiries, there was no help for him beyond that which *Systema Naturae* and *Genera et Species Plantarum*, the works of the most distinguished Linnaeus, provided" (page v). And: "He has followed the Principles of the *Systema* of Linnaeus rather than the words, and however often he has neglected the words, he has all the more endeavored to consult the principles" (page vii).

These words of Walter's are indeed references to Linnaeus and his works. The Code permits (Art. 32.5, 32.6) that a reference published before 1953 may be either direct or indirect. An indirect reference must be "a clear (if cryptic) indication by an author citation or in some other way" that a previously published name is considered by the author to be synonymous. The usual purpose of such indirect citation is to retain a name that somehow failed to meet the publication requirements of the Code. (The five examples cited under Art. 32.6 all demonstrate this use.)

But one is hard put to see Walter's bland words of praise for Linnaeus to be more than good manners, showing his profound respect for a deceased giant. (Linnaeus' death preceded Walter's *Flora* by ten years.) There is no mention by Walter of any of the many Linnaean species whose names he had adopted, much less a credit to Linnaeus for species he considered his own discovery. The implication that Walter's language provides "clearly indirect references" to Linnaeus' diagnosis and specimen of *Tabernaemontana Amsonia* is just incorrect.

Another provision of the Code may be a part of Reveal & Jarvis' reasoning. A linkage between a new name and a pre-existing synonymous name at times has caused an author of a new name inadvertently to invalidate his new creation. This is the requirement that a name is to be rejected if it was "nomenclaturally superfluous" when published (Art. 52.1, 52.2), that is, if the author included within its circumscription an earlier name which by the rules should have been adopted. The circumstances that would cause rejection under this

provision are more narrow than those permitting retention of a name by an "indirect reference." They require, in effect, citation of the pre-existing name; an "indirect reference" would not serve. (Ten supporting examples are given under Art. 52.2.)

It is unclear which, if either, of these provisions of the Code were considered by Reveal & Jarvis to be critical to their argument, or indeed if their basis was some provision overlooked here. They cited no terms of the Code upon which they rely. Neither the provision for retention of an imperfect name, nor the provision for rejection of a superfluous name, seems applicable. Their use of "indirect references" may suggest they were endeavoring to retain Walter's imperfectly published name. But that cannot be, for Walter *does* meet all requirements for valid publication of his new names, confirmation of which is attested by acceptance of his names by all modern authors. [Walter did overstep the tolerance of future nomenclaturalists in one regard. He placed 44 of his species in 28 different genera, all named "*Anonymos*" (Ward 1962; Wilbur 1962). But these names have long since been sanctioned.]

As to Walter's presumed use of *italic* in designating his new species, he made no mention of this practice in his preface (though he did note his use of *italic* for words in his diagnoses that he wished to emphasize). Some 17 new Walter names have been identified that are not italicized: *Ambrosia simplicifolia*, *Amorpha herbacea*, *Apium bipinnatum*, *Arethusa racemosa*, *Aster carolinianus*, *Frasera caroliniensis*, *Hamamelis dioica*, *Hibiscus coccineus*, etc. These omissions were also noted by Hitchcock (1905: 32). Their numbers open the possibility that they were added by another party. Fraser, idly thumbing the pages of Walter's manuscript during the months-long sea journey back to England, cannot be excluded as their author (Ward, ms.). They cannot be relied on as certain indicators of those species Walter considered as his own.

A significant point was overlooked by Reveal & Jarvis, in that Walter occasionally *did* disagree with the placement of a Linnaean name. He then made a new combination and marked it as new by inclusion of the Linnaean basionym as a marginal note. Examples: *Eryum volubile*, based on *Hedysarum volubile* L.; *Hedera arborea*,

based on *Vitis arborea* L.; *Origanum incanum*, based on *Clinopodium incanum* L.; *Sophora perfoliata*, based on *Crotalaria perfoliata* L.; etc. About a dozen such new combinations have been noted.

CONCLUSION

Thus, if examination of Walter's title page and preface as cited by Reveal & Jarvis shows no "clear" linkage between Walter's *Amsonia Tabernaemontana* and Linnaeus' *Tabernaemontana Amsonia*, if the use under the Code of "indirect references" is limited to situations where the original publication is defective, if the failure to use *italic* as an indication of Walter's intent not to form a new species is unreliable, and if Walter cited his new combinations in a consistent way different from that postulated, no basis remains for a claim that Walter's type is homotypic with that of Linnaeus. *Amsonia tabernaemontana* Walt., supported by its neotype (USCH), still stands, and *Tabernaemontana Amsonia* L., with its lectotype (LINN), remains its heterotypic synonym.

OVERVIEW

This is clearly a case of the dark forces of the giant phytomorgues of Europe, having by virtue of historic opportunity, possession of the great part of American plant types, now striving to seize title to the types of the few Yankee plants yet outside their grasp. They do so by stealth, secreting their tactical advances by seemingly innocuous documents hidden within obscure and little-read journals of European occult societies. Too soon, should their avaricious advances be unopposed, loyal red-blooded Americans would find themselves shorn of all power to identify the plants necessary to their weal, without paying obeisance to their foreign nomenclatural masters. This intrusion must be resisted unto death. In the vernacular: Keep your cotton-pickin' hands off our Thomas Walter types !!

ACKNOWLEDGMENTS

Jim Reveal and Charlie Jarvis are among the most skilled nomenclaturalists of this era. Jim, with uncounted hours spent in stabilizing the names of infraspecific taxonomic groups, and Charlie,

with his monumental labors in documenting the Linnaean names, have reputations far beyond my skill to sully. But here they have made an error of typification, and I cannot but gloat at having caught them out. I doubt it will ever happen again.

I have been greatly aided in composition of this essay by Robert L. Wilbur and John B. Nelson, and benefited from the wise advice of James S. Pringle. Drs. Reveal and Jarvis continue to receive my full respect and gratitude for their assistance in nomenclatural matters elsewhere.

LITERATURE CITED

- Berkeley, E., and D. S. Berkeley. 1963. John Clayton, Pioneer of American Botany. Univ. of North Carolina Press, Chapel Hill. 236 pp.
- Cannon, J. F. M., C. E. Jarvis, and N. K. B. Robson. 1983. The typification of Linnaean plant names: a project of the Linnean Society of London. *Taxon* 32: 76-78.
- Gronovius, J. F. 1739. *Flora Virginica*. Leiden.
- Hitchcock, A. S. 1905. The identity of Walter's grasses. *Missouri Bot. Gard. Ann. Rep't.* 16: 31-56.
- Jarvis, C. E. 2007. Order Out of Chaos. Linnaean Plant Names and their types. Linnean Society of London, in assoc. with the Natural History Museum, London.
- Linnaeus, C. 1753. *Species Plantarum*, ed. 1. 1: 210. Stockholm.
- Linnaeus, C. 1762. *Species Plantarum*, ed. 2. 1: 308. Stockholm.
- Mabberley, D. J. 1996. *The Plant-Book*. Cambridge Univ. Press, Cambridge.
- McNeill, J., F. R. Barrie, H. M. Burdet, V. Demoulin, D. L. Hawksworth, K. Marhold, D. H. Nicolson, J. Prado, P. C. Silva, J. E. Skog, N. J. Turland and J. Wiersema, eds. 2006. The International Code of Botanical Nomenclature (Vienna Code), adopted by the 17th International Botanical Congress, Vienna, Austria, July 2005. *Regnum Veg.* 146: 1-568.
- Pringle, J. S. 2004. History and eponymy of the genus name *Amsonia* (Apocynaceae). *Sida* 21: 379-387.

- Radford, A. E., H. E. Ahles, and C. R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. Univ. of North Carolina Press, Chapel Hill.
- Rembert, D. H. 1980. Thomas Walter, Carolina Botanist. South Carolina Museum Comm., bull. no 5. 33 pp.
- Reveal, J. L., and C. E. Jarvis. 2009. Typification of names of temperate North American plants proposed by Linnaeus. *Taxon* 58: 977-984.
- Savage, S. 1945. A Catalogue of the Linnaean Herbarium. London.
- Walter, T. 1788. *Flora Caroliniana*. London. 263 pp.
- Ward, D. B. 1962. The genus *Anonymos* and its nomenclatural survivors. *Rhodora* 64: 87-92.
- Ward, D. B. 2007a. Thomas Walter Typification Project, II: The known Walter types. *J. Bot. Res. Inst. Texas* 1: 407-423.
- Ward, D. B. 2007b. Thomas Walter Typification Project, III: Lectotypes and neotypes for 20 Walter names, as recognized in the Fraser/Walter herbarium. *J. Bot. Res. Inst. Texas* 1: 425-430.
- Ward, D. B. 2007c. Thomas Walter Typification Project, IV: Neotypes and epitypes for 43 Walter names, of genera A through C. *J. Bot. Res. Inst. Texas* 1: 1091-1100.
- Ward, D. B. 2007d. The Thomas Walter Herbarium is not the herbarium of Thomas Walter. *Taxon* 56: 917-926.
- Ward, D. B. 2008a. Thomas Walter Typification Project, V: Neotypes and epitypes for 63 Walter names, of genera D through Z. *J. Bot. Res. Inst. Texas* 2: 475-486.
- Ward, D. B. 2008b. Thomas Walter Typification Project, VI: Neotypes for an additional 18 Walter names. *J. Bot. Res. Inst. Texas* 2: 1279-1283.
- Wilbur, R. L. 1962. The identity of Walter's species of *Anonymos*. *J. Elisha Mitchell Sci. Soc.* 78: 125-132.
- Woodson, R. E. 1928. A monograph of the genus *Amsonia*. *Ann. Missouri Bot. Gard.* 15: 379-427.