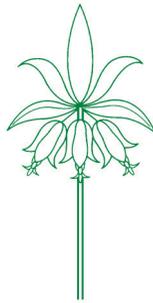


HUNTIA

A Journal of Botanical History



VOLUME 19 NUMBER 1
2022

Hunt Institute for Botanical Documentation
Carnegie Mellon University

Pittsburgh

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Huntia publishes articles on all aspects of the history of botany, including exploration, art, literature, biography, iconography and bibliography. The journal is published irregularly in one or more numbers per volume of approximately 200 pages by the Hunt Institute for Botanical Documentation. External contributions to *Huntia* are welcomed. Page charges have been eliminated. All manuscripts are subject to external peer review. Before submitting manuscripts for consideration, please review the “Guidelines for Contributors” on our Web site. Direct editorial correspondence to the Editor. Beginning with volume 17, the journal is published only online and in color. Beginning with volume 18, the journal no longer accepts books for review or announcement. All back issues are available as PDFs on our Web site.

Hunt Institute for Botanical Documentation
Carnegie Mellon University
5th Floor, Hunt Library
4909 Frew Street
Pittsburgh, PA 15213-3890
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: <https://www.huntbotanical.org>
Facebook: <https://www.facebook.com/HuntBotanical/>
Twitter: <https://twitter.com/HuntBotanical>
Online gift shop: <https://www.cafepress.com/huntbotanical>

Editor and layout	Scarlett T. Townsend
Editor, Emeritus	Robert W. Kiger
Associate Editors	Donald W. Brown T. D. Jacobsen Charlotte A. Tancin J. Dustin Williams

© 2022 Hunt Institute for Botanical Documentation
All Rights Reserved

ISSN 0073-4071

Contents

- Conflicting ideas on author citation: François Crépin and *Lois de la Nomenclature botanique*
Ivan Hoste 5–25
- The cycad encounters of botanical explorer David Fairchild
Michael Calonje, Alan W. Meerow and Javier Francisco-Ortega 27–50
- William Allport Leighton's *A Flora of Shropshire* (1838–1840): Dating and publishing history, bibliographical description and a scientific appraisal
R. B. Williams 51–95

Conflicting ideas on author citation: François Crépin and *Lois de la Nomenclature botanique*

Ivan Hoste

Abstract

This paper describes the discussions, primarily among European botanists, about author citation before, during and after the International Botanical Congress in Paris in 1867, where Alphonse de Candolle submitted a draft of *Lois de la Nomenclature botanique* for approval. Botany had made substantial progress in the century after Linnaeus, resulting in increased nomenclatural confusion. As the number of new species and genera had increased sharply, a proliferation of nomenclatural practices had emerged. In article 48 of the *Lois*, de Candolle stated that the author citation added to a binomial always should give the name of the author of the combination. This was strongly contested by a range of authors who did not accept that, when a species was transferred to another genus, the name of the original author was omitted. Inspired by, among others, Charles Des Moulins and Paul Ascherson, the upcoming Belgian rhodologist François Crépin was among the fiercest opponents of article 48. Whether botanists supported or rejected de Candolle's vision was largely determined by their position within the diverse field of taxonomy. The less "philosophically" inspired phytographers were usually the strongest defenders of the rights of the original author of a species. In Paris, where Crépin took no part in the congress, article 48 was adopted unchanged. It was only after the type method had won general acceptance that the 1930 International Botanical Congress agreed that the name of the original author of a species forever should be attached to his or her creation.

Keywords

François Crépin; Alphonse de Candolle; Charles Des Moulins; Barthélemy Dumortier; *Lois de la Nomenclature botanique*

Introduction

Camp and Gilly (1943, p. 370) warned that "As a group we should not take unseemly

pride in attaching our patrimonial names to those of other organisms; this is done only for bibliographic purposes and its necessity is a monument to our own accumulated errors." The group, however, is not homogeneous. Describing "the scientific hive," Forbes remarked that "Observation, Classification and Philosophical Investigation, are the types of the stages through which we must successively pass in the course of our botanical studies" (1843, pp. 18, 21). The hierarchical structure suggested by the term "stages" easily adds a sensitive and subjective dimension to the examination of seemingly straightforward issues when representatives of different layers of this hierarchy—whether alleged or real—become involved. This paper illustrates this with a case study on the authors' names added to binomials.

Nomenclature permanently keeps track of names, name-givers and type specimens from previous centuries. Indeed taxonomy is about the only science with a living memory of all past contributors, famous and obscure (Kohler 2006). Quite unlike vernacular plant names, a scientific name—here broadly interpreted as a binomial with the annexed author citation—carries a triple load: it refers to a particular species, to the species' place in a genus (and thus in a hierarchical classification) and to its creator(s). The lasting visibility of the added name(s) of the author(s) may affect practices within the heterogeneous community of taxonomists, which includes both the phytographers (describers) and systematists (classifiers).

Meise Botanic Garden, Nieuwelaan 38, B-1860 Meise, Belgium.

Email: ivan.hoste@botanicgardenmeise.be

Almost a century after Linnaeus's death, nomenclature was becoming more and more confused. Driven by a scientific and horticultural desire for novelties, not in the least from outside Europe, there was on the one hand a huge increase in the number of described plant species and on the other hand a growing body of phytographers upholding a wide range of taxonomic insights and applying diverging nomenclatural practices. Furthermore, the ever-increasing chaotic mountain of publications led to an increase in needless synonyms. This state of affairs was made worse by the lack of a set of nomenclatural rules to guide both those who described new plant species and those who rearranged the classification of whole genera and families. Although absolute stability in nomenclature was—as it still is today—unattainable so long as botany was a growing science, the introduction of a universal code would enable botanists to apply names according to definite rules (Hitchcock 1921).

In the absence of fixed names it was frequently necessary to add the name of the person on whose authority the plant name rested. Each binomial, however, refers to a double content: the combination of a generic name and a species epithet represents both the description of a species and its classification in a genus. As the original description and the classification in the genus were not necessarily from the hand of the same author, the wish to add a single reference meant that a choice had to be made. This is where pride could enter discussions as to which author's name to cite. Traditionally, when a species was transferred to another genus, the name of the creator of the new combination of the generic name and specific epithet was added (de Candolle 1867a, p. 43). By mid-century this principle increasingly was being questioned by phytographers.

In 1842 a committee was appointed to establish uniform and permanent rules for

the nomenclature of zoology. This resulted in the so-called Strickland Rules (Strickland et al. 1843). One of its recommendations was a break with customary practices. When a species was transferred to another genus without changing the specific epithet, then the name of the original authority for the species should be added, not the name of the authority who created the new combination. Placing the name in parentheses—for example, *Tyrannus crinitus* (L.)—indicated that the species had been transferred to another genus. The committee explained that the author who first described and named a species, which forms the groundwork of later work by classifiers, such as defining a genus that is found to embrace that species, possessed a higher claim to have his name recorded than the author of a new combination. Besides it was practical too: “By giving the authority for the specific name in preference to all others, the inquirer is referred directly to the original description, habitat, &c. of the species, and is at the same time reminded of the date of its discovery; ...” (Strickland et al. 1843, p. 273).

A number of botanists accepted the principle behind the recommendation for zoologists but in applying it used a variety of notations. This was a source of confusion. Robert Brown (1773–1858), for instance, had put Linnaeus's species *Cheiranthus tristis* in another genus, calling the plant *Matthiola tristis*. For clarity people of the “old school” cited it as *Matthiola tristis* R.Br. while followers of the “new school” preferred *Matthiola tristis* L. [Note that in this paper current author abbreviations (Brummitt and Powell 1992) are used except in quotations.]

The primary goal of *Lois de la Nomenclature botanique* voted at the 1867 International Botanical Congress in Paris was to put an end to the reigning confusion. The Belgian botanist François Crépin (1830–1903), author of an acclaimed national flora and

internationally increasingly recognized as an expert on the difficult genus *Rosa* (Hoste and Diagre-Vanderpelen 2018), was not present at the congress and did not have an important part in the discussions that preceded it. However, his correspondence with other naturalists and his publications reveal that as a phytographer he had outspoken ideas on nomenclature, especially on the citation of authors' names. In this paper Crépin has been taken as a starting point to explore what drove botanists to engage in passionate discussions on such a seemingly mundane issue.

François Crépin, a self-taught botanist

Born in Rochefort, Belgium, and raised in a middle-class bourgeois family, François Crépin was about 15 years of age when his formal education ended. Even at a young age he was totally absorbed in the study of the wild flora (Hoste and Diagre-Vanderpelen 2018). In 1860 he published a *Manuel de la Flore de Belgique* (Crépin 1860), which remained the standard flora for Belgium until well after World War I (Hoste and Hanquart 2018). Referring to one of Crépin's early publications, J. Gay (1859) was especially charmed by the author's "véritable talent d'observation." This must have pleased Crépin, who kept repeating throughout his life that "Avant tout, le botaniste doit être observateur" (Crépin 1878, p. 4).

A long introductory chapter in the *Manuel*, titled "De l'espèce végétale," reflects Crépin's intense interest in the species problem. Although he mentioned Charles Darwin's recently published *On the Origin of Species*, evolution was not Crépin's main preoccupation. For Crépin, as for many others, the species problem was foremost about describing, defining and naming plant species (McOuat 2001, p. 1). "La phytographie proprement dite" and "la taxinomie" cannot be separated from each other, he knew (Crépin 1878, p. 14),

but he left the latter part to others, preferring observation to speculation (Hoste and Diagre-Vanderpelen 2018, pp. 123–124).

A couple of papers from the early 1860s (Un membre ... 1862; Prince 1863) reveal how Crépin situated himself in the heterogeneous world of botany and botanists.¹ They expose the complex identity of a self-taught yet highly gifted young man who was foremost active in the field of traditional phytography based on field excursions, herbarium specimens and observations on cultivated living plants. He acknowledged the gap existing between the practitioners of "la simple étude phytographique" and those who study "ces nombreux problèmes d'anatomie, de physiologie, de tératologie et de géographie botanique dont la solution satisfera bien plus leur intelligence que la découverte ou la possession de plantes rares"² (Un membre ... 1862, p. 326). One year later he expressed the hope that those active in the sphere of "la haute botanique" would recognize the merits of the work done "par le simple floriste, par le collectionneur" (Prince 1863, p. 92). Well aware of belonging to the lower echelons of botany, Crépin aspired to uphold or enhance his status as a serious scientist. When asked why it was important to know whether a particular form should be called a variety or a species he replied: "Les recherches scientifiques ont pour but d'arriver au vrai dans les petites choses comme dans les grandes; (...) je viens déposer ma pierre sur le terrain à bâtir, ..." (Crépin 1866a, p. 6).

Crépin joins the "new school" phytographers

One of Crépin's correspondents was the French botanist and malacologist Charles Des Moulins (1798–1875), president of the Société linnéenne de Bordeaux and *membre associé* of the Société royale de Botanique de Belgique. Des Moulins had a wide range

of interests. His publications dealt with botany, malacology, geology, paleontology and history (Anonymous 1987). In 1854 he delivered a speech on nomenclature to the Académie Impériale des Sciences, Belles-Lettres et Arts de Bordeaux. Its central idea was “Que la nomenclature scientifique, étant la mise en lumière et pour ainsi dire l’enseigne synthétique du résultat des travaux des hommes qui s’occupent de certaines sciences, est assimilable à ce qu’on appelle communément la propriété littéraire”⁴ (Des Moulins 1854, p. 295). It follows, Des Moulins continued, that those names were a property from which the author could not be deprived, and yet this inalienable right increasingly was ignored by systematists, whether by oversight or love of the ego.

Des Moulins also discussed the example of species that were transferred to another genus. Without referring to it, he followed the Strickland Rules in giving priority to the author who had first named the species. His notation was, however, longer because he also added the old genus in which the species had formerly been placed, for example: *Pyrus aria* L. (sub *Crataego*). Des Moulins hoped that by publishing his address the Bordeaux Academy would deliver a first blow in this “*guerre sainte contre la méconnaissance des droits acquis par le travail*”⁵ (Des Moulins 1854, p. 313).

In 1863 the Société royale de Botanique de Belgique received a series of publications from Des Moulins as “Dons de l’auteur,” including a reprint of “De la propriété littéraire en matière de nomenclature scientifique” (Anonymous 1863). [The reprint was later, in 1917, registered in the library collections of the State Botanic Garden in Brussels, today Meise Botanic Garden (Fig. 1).] Just a few months later, Crépin, who was a member of the Conseil d’Administration of the Société, referred to the brochure in a short paper signed December 1863 in which he observed that, ten

years on, Des Moulins’ discourse had yielded very little success and routine continued to flourish. Although expecting no warm reception, he felt obliged to reopen the issue. Arguing in favour of “la stricte justice” and the author’s right of ownership, his choice of words left little room for doubt. The botanists who created new combinations and replaced the names of the “vrais fondateurs”—such as Linnaeus—with their own names were condescendingly depicted as “les arrangeurs” (fixers) or “ces déménageurs” (movers). Discarding other proposals in which the first author was cited, Crépin opted for Des Moulins’ notation and hoped that before long “une grande autorité” would stand up and push through the necessary and just changes (Crépin 1864a). Crépin’s short paper was very well received by the French botanist Alexis Jordan (1814–1897), splitter and creator of numerous “jordanons.”⁶

In the very same fascicle of the *Bulletin de la Société royale de Botanique de Belgique*, Crépin also published a long review of Paul Ascherson’s *Flora der Provinz Brandenburg, der Altmark und des Herzogthums Magdeburg* (Ascherson 1864; Crépin 1864b). Crépin was very positive about the author’s choice to add the name of the original authority when a species was transferred to a new genus. Ascherson, however, went a step further: the binomial was followed first by the name of the original creator of the species in parentheses and then by the name of the creator of the new combination. In the review Crépin gave an example—*Alsine tenuifolia* (L.) Wahlenb.—and urged all botanists to follow Ascherson’s notation.

By now Crépin was working on a greatly expanded second edition of the *Manuel*. In line with his praise for the new school notation over the past few years, he decided to use it in his flora. With only a brief reference to the underlying philosophy, he elucidated his

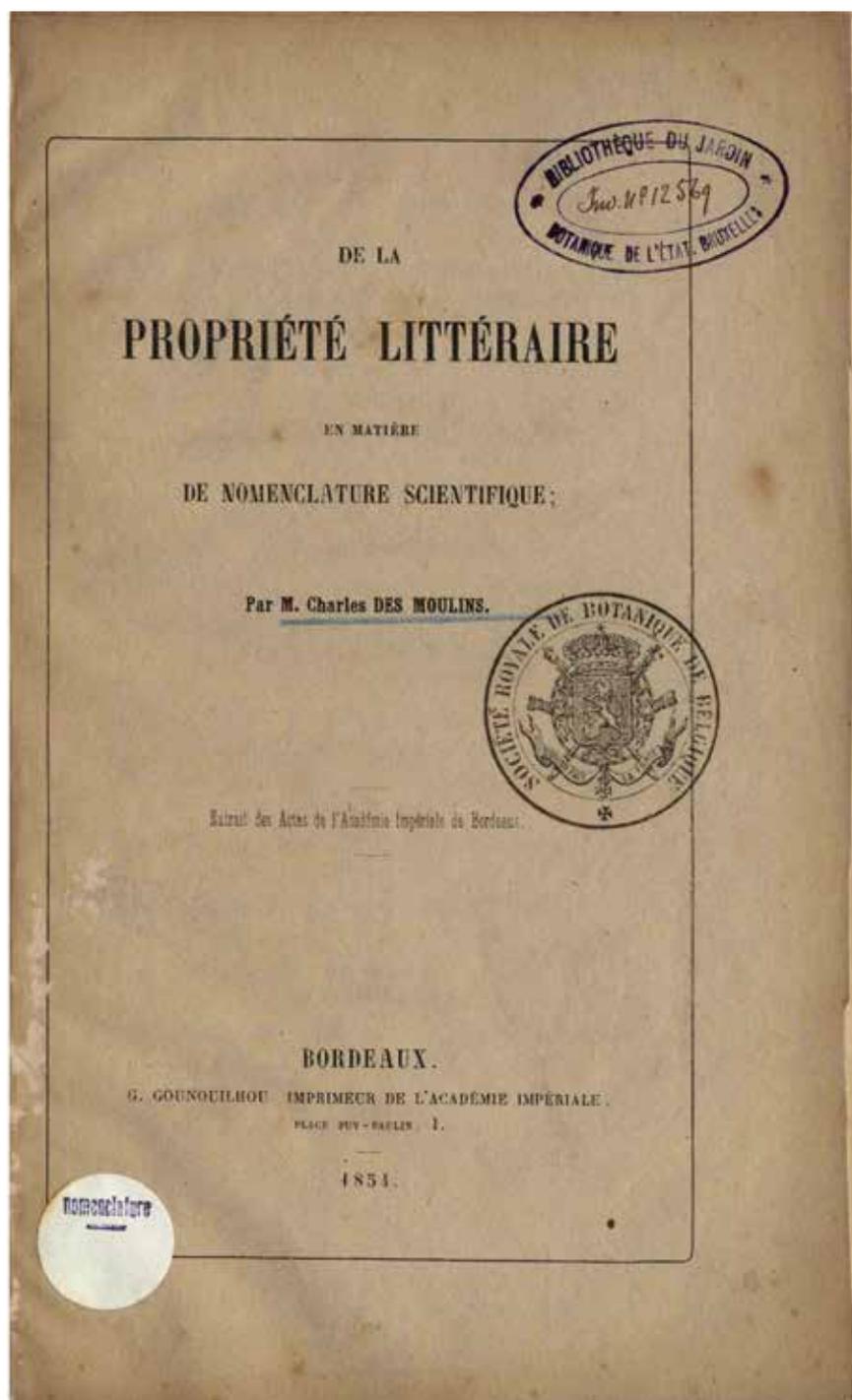


Figure 1. In 1863 the Société royale de Botanique de Belgique received a reprint of “De la propriété littéraire en matière de nomenclature scientifique” as “don de l’auteur” from Charles Des Moulins. Before long François Crépin had read the brochure in agreement. By courtesy of Meise Botanic Garden.

adopted nomenclatural notation in the *avant-propos*:

En fait de synonymie, j'ai adopté les nouveaux principes, les seuls qui respectent les droits acquis. J'ai admis comme nom spécifique princeps le nom le plus ancien et pour les espèces qui ont été changées de genre, j'ai fait suivre le nom spécifique du nom du premier descripteur en donnant le nom générique ancien et celui du botaniste qui a opéré le déclassement. Exemple: *Sagina nodosa* L. (*Spergula*) Bartl. Linné a décrit cette espèce sous le nom de *Spergula nodosa* et Bartling l'a fait passer dans le genre *Sagina*. Ceux qui continueront de suivre l'ancienne routine diront ou écriront *Sagina nodosa* Bartl.⁷ (Crépin 1866b, p. ix).

Ascherson (1867) wrote a highly favourable review of the *Manuel*. He welcomed the use of new school nomenclature, although he wondered whether it was really necessary to add the name of the original genus. Ascherson preferred the shorter notation *Lepidium campestre* (L.) R.Br. as compared with Crépin's *Lepidium campestre* L. (*Thlaspi*) R.Br. He also warned that Crépin's practice could create confusion when applied to species in which the former species epithet had become a generic name. For example, Crépin's notation "*Elodes palustris* L. (*Hypericum*) Spach" could be read as meaning that Linnaeus had created the name *Hypericum palustris*, whereas in reality Linnaeus's name was *Hypericum elodes*.

New school nomenclature kept occupying Crépin's thoughts after he had finished work on the second edition of the *Manuel*. In May 1866 Karl Koch (1809–1879) formulated some proposals to improve botanical nomenclature at the Botanical Congress held in London (Koch [?1866]). As for the author citation for a species transferred to another genus, Koch gave absolute priority to the author who had first described the plant. For example, the name of Linnaeus's *Ornithogalum luteum*, a species that was later moved to the genus *Gagea*, should be given as *Gagea lutea* (*Ornithogalum*) L.

Crépin read Koch's text with interest and wrote approvingly about it in a book review for the *Bulletin de la Société royale de Botanique de Belgique*. He wrote that in the past Des Moulins and he himself had already defended the new school notation and added with some anticipation: "Déjà, il commence à prendre pied dans la science et il est à espérer qu'il sera bientôt généralement adopté, car il est le seul que la raison puisse approuver"⁸ (Crépin 1867, p. 94). He even suggested not to take Linnaeus as the starting point but equally to include pre-Linnaean authors.

The 1867 International Botanical Congress in Paris

The circular that announced the International Botanical Congress in Paris, in 1867, articulated the need to establish a botanical code to resolve the various contentious issues of nomenclature, synonymy and priority as one of the main themes to be discussed. Concern about these issues was not new. In 1860 Frédéric Kirschleger (1804–1869), author of *Flore d'Alsace et des Contrées limitrophes* ([1850–]1852–1862) and a staunch defender of the new school, argued against the nomenclature of the old school in the *Bulletin de la Société botanique de France*, concluding with a bellicose "Je persiste dans mon hérésie!" (Kirschleger 1860). The *Commission permanente du Bulletin*, consisting of Ernest Cosson, Pierre E. S. Duchartre and Edouard Ernest Prillieux,⁹ felt forced to respond and stated that an author citation was not about only merit and glory. The commission soberly concluded that "le nom d'auteur, régulièrement placé, indique pour chaque innovation, la part de mérite comme la part de responsabilité qui incombe à chacun: rien de moins, rien de plus"¹⁰ ([Cosson et al.] 1860, p. 438).

In 1862 Alphonse de Candolle (1806–1893) addressed the problem of difficult

communication between horticulturists and botanists due to nomenclatural confusion (de Candolle 1862[1863], pp. 297–298; Anonymous 1864, pp. 170–171). A few years later he chaired the congress in London where Koch formulated the above-mentioned proposals regarding botanical nomenclature. After the death of his father, Augustin Pyramus (1778–1841), Alphonse de Candolle had taken over as editor of *Prodromus Systematis Naturalis Regni Vegetabilis*, the ambitious project to summarize all that was known about the taxonomy, ecology and biogeography of seed plants. No doubt Alphonse de Candolle was the fitting author to prepare a document for the congress in Paris that contained an elaborate proposal, with added comments, for *Lois de la Nomenclature botanique*. At the beginning of the congress, a committee was set up for a preliminary discussion of de Candolle's text with Barthélemy Dumortier as chairman and de Candolle as rapporteur (Fournier 1867; Dumortier 1867).

The library of Meise Botanic Garden keeps in its collections a unique copy of de Candolle's brochure with a handwritten note on the title page by Dumortier: "Exemplaire avec les amendements de la commission écrits par Mr. Alph. de Candolle et qui m'a servi à présider le Congrès international de Botanique les 19, 20, 21 & 23 août 1867 lors de la discussion des Lois de nomenclature Botanique."¹¹ (Fig. 2). The additional handwritten notes in the margins of this copy show that the commission proposed mostly minor changes to de Candolle's authoritative preliminary *Lois*. The text of article 48 was not amended and read: "Pour être exact et complet dans l'indication du nom ou des noms d'un groupe quelconque, il faut citer l'auteur qui a publié le premier le nom ou la combinaison de noms dont il s'agit."¹² In other words, if a plant was transferred to another genus, only the name of the author of the new combination should be added.

The amended text of de Candolle's *Lois* was then submitted for discussion by the plenary assembly. Whereas numerous articles provoked little or no discussion, article 48 was a hard nut to crack. Taking into account that de Candolle (1867a) spent about one third of his *Commentaire* added to the *Lois* to article 48, this did not come as a big surprise. After an intense exchange of arguments, article 48 was approved as it stood by a large majority "contre deux voix de minorité" (Fournier 1867, p. 203). Kirschleger ([?1867], p. 63) wrote that "Nous restions à trois lors du vote, après avoir lutté comme des lions."¹³ The lions, besides Kirschleger, were August Eichler (1839–1887), who from 1869 was the general editor of the prestigious *Flora brasiliensis*, and Otto Kuntze (1843–1907), who would later become a very controversial figure among taxonomists (Nicolson 1991). The published proceedings of the Botanical Congress give only a brief summary of the discussions: Kirschleger is mentioned several times in the text relating to article 48, Eichler only once—making a conciliatory remark—and Kuntze not at all (Fournier 1867, pp. 201–203).

In a letter dated 5 April 1868 Kirschleger informed François Crépin that in Paris "Nous n'étions qu'à trois à défendre nos principes d'équité et de justice! L'immense [*sic*] majorité nous écrasait par sa masse,"¹⁴ adding that Dumortier, a very capable orator, had been among their principle opponents. For his part an apparently relieved de Candolle (1867b, p. 55) observed that an overwhelming majority had voted "en faveur de l'ancien système, tel que nous l'avons défendu."¹⁵

In September 1867, just a few weeks after the congress, a second edition of the *Lois*, with the text as adopted in Paris, was published (de Candolle 1867b). Some 15 members of the Société royale de Botanique de Belgique had taken part in the congress, but for unknown reasons Crépin, one of its leading members,

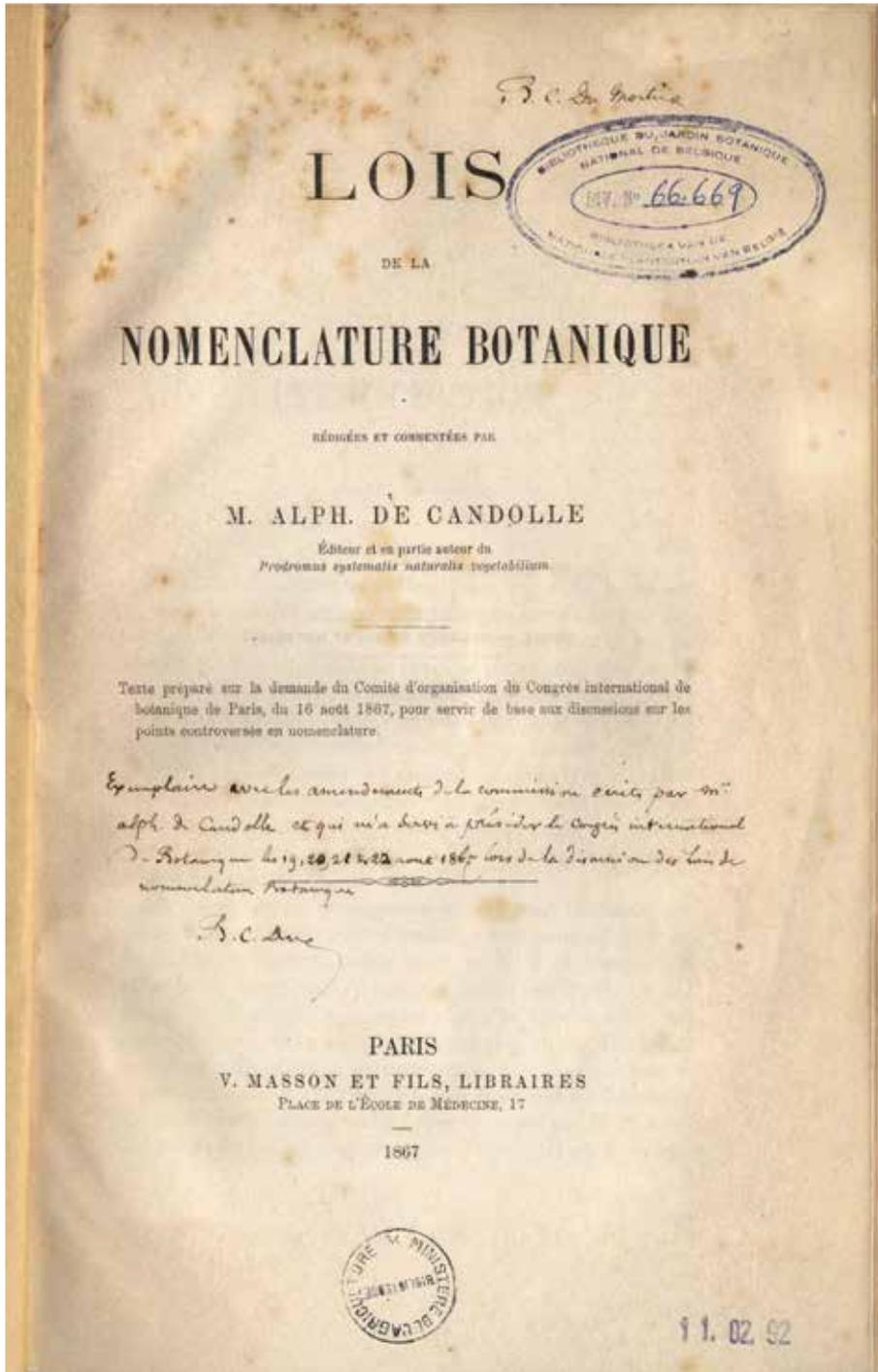


Figure 2. Copy of the first edition of Alphonse de Candolle's *Lois de la Nomenclature botanique* with additional handwritten notes by Barthélemy Dumortier and de Candolle. Parts of the notes in the margins of the text were cut off when the brochure, formerly kept in the library of the Belgian Ministry of Agriculture, was bound. By courtesy of Meise Botanic Garden.

was not among them. When he learned about the result of the vote on article 48, he was not happy with it, but neither was he surprised (Crépin 1864c[1867], p. 188). A battle had been lost, but he continued to defend the just cause of the new school. In December 1867 he finished a manuscript that was a long drawn-out argumentation to reconsider the unjust article 48 (Crépin 1864c[1867]).

In the aftermath of Paris: Des Moulins and the species as the ontological unit

Early in 1868 Des Moulins wrote an open letter to François Crépin, which was published in the *Actes de la Société linnéenne de Bordeaux* (Des Moulins 1868). Apparently Des Moulins was not aware that during the past months Crépin had been working on a paper to attack article 48 of the *Lois*. From previous correspondence and exchange of publications, however, he knew that Crépin was a staunch defender of the new school nomenclature that respected the rights of the first describer of a species. A few months earlier, for instance, Des Moulins had praised the second edition of Crépin's *Manuel* with its adoption of new school nomenclature.¹⁶ In the same letter he told Crépin that he was profoundly displeased with de Candolle's plea for tradition at the Botanical Congress in Paris and “les prétentions gargantuaesques des arrangeurs de genres” (the Gargantuan pretensions of the arrangers of genera). Although he feared that his own name carried insufficient authority to successfully launch a counteroffensive, he was confident that “le bon sens des masses” would eventually prevail. In his search for a more authoritative comrade-in-arms, Des Moulins addressed Crépin in his open letter as “professeur de botanique à l'université de Gand,” whereas in reality Crépin taught at a horticultural school at Gentbrugge, near Ghent, a much more modest position.

It was only on receiving six reprints and a letter in which the author explained his initiative that Crépin heard about the open letter.¹⁷ Des Moulins admitted that “Il y a longtemps que, sans mot dire, je suis occupé de vous.” Crépin, he knew, shared his ideas on “notre grande affaire du nom-princeps.” Des Moulins said he had found a new and non-polemical way of argumentation against de Candolle and the *Lois*. Shamelessly, he admitted that he counted on the Belgian botanist to defend their shared views. In order to do so, Crépin could freely use the arguments put forward in the open letter: “C'est là le rôle du polémiste, pour lequel vous êtes si bien taillé! (...) Assurément, je ne suis révolutionnaire en quoi que ce soit; mais ici, je suis convaincu qu'en usant de notre droit individuel, nous ne faisons qu'accomplir un devoir—le plus grand de tous—celui de combattre pour la Justice.”¹⁸ For documentation, Des Moulins added to his letter a few printed sheets of a forthcoming publication in which Victor F. Raulin (1815–1905), also from Bordeaux, proposed a notation that, in case of transfer of a species to another genus, did justice to both the original describer of the species and the author of the new combination (Raulin 1861[1869–1870]).

The open letter began with praise for de Candolle's work and the *Lois*, immediately followed by the statement that “une question,—une seule—la plus compliquée, la plus importante, la plus chaudement controversée, recevait une solution qui semble absolument inacceptable à notre conscience scientifique”¹⁹ (Des Moulins 1868, p. 345). His single aim was to present an alternative that was both just and based on rational principles. First he observed that the study of plants and animals requires ignoring the individual. Instead, “tous les êtres semblables entr'eux par leur nature et leurs propriétés seront considérés et décrits comme n'en

faisant qu'un."²⁰ Rejecting Darwinism and its perpetual modifications, Des Moulins noted,

... ce n'est nullement avec les darwinistes que j'ai à discuter sur l'article 48 du Congrès, mais bien avec des hommes qui admettent tout comme moi la fixité des types, —fixité absolue, inflexible aux yeux du Jordanisme, —fixité plus ou moins sujette à des variations qui ont des limites certaines sinon toutes connues, aux yeux de la presque totalité des naturalistes. Notre discussion est donc tout simplement une guerre civile que nous nous faisons entre anti-darwinistes, mais une guerre bien courtoise et bien douce, ...²¹ (Des Moulins 1868, p. 349).

As he rejected Darwin's gradualism and embraced the fixity of species, Des Moulins could easily identify the central ontological unit. It is not the genus, Des Moulins said, because the genus is a human construction, even if a practical, rational, useful and philosophical one. For him it was clear that the ontological unit was to be found "dans l'ESPÈCE et là seulement. (...) L'espèce est donc la pièce la plus importante, la maîtresse-pièce, en quelque sorte l'*alpha* et l'*oméga* du système"²² (Des Moulins 1868, pp. 350–351).

Returning to the issue of nomenclature, the conclusion was obvious. With all their attention to the system, the classifiers—"les synthétistes"—had lost sight of the species when debating the *Lois*. Des Moulins accepted that synthesis is the *summum* in science and that analysis "est d'une dignité beaucoup moindre." However, the species is the analytical unit of the system with which the classifier works. As for which author's name to add to a binomial, Des Moulins left no doubt: "Donc encore, l'ESPÈCE est la propriété individuelle, intransmissible, invendable, de celui qui l'a établie : le nom de cet auteur doit lui rester attaché à perpétuité, et surnager à tous les changements, à toutes les combinaisons possibles"²³ (Des Moulins 1868, p. 352).

Apparently, Des Moulins' publication received little response. His effort to give the

new school notation a rational or philosophical basis was not spent on de Candolle, who, one and a half years after the publication of *Lois de la Nomenclature*, had obviously had enough of the polarizing discussions about authors' names and ignored Des Moulins' open letter (de Candolle 1869, pp. 64–65). Dumortier too was dismissive. He told Crépin that Des Moulins' claim that "la nature n'a créé que des espèces, c'est une hallucination." According to Dumortier, the real basis of science was the species within the genus.²⁴

In the aftermath of Paris: Crépin claims justice for the phytopographer

The aforementioned polemical manuscript that Crépin finished in December 1867 was soon published in the *Annales de la Société phytologique d'Anvers* (Crépin 1864c[1867]). The reason for not submitting it for publication in the *Bulletin de la Société royale de Botanique de Belgique* seems obvious, as it allowed its author to avoid a direct confrontation with the society's president, Dumortier.

At the outset Crépin admitted that as a whole he admired the way de Candolle had dealt with nomenclature "d'une façon magistrale," yet he felt an imperative duty to fight a few of the points in the *Lois*. What followed was a passionate and lengthy *ad nauseam* plea for justice and for a revision of article 48 (Nicolson 1991, p. 43). The paper was larded with long quotes, some of which Crépin had translated in French, from publications by, among others, Asa Gray, Alphonse de Candolle and Edmond Boissier. It contained numerous examples of the use of authors' names and indicated why each author opted for one form or another of notation. When he expressed his own opinion, the key word was "justice":

M. De Candolle voudrait entendre la justice autrement que M. Boissier et, comme M. Agassiz, il semble priser assez médiocrement

le mérite qu'il y a à créer, à établir des espèces. Pour lui, la création des genres et leur remaniement est une besogne bien autrement importante, d'une valeur bien supérieure au travail des espèces ;... (...) Notre intention n'est pas de déprécier les mérites des classificateurs; nous accordons que leurs travaux ont fréquemment une valeur réelle ; mais nous n'entendons pas qu'on rabaisse outre mesure les travaux purement descriptifs²⁵ (Crépin 1864c[1867], pp. 180, 181).

This baseline was similar to the one underscored by Des Moulins, although at the moment of writing Crépin had no knowledge of Des Moulins' open letter. Both were aware of the hierarchical division that separated the describers of species from the classifiers, and they accepted that the work of the latter was more philosophical or scientific, but they demanded respect for the purely descriptive work. Consequently, they considered it to be no more than just to see the initial describer's name permanently added to the name of a newly created plant species. The transfer of a species to another genus could be no reason to drop the name of the creator of the species.

After having read de Candolle's extensive comment on article 48 (de Candolle 1867b, pp. 45–55), Crépin bluntly concluded that the author was seemingly insufficiently informed, "car autrement il aurait pu nous dire que la dernière forme, celle qui satisfait à tous les droits, est celle-ci: *Matthiola tristis* L. (*Cheiranthus*) R. Br."²⁶ (Crépin 1864c[1867], p. 169). This was precisely the notation Crépin himself had used in the second edition of his *Manuel*.

Although lacking an academic background, the self-taught author presented himself towards the end of the text as a confident phytographer guided by outspoken liberal-progressive ideas. He expected that the opposition against the new school nomenclature

... se ralentira avec le temps, finira par s'éteindre et nous sommes fermement convaincu

que, dans un avenir qui n'est pas éloigné, nous verrons la réforme taxonomique adoptée par la majorité des phytographes. Ce n'est pas un congrès, dix congrès qui enraieront un mouvement provoqué et dirigé par la raison et l'équité. Nous ne sommes plus aux temps où l'on s'arrêtait devant l'autorité d'un nom illustre, devant les décisions d'une assemblée; nous sommes arrivés à une époque où tout est soumis à la libre discussion et où les arrêts scientifiques n'ont de valeur qu'autant qu'ils sont basés sur le vrai²⁷ (Crépin 1864c[1867], p. 187).

Referring to article 2 of the *Lois de la Nomenclature*, which stated that the rules of nomenclature could not be imposed, Crépin ended in a belligerent tone: "Mais comme [cette décision] n'a pas force de loi, qu'elle ne peut nous être imposée, nous protestons au nom des droits méconnus, au nom de la justice. Notre confiance dans l'avenir n'est pas ébranlée, persuadé que nous sommes de la bonté de notre cause"²⁸ (Crépin 1864c[1867], p. 188). Although well aware of his place in the heterogeneous community of naturalists and botanists, the self-taught phytographer had convinced himself that the issue of authors' names was a case definitely worth fighting for. Almost a full year later and still dissatisfied, Crépin told the French botanist Charles A. Lemaire (1800–1871), then living in Ghent and editing *L'Illustration Horticole*, that "Somme toute, ce congrès, où quelques grands ou gros bonnets ont imposé leur manière, ne pouvait nous faire la loi et chacun était en droit de protester."²⁹

Crépin's comments on the *Lois* were well received by Eugène Defacqz (1797–1871), liberal politician, amateur botanist and member of the *Société royale de Botanique*, who wrote that Crépin would qualify as a worthy author to bring the nomenclature back to uniformity and set it on a rational basis.³⁰ Not all the members of the *Société*, however, embraced Crépin's point of view. Édouard Morren (1833–1886), from the University of

Liège, was of the opinion that de Candolle's opponents cared about "la vérité historique" at the expense of the clarity of nomenclature (Fournier 1867, p. 202). He was not pleased with Crépin's attack on the *Lois*.³¹ Neither was de Candolle's ally in Paris and president of the *Société royale de Botanique*, Dumortier, happy with Crépin's views: "C'est par égard pour vous que je n'en ai pas parlé dans le compte rendu [dans le *Bulletin de la Société* (Dumortier 1867)], mais je crois que vous ne tarderez pas à revenir à vos premières idées. (...) Croyez moi cette nouvelle manière de notation ne tiendra pas."³²

Justice, sound reason and the weight of tradition

The clash of views on authors' names during and immediately following the 1867 Botanical Congress in Paris had not dropped out of the blue. During the 1850s and 1860s several authors devised and applied a multitude of views on the topic of authors' names. Over time this proliferation only could lead to a call for regulation and standardization. In their discourse the innovators alternately used terms such as "justice" and/or "utility" to underpin their calls for change. Ultimately, the essence of the discussion can be traced back to the question of the relative importance of the aspects "description" and "classification" in systematic botany. These two aspects were inextricably linked through the use of binomials, and in the end it was the botanist's preference for one or the other aspect that decided which notation would be used to cite authors.

The two opposing camps of traditionalists and innovators each usually substantiated their point of view with arguments of a different nature. This made it extremely difficult to find a consensus. Botanists using the old school notation did not necessarily take their stance out of respect for the author who had created

a new combination. That adding an author citation had something to do with justice or paying tribute was rejected by de Candolle, who instead recommended that "Quand on veut rendre hommage à un botaniste, on lui dédie un genre,"³³ concluding that neither the new method nor the old one could do sufficient justice by means of author citations (de Candolle 1867a, pp. 48, 51).

In a new paragraph added to the comments in the second edition of *Lois de la Nomenclature*, de Candolle aimed his arrows directly at Crépin, who had described the consequences of the use of the traditional rules of nomenclature. Due to the transfer of numerous species to new genera, the latter had written, "Le grand nom de Linné disparaîtrait de nos listes d'espèces!" (quote in de Candolle 1867b, p. 54). To which de Candolle responded: "Les grands botanistes conserveront toujours leur place dans les synonymies complètes et surtout dans l'histoire de la science. Il en est de même des grands chimistes, des grands astronomes, quoique l'on n'indique pas leurs noms à la suite de chaque corps terrestre ou céleste qu'ils ont découvert"³⁴ (de Candolle 1867b, p. 54).

Article 15 of the *Lois* adopted the principle that nomenclature ignored pre-Linnaean names. In Paris this principle apparently met little resistance (Fournier 1867, p. 188), although some botanists, including Kirschleger ([1850–]1852–1862, 1, p. ix–x), were of the opinion that it failed to recognize the rights of the pre-Linnaean authors. Crépin was not happy with this principle either, although he was aware that rejecting it would create practical problems. However, if you take everyone's rights seriously, he said, "il faut être logique, quels que soient les inconvénients qu'on puisse rencontrer sur sa route"³⁵ (Crépin 1867, p. 94). It should be added that, only a few months later, when he discussed *Lois de la Nomenclature*, he made no objection against article 15 (Crépin 1864c[1867]).

Table 1. Examples of binomials of plant species, except the first from Strickland et al. (1843), in which the species epithet has been transferred to another genus (first author of the species in **bold**, author of the new combination underlined)

Names	References
<i>Tyrannus crinitus</i> L. (sp.) or, preferably, <i>Tyrannus crinitus</i> (L.)	H. E. Strickland et al. (1843), “Report of a Committee...” — [Zoological nomenclature.]
<i>Cephalaria pilosa</i> (L. sub <i>Dipsaco</i>) <u>Gren. et Godr.</u> Fl. fr. II. 69	F. Kirschleger ([1850–]1852–1862), <i>Flore d’Alsace</i> , vol. 1
<i>Pyrus aria</i> L. (sub <i>Crataego</i>)	Ch. Des Moulins (1854), “De la propriété littéraire en matière de nomenclature botanique”
<i>Sagina nodosa</i> <u>Fenzl</u>	F. Crépin (1860), <i>Manuel de la Flore de Belgique</i> , ed. 1.
<i>Matthiola incana</i> L. (<i>Cheiranthus</i>) <u>R.Br.</u>	V. Raulin (1861[1869–1870]), “Description physique de l’île de Crète”
<i>Lepidium campestre</i> (L.) <u>R.Br.</u>	P. Ascherson (1864), <i>Flora der Provinz Brandenburg...</i>
<i>Gagea lutea</i> (<i>Ornithogalum</i>) L.	K. Koch [?1866], <i>Einige die Systematik betreffende Vorschläge</i>
<i>Sagina nodosa</i> L. (<i>Spergula</i>) <u>Bartl.</u>	F. Crépin (1866b), <i>Manuel de la Flore de Belgique</i> , ed. 2.
<i>Matthiola tristis</i> (L. Sp. 925 sub <i>Cheirantho</i>) [Syn.: <i>M. tristis</i> <u>R.Br.</u>]	E. Boissier (1867–1888), <i>Flora Orientalis</i> , vol. 1
<i>Matthiola tristis</i> (L.) <u>R.Br.</u>	A. Eichler, in Fournier (1867), <i>Actes du Congrès international de Botanique à Paris</i>
<i>Alsine tenuifolia</i> L. (sub <i>Arenaria</i>) <u>Crantz</u>	Letter from A. Lelièvre to F. Crépin ([?mid-1860s]) ⁴⁴
<i>Barbarea vulgaris</i> L. (sub <i>Erysimum barbarea</i>) <u>R.Br.</u>	
<i>Sagina nodosa</i> <u>Bartl.</u> [Syn.: <i>Spergula nodosa</i> L.]	F. Crépin (1874), <i>Manuel de la Flore de Belgique</i> , ed. 3.
Concise, for practical use: <i>Matthiola tristis</i> or <i>Matthiola tristis</i> <u>R.Br.</u>	G. Bentham (1886), <i>Botanical Gazette</i>
‘False nomenclature’: <i>Matthiola tristis</i> L.	

Table 1 gives a selection of variants of author citations used or mentioned by botanists between the 1850s and 1880s. In their zeal to do justice to the original author (and possibly to keep the notation short), some authors dropped the name of the botanist who had created the new combination and replaced it with the name of the original author of the species. Others added both authors’ names and sometimes, on top of that, the name of the genus from which the species had been taken. In so doing, nomenclature gradually entered the realms of taxonomy and synonymy. In the absence of strict rules, the resulting complexity of notations became a serious source of confusion. This prompted de Candolle (1867a,

p. 49) to warn that “Quand on veut exprimer deux choses clairement, on les sépare.”³⁶ It was, for example, easier to replace the notation *Matthiola tristis* (**L.** sub *Cheirantho*) with the dual mention of *Cheiranthus tristis* **L.** and *Matthiola tristis* **R.Br.** An additional danger of complex and long notations was that they risked increasing confusion when truncated for use in species lists or simplified local floras (Questier 1858).

That the format of a citation could differ from one author to the other was rejected by de Candolle and was a weighty argument in favour of preserving tradition against the proliferation of new school nomenclatural novelties. In an extra paragraph in the second

edition of *Lois de la Nomenclature*, de Candolle (1867b, p. 52) wrote: “Si l’on met *Matthiola tristis* (L.) Brown, il faut une explication sur le sens de la parenthèse, et le lecteur ayant appris que Linné a fait seulement le nom d’espèce, demande sous quel nom générique.”³⁷ Today, with the rules of the Code harmonized and used by all botanists worldwide, a similar remark about, for example, the name *Conringia orientalis* (L.) Dumort. would sound pedantic.

Most of the arguments and notations mentioned above were also heard at the International Botanical Congress in Paris, where the discussion was rather confused. Article 48 was adopted unaltered. One obvious reason for this outcome was the strong position of de Candolle at the congress: he was a recognized authority on nomenclature, had himself written the text (including the *Commentaire*) that was on the table for discussion, and was surrounded by a number of like-minded people, including the eloquent orator, Barthélemy Dumortier. Furthermore, the text was printed only a few days before the congress (de Candolle 1867a, p. 3), and therefore the opponents of article 48 had very little time to prepare a common stance. Dumortier afterwards observed that in Paris the discussion on authors’ names had been conducted in depth, but that “les novateurs” (the innovators) who rejected de Candolle’s proposal were divided among themselves.³⁸

In his long comment on article 48 de Candolle explained that adding an author citation to a binomial was not meant to honour the author (de Candolle 1867a, pp. 48–51; repeated, with additions, in de Candolle 1867b, pp. 51–54). Its real purpose was to distinguish between two or more distinct species that have been given the same name by different authors (homonyms) and to facilitate the search for additional information on the species (date of publication of the binomial or of each of its constituent parts). For de Candolle an

essential aspect of *Lois de la Nomenclature* was respect for the established tradition stored in the works of the most authoritative authors. Since its articles—contrary to the title of the document—were suggestions without force of law, there was a real danger that a proliferation of nomenclatural practices would make the whole system increasingly confused.

Since he avoided philosophical considerations or terms such as “justice” in the document he had prepared for Paris, de Candolle was left with little more than a call for tradition as a buffer against mounting nomenclatural confusion. One and a half years after the vote in Paris, he could offer no new argument for his view. Abhorring polemics, he asked “la permission de ne plus parler de la citation des noms d’auteurs dans le cas de transposition des espèces d’un genre dans un autre. Ce n’est pas que j’aie changé le moins du monde d’opinion, mais après avoir exposé longuement mes motifs, on a répondu;...”³⁹ (de Candolle 1869, p. 64). The fact that in Paris the creators or re-arrangers of genera had prevailed and the original describers of species were dismissed was largely due to a combination of long-standing tradition and de Candolle’s authority rather than scientific or philosophical arguments.

From Paris 1867 to Cambridge 1930

Among the suggestions for author citations proposed in the 1860s for species transferred to another genus, those by Paul Ascherson (1864) and August Eichler (in Fournier 1867, p. 202) correspond to the current code of nomenclature (see Tab. 1). During the discussion of article 48 in Paris, Eichler very matter-of-factly observed that “on ne commet aucun mensonge scientifique quand on a soin de placer le nom de Linné entre deux parenthèses, avant celui de R. Brown [*Matthiola tristis* (L.) R. Br.], et que, par cette

méthode, on garantit scrupuleusement les lois d'antériorité"⁴⁰ (Fournier 1867, p. 202).

In a review of the adopted *Lois de la Nomenclature* Ascherson gave a more detailed explanation for his rejection of article 48 as voted by the congress. He presented a sharp analysis of the arguments of the supporters and opponents of the new school. He emphasized that, apart from certain participants in the congress, it had been mostly Charles Des Moulins and François Crépin who had energetically raised their voice against the voted article 48. Ascherson did not like the argumentation based on the concept of intellectual property as developed by Des Moulins nor the trivialization by de Candolle and others of sensitivities associated with the idea of property right or with the merits of describing a new species: "Die Wahrheit scheint uns in der Mitte zu liegen, ..." ⁴¹ (Ascherson 1868, p. 343).

Whereas de Candolle (1867b, p. 54) scoffed at François Crépin's sentimental defence of new school nomenclature, Ascherson (1868) was much more appreciative. The name of the original describer added to a binomial immediately revealed information about the species, such as when approximately it was created and often also in which part of the globe it belonged. Furthermore, Ascherson said, Crépin (1864c[1867], p. 182) rightly asserted that the name of the original author was a kind of trademark—"Fabrikstempel" (factory stamp)—which could serve as a recommendation for a species. Only adding the name of the original author, however, created an anachronism, for instance when writing *Matthiola tristis* L. Like Dumortier, Ascherson rejected Des Moulins' argument that the species was a natural unit, whereas the genus was a human abstraction. It reminded Ascherson of "die scholastischen Spitzfindigkeiten der Nominalisten und Realisten."⁴² For him species too were

constructions of the human mind. He therefore concluded that there were equal reasons of justice and expediency for citing both the original and the last denominator of a species that has been transferred to another genus, as for example in Crépin's notation *Matthiola tristis* L. (*Cheiranthus*) R.Br. This notation being rather long, Ascherson suggested dropping the reference to the old genus name. In so doing he arrived at the notation he had himself used in his *Flora der Provinz Brandenburg, der Altmark und des Herzogthums Magdeburg* (Ascherson 1864) and which had also been suggested by Eichler in Paris.

After the exchange of arguments before, during and after the Botanical Congress in Paris, little happened for a long time. Article 48 remained in force, although for decades some botanists kept ignoring it and preferred to use the new school nomenclature. It was "with sincere regret" that Bentham (1886), two decades after the Congress, saw distinguished botanists continue to apply "the obviously false nomenclature exemplified in *Matthiola tristis* Linn." Unexpectedly, Crépin by then no longer used his new school notation. In the third edition of *Manuel de la Flore de Belgique* (Crépin 1874), he had returned to the old school notation. It is most likely an indication of his sense of defeat that "La nomenclature botanique au Congrès international de botanique de Paris" (Crépin 1864c[1867]) is the only title missing in his list of publications in *Guide du Botaniste en Belgique* (Crépin 1878). Why the previously combative Crépin gave in and agreed to abide by article 48 of *Lois de la Nomenclature*, remains unknown. It can probably be assumed that the critique of his mentor, Dumortier, would have been enough to make him change his mind.

In the late 19th century American taxonomists started paying serious attention to the system of applying names by means of types (Hitchcock 1921). This introduced a

new element in the discussion about authors' names. Once the type method was accepted, it was only natural that the name of the author on whom the type depends was added to the binomial. Still, it took quite some time before this idea had an impact on nomenclature. Whereas the 1907 American Code recognized the type concept, the 1905 Vienna Code did not refer to it (Nicolson 1991). That changed when, preparing for the 1930 International Botanical Congress in Cambridge, a subcommittee on nomenclature, appointed by the Imperial Botanical Conference in London, 1924, proposed a series of changes to the International Rules of Botanical Nomenclature (Ramsbottom et al. 1929). These included the explicit introduction of the type method into the Code. Therefore "The importance of retaining the name of the *original* author of an epithet is emphasized: under a type method it is more important than that of the transferring author, as it indicates the type." This implied that article "48" (= art. 49 in the adopted Cambridge Code) needed a major rewording. In the updated Code, published in 1935, article 49 was worded as follows: "When a genus or a group of lower rank is altered in rank but retains its name or epithet, the original author must be cited in parenthesis, followed by the name of the author who effected the alteration" (Briquet 1935). In an earlier version adding the name of the original author had been optional, but during the preliminary discussions of the Code several botanists insisted that this should be made mandatory; see under art. 43 in Briquet (1930a, pp. 52–53; 1930b, p. 15; 1931, p. 597).

At last the 19th-century "new school" phytographers prevailed, and the notation suggested long ago by Ascherson and Eichler was included in the Cambridge Code of botanical nomenclature. However, there was a twist in the story. The choice for the new notation was not based on arguments borrowed

from Des Moulins' philosophical considerations or Crépin's impassioned defence of the original describers and "vrais fondateurs de la science" against the capricious "derniers venus" and arrangers of genera (Crépin 1864a, p. 223). Nor did it take Ascherson's carefully considered position into account. That the notation accepted in Cambridge was similar to the one proposed long ago by, among others, Ascherson was a coincidence. Alfred J. Wilmott, who had been a member of the 1924 Sub-Committee on Nomenclature, later remarked that the new notation was intended as a transitional state, necessary as a step towards the zoological method, in which a single author is cited after recombination of the species epithet. According to Wilmott (1944–1945, p. 138), a transitional state was "necessary to obtain acceptance in botany of the citation of the author on whom the type depends, and imperative in view of the introduction then [= 1930] into botanical nomenclature of the type-method for obtaining precision in application of name." Furthermore he added that citation of the second author was taxonomy "and definitely *not* nomenclature" (Wilmott 1944–1945, p. 138). In other words, the proposal for a two-step implementation—first add the name of the original author and only later drop the name of the author of the new combination—was motivated by a tactical consideration. That said, the second step was never taken.

Concluding remark: The bricks and walls of taxonomy

Who built the seven gates of Thebes?
The books are filled with names of kings.
Was it the kings who hauled the craggy blocks of stone?
—Bertolt Brecht⁴³

Today the "transitional" state created in Cambridge lingers on. François Crépin as well as most of his 19th-century "new

school” companions would probably have been satisfied with the situation. The persistence of temporariness seems to indicate that the prevailing formula, which combines utility with fairness, reflects the reality of taxonomic work in which respect for historic legacy, scientific rigour and human sensitivities are interwoven.

Without seeking to push the point too far, we perceive a divide that separated the 19th-century regionalists and makers of (field) floras—such as Ascherson, Crépin and Kirschleger—from those who were involved in larger and more ambitious projects. The former saw in the author citation a recognition for the sweat and toil of the original collector and describer of a new plant species. In the end the discussion on article 48 in Paris was largely a dialogue of the deaf with tradition as the victor. Nor did the debate have a direct influence on the creation of the current notation, adopted in Cambridge in 1930. Still, it is worth recalling the exchange of arguments before, during and after the Botanical Congress in Paris, if only because over the past decade complaints about denial of the work of the bricklayers have again repeatedly re-emerged (McDade et al. 2011; Steiner et al. 2015).

Acknowledgments

The author thanks Denis Diagre-Vanderpelen and Petra De Block, both of Meise Botanic Garden, for discussions on the subject of this paper and for critical comments on the first draft.

Notes

1. Errera and Durand (1906) included a number of contributions published anonymously or under pseudonyms in the list of Crépin’s publications.
2. “... those many problems of anatomy, physiology, teratology and botanical geography, the solution of which will satisfy their intellect far more than the discovery or possession of rare plants.”
3. “The aim of scientific research is to arrive at the truth in small matters as well as in large ones; (...) I have come to lay my brick on the construction site.”
4. “... that scientific nomenclature, being the highlighting and, as it were, the synthesizing ensign of the result of the labours of the people engaged in a particular science, is akin to what is commonly called literary property.”
5. “... holy war against the disregard of the rights earned by one’s labour.”
6. Jordan, Alexis to François Crépin, 23 November 1864. Depository: Archives Jardin Botanique 117:1345, Meise Botanic Garden, Meise.
7. “As regards synonymy, I have adopted the new principles, the only ones that respect the acquired rights. I have accepted for the first name the oldest species epithet; for species that have been transferred to another genus, I have followed the species epithet with the name of the first describer, giving both the old generic name and that of the botanist who transferred the species. For example: *Sagina nodosa* L. (*Spergula*) Bartl. Linnaeus described this species as *Spergula nodosa* and Bartling put it in the genus *Sagina*. Those who continue to follow the old routine will say or write *Sagina nodosa* Bartl.”
8. “Already it is beginning to gain a foothold in science, and it is to be hoped that it will soon be generally adopted, for it is the only one that reason can approve.”
9. In a footnote, de Candolle (1867b, p. 49) added that W. de Schœnefeld, secrétaire de la Société but not a member of the commission, “a pris aussi une part active à la déclaration de la Commission.”
10. “... the author’s name, properly placed, indicates for each innovation the extent of the merit as well as the extent of the responsibility that falls to each: nothing less, nothing more.”
11. “Copy with the amendments of the commission written by Mr. Alph. de Candolle and which served me to preside over the Congrès international de Botanique on the 19th, 20th, 21st & 23rd of August 1867 during the discussion of the *Lois de la nomenclature Botanique*.”
12. “To be accurate and complete in stating the name or names of any group, the author who first published the name or combination of names in question must be cited.”
13. “We were left with three people at the vote, after having fought like lions.”
14. “There were only three of us defending our principles of equity and justice! The vast majority crushed us by their mass.” Kirschleger, Frédéric to François Crépin, 5 April 1868. Depository: Archives Jardin Botanique 120:2140, Meise Botanic Garden, Meise.
15. “... in favour of the old system, as defended by us.”

16. Des Moulins, Charles to François Crépin, 19 November 1867. Depository: Archives Jardin Botanique 149:4174, Meise Botanic Garden, Meise.
17. Des Moulins, Charles to François Crépin, 9 March 1868. Depository: Archives Jardin Botanique 120:2042, Meise Botanic Garden, Meise.
18. “This is the role of the polemicist, for which you are so well suited! (...) I am certainly not a revolutionary in any way; but here I am convinced that in using our own individual right, we are only fulfilling a duty—the greatest of all—that of fighting for Justice.”
19. “... one question—only one—the most complicated, the most important, the most hotly contested, was given a solution which seems absolutely unacceptable to our scientific conscience.”
20. “... all beings similar to each other in their nature and properties shall be considered and described as one.”
21. “... it is by no means with Darwinists that I have to discuss Article 48 of the Congress, but with men who, like myself, believe in the fixity of types—an absolute fixity, which is inflexible in the eyes of Jordanism—a fixity which is more or less subject to variation within certain limits, if not all understood, in the opinion of almost all naturalists. Our discussion is therefore simply a civil war that we are waging amongst anti-Darwinists, but a very courteous and gentle war.”
22. “... in the SPECIES and only there. (...) The species is therefore the most important piece, the master piece, in a way the alpha and omega of the system.”
23. “Thus again, the SPECIES is the non-transferable and unsaleable individual property of the one who established it: the name of this author must remain attached to it in perpetuity, and survive all changes and all possible new combinations.”
24. Dumortier, Barthélemy to François Crépin, [?end March 1868]. Depository: Archives Jardin Botanique 120:1949, Meise Botanic Garden, Meise.
25. “M. De Candolle would like to understand justice differently from M. Boissier and, like M. Agassiz, he seems to value rather poorly the merit of creating and establishing species. For him, the creation of genera and their rearrangement is a far more important task and of far greater value than the work of establishing species. (...) It is not our intention to diminish the merits of the classifiers. We agree that their work is frequently of genuine value, but we do not accept that purely descriptive work be excessively belittled.”
26. “... for otherwise he might have told us that the last form, the one which satisfies all rights, is this: *Matthiola tristis* L. (*Cheiranthus*) R. Br.”
27. “[The opposition] ... will slow down with time, will eventually die out, and we are firmly convinced that, in the not too distant future, we will see the taxonomic reform adopted by the majority of phytographers. One congress, ten congresses, will not stop a movement driven by reason and fairness. We are no longer in the days when one stopped before the authority of an illustrious name, before the decisions of an assembly. We have arrived at an era where everything is subject to free discussion and where scientific opinions have value only insofar as they are based on the truth.”
28. “But as [this decision] has no force of law, as it cannot be imposed on us, we protest in the name of the rights that have been ignored, in the name of justice. Our confidence in the future is not shaken, convinced as we are of the goodness of our cause.”
29. “All in all, this congress, where a number of bigwigs imposed their way, could not lay down the law for us and everyone had the right to protest.” Crépin, François to Charles A. Lemaire, 24 October 1868. Depository: Archives Jardin Botanique 120:2106, Meise Botanic Garden, Meise.
30. Defacqz, Eugène to François Crépin, 11 January 1868. Depository: Archives Jardin Botanique 120:2200, Meise Botanic Garden, Meise.
31. Morren, Édouard to François Crépin, 12 February 1868. Depository: Archives Jardin Botanique 120:2180, Meise Botanic Garden, Meise.
32. “It is out of consideration for you that I did not mention it in the review [in the *Bulletin de la Société*], but I believe that you will soon return to your first ideas. (...) Believe me, this new way of notation will not stand.” Dumortier, Barthélemy to François Crépin, [?end March 1868]. Depository: Archives Jardin Botanique 120:1949, Meise Botanic Garden, Meise.
33. “When you want to pay tribute to a botanist, you can dedicate a genus to him.”
34. “Linnaeus’ great name would disappear from our species lists! (...) The great botanists will always keep their place in the comprehensive synonymies and especially in the history of science. The same is true of the great chemists, the great astronomers, although their names are not attached to each terrestrial or celestial body they have discovered.”
35. “... you have to be logical, no matter what inconveniences you may encounter on your way.”
36. “When you want to express two things clearly, you separate them.”
37. “If the notation *Matthiola tristis* (L.) Brown is used, an explanation of the meaning of the parenthesis

is needed, and the reader who has learned that Linnaeus created only the species epithet asks under which generic name.”

38. Dumortier, Barthélemy to François Crépin, [?end March 1868]. Depository: Archives Jardin Botanique 120:1949, Meise Botanic Garden, Meise.
39. “... permission to no longer mention the citation of authors’ names in the context of the transfer of species from one genus to another. It is not that I have changed my opinion in the least, but after having expounded my reasons at length, the matter has been answered.”
40. “... one does not commit any scientific lie when one takes care to give the name of Linnaeus in parentheses before that of R. Brown [*Matthiola tristic* (L.) R. Br.], and that, by this method, one scrupulously guarantees the laws of anteriority.”
41. “The truth seems to us to lie in the middle.”
42. “... the scholastic sophistry of the nominalists and realists.”
43. From the poem *A Worker Reads History*; originally *Fragen eines lesenden Arbeiters* (1935).
44. Lelièvre, A. to François Crépin, [?mid-1860s]. Depository: Archives Jardin Botanique 118:1748, Meise Botanic Garden, Meise.

References

- Anonymous. 1863. Bibliothèque. Bull. Soc. Roy. Bot. Belgique 2: 72–73.
- Anonymous. 1864. Bulletin du Congrès international d’Horticulture qui a été réuni à Bruxelles, les 25, 25 et 26 Avril 1864. Ghent: C. Annoot-Braeckman.
- Anonymous. 1987. Charles Desmoulin, 1798–1875. Artiste, savant et douanier. S.I. [Bordeaux]: Musée des Douanes.
- Ascherson, P. 1864. Flora der Provinz Brandenburg, der Altmark und des Herzogthums Magdeburg. Berlin: Verlag von August Hirschwald.
- Ascherson, P. 1867. François Crépin, Manuel de la Flore de Belgique. Deuxième édition considérablement augmentée. [Review.] Bot. Zeitung (Berlin) 25: 60–62.
- Ascherson, P. 1868. Die Nomenclatur-Frage vor dem Pariser botanischen Congress. Bot. Zeitung (Berlin) 26: 337–345, 353–359.
- Bentham, G. 1886. [Bentham on citation of authorities.] Bot. Gaz. (Crawfordville) 11: 91–92.
- Boissier, E. 1867–1888. Flora Orientalis sive Enumeratio Plantarum in Oriente a Graecia et Aegypto ad Indiae Fines Hucusque Observatarum. 6 vols. Basel: H. Georg; Geneva: Eumdem. Vol. 1.
- Briquet, J. 1930a. Recueil synoptique des documents destinés à servir de base aux débats de la sous-section de nomenclature du V^{me} Congrès International de Botanique, Cambridge (Angleterre) 1930. Berlin: R. Friedländer & Sohn.
- Briquet, J. 1930b. Avis préalable du Bureau Permanent et des Commissions de nomenclature sur les motions soumises aux débats de la sous-section de nomenclature du V^{me} Congrès International de Botanique, Cambridge (Angleterre) 1930. Berlin: R. Friedländer & Sohn.
- Briquet, J. 1931. Compte rendu des débats de la sous-section de nomenclature botanique. In: F. T. Brooks and T. F. Chipp, eds. 1931. Fifth International Botanical Congress, Cambridge, 16–23 August, 1930. Report of Proceedings. Cambridge: Cambridge University Press. Pp. 554–626.
- Briquet, J. (posth.), ed. 1935. International Rules of Botanical Nomenclature Adopted by the International Botanical Congresses of Vienna, 1905, and Brussels, 1910, revised by the International Botanical Congress of Cambridge, 1930. Jena: Verlag von Gustav Fischer.
- Brummitt, R. K. and C. E. Powell. 1992. Authors of Plant Names: A List of Authors of Scientific Names of Plants, with Recommended Standard Forms of Their Names, Including Abbreviations. Kew: Royal Botanic Gardens.
- Camp, W. H. and C. L. Gilly. 1943. The structure and origin of species. Brittonia 4: 323–385.
- [Cosson, E., P. E. S. Duchartre, E. E. Prillieux and W. De Schœnefeld]. 1860. Note de la Commission du Bulletin. Bull. Soc. Bot. France 7: 438.
- Crépin, F. 1860. Manuel de la Flore de Belgique. Brussels: Émile Tarlier.
- Crépin, F. 1864a. Sur un vice de la nomenclature botanique. Bull. Soc. Roy. Bot. Belgique 3: 220–225.
- Crépin, F. 1864b. Flora der Provinz Brandenburg, der Altmark und des Herzogthums Magdeburg. Zum Gebrauche in Schulen und auf Excursionen bearbeitet von Dr. Paul Ascherson. [Review.] Bull. Soc. Roy. Bot. Belgique 3: 285–301, 423–439.
- Crépin, F. 1864c[1867]. La nomenclature botanique au Congrès international de botanique de Paris. Ann. Soc. Phytol. Anvers 1: 161–188.
- Crépin, F. 1866a. Notes sur quelques plantes rares ou critiques de la Belgique. Cinquième fascicule. Mém. Couronnés Autres Mém. Acad. Roy. Sci. Belgique 18: 1–223.
- Crépin, F. 1866b. Manuel de la Flore de Belgique, ed. 2. Brussels: Gustave Mayolez.
- Crépin, F. 1867. The international horticultural Exhibition, and botanical Congress, held in London, from may 22nd to may 31st, 1866. Report of proceedings. [Review.] Bull. Soc. Roy. Bot. Belgique 6: 67–99.

- Crépin, F. 1874. Manuel de la Flore de Belgique, ed. 3. Brussels: Gustave Mayolez.
- Crépin, F. 1878. Guide du Botaniste en Belgique (Plantes vivantes et fossiles). Brussels: Gustave Mayolez; Paris: J.-B. Baillièrre et fils.
- de Candolle, A. 1862[1863]. À M. Morren, secrétaire de la Fédération des Sociétés d'horticulture de Belgique. Bull. Féd. Soc. Hort. Belgique 1862: 297–298.
- de Candolle, A. 1867a. Lois de la Nomenclature botanique. Paris: V. Masson et Fils.
- de Candolle, A. 1867b. Lois de la Nomenclature botanique adoptées par le Congrès international de Botanique tenu à Paris en août 1867 suivies d'une deuxième édition de l'introduction historique et du commentaire qui accompagnaient la rédaction préparatoire présentée au congrès. Geneva and Basel: H. Georg; Paris: J.-B. Baillièrre et Fils.
- de Candolle, A. 1869. Réponse à diverses questions et critiques faites sur le recueil des Lois de la Nomenclature botanique, tel que le Congrès international de 1867 l'a publié. Bull. Soc. Bot. France 6: 64–81.
- Des Moulins, C. 1854. De la propriété littéraire en matière de nomenclature scientifique. Recueil Actes Acad. Roy. (Imp.) Sci. Bordeaux 16: 293–314.
- Des Moulins, C. 1868. Lettre à Monsieur François Crépin. Actes Soc. Linn. Bordeaux 26: 345–353.
- Dumortier, B. 1867. Compte rendu du Congrès international de Paris. Bull. Soc. Roy. Bot. Belgique 6: 286–289.
- Errera, L. and Th. Durand. 1906. Notice sur François Crépin, membre de l'Académie. Sa vie et son œuvre. Annuaire Acad. Roy. Belgique 72: 83–190.
- Forbes, E. 1843. An Inaugural Lecture on Botany, Considered as a Science, and as a Branch of Medical Education. London: John Van Voorst.
- Fournier, E., ed. 1867. Actes du Congrès international de Botanique tenu à Paris en août 1867. Paris: Germer Baillièrre & Bureau de la Société botanique de France.
- Gay, J. 1859. Le *Trientalis europaea* devenu français. Bull. Soc. Bot. France 6: 762–764.
- Hitchcock, A. S. 1921. The type concept in systematic botany. Amer. J. Bot. 8: 251–255.
- Hoste, I. and D. Diagre-Vanderpelen. 2018. A biobibliographical sketch of a naturalist turned rhodologist: François Crépin (1830–1903). Studium 11: 113–129. doi:10.18352/studium.10172, accessed 26 April 2021.
- Hoste, I. and N. Hanquart. 2018. The publications of François Crépin (1830–1903). An annotated chronological list. Studium 11(2): 1–53. doi:10.18352/studium.10171, accessed 26 April 2021.
- Kirschleger, F. [1850–]1852–1862. Flore d'Alsace et des Contrées limitrophes. 3 vols. Strasbourg: chez l'auteur; Paris: Victor Masson. Vol. 1.
- Kirschleger, F. 1860. Observations sur la dernière livraison des Annotations à la Flore de France et d'Allemagne de M. C. Billot (fin). Bull. Soc. Bot. France 7: 435–438.
- Kirschleger, F. [?1867.] Le Congrès botanique international à Paris 16–26 août 1867. Ann. Assoc. Philom. Vogéso-Rhénane 8: 62–64.
- Koch, K. [?1866.] Einige die Systematik betreffende Vorschläge. In: Anonymous. [?1866.] The International Horticultural Exhibition and Botanical Congress, held in London from May 22nd to May 31st, 1866. Report of Proceedings. London: Truscott, Son, & Simmons. Pp. 188–195.
- Kohler, R. E. 2006. All Creatures. Naturalists, Collectors, and Biodiversity, 1850–1950. Princeton and Oxford: Princeton University Press.
- McDade, L. A., D. R. Maddison, R. Guralnick, H. A. Piwowar, M. L. Jameson, K. M. Helgen, P. S. Herendeen, A. H. and M. L. Vis. 2011. Biology needs a modern assessment system for professional productivity. BioScience 61: 619–625. doi:10.1525/bio.2011.61.8.8, accessed 26 April 2021.
- McOuat, G. 2001. Cataloguing power: Delineating “competent naturalists” and the meaning of species in the British Museum. Brit. J. Hist. Sci. 34: 1–28.
- Nicolson, D. H. 1991. A History of Botanical Nomenclature. Ann. Missouri Bot. Gard. 78: 33–56.
- Questier, l'abbé. 1858. Quelques mots au sujet d'une innovation dans la nomenclature botanique. Bull. Soc. Bot. France 5: 37–38.
- Prince, F. [F. Crépin]. 1863. Un petit procès à propos d'horticulture et de botanique. Belgique Hort. 13: 87–94.
- Ramsbottom, J., A. J. Wilmott, T. A. Sprague and E. M. Wakefield. 1929. Proposals by the sub-committee on nomenclature, appointed by the Imperial Botanical Conference, London, 1924. In: Anonymous. 1929. International Botanical Congress Cambridge (England), 1930. Nomenclature. Proposals by British botanists. London: His Majesty's Stationery Office. Pp. 3–45.
- Raulin, V. 1861[1869–1870]. Description physique de l'île de Crète (Fin). Actes Soc. Linn. Bordeaux 24: 353–770.
- Steiner, F. M., M. Pautasso, H. Zettel, K. Moder, W. Arthofer and B. C. Schlick-Steiner. 2015. A falsification of the citation impediment in the taxonomic literature. Syst. Biol. 64: 860–868. doi:10.1093/sysbio/syv026, accessed 26 April 2021.
- Strickland, H. E., J. Phillips, J. Richardson, R. Owen, L. Jenyns, W. J. Broderip, J. S. Henslow,

W. E. Shuckard, G. R. Waterhouse, W. Yarrell, C. Darwin and J. O. Westwood. 1843. Report of a committee appointed "to consider of the rules by which the Nomenclature of Zoology may be established on a uniform and permanent basis." In: Anonymous. 1843. Report of the Twelfth Meeting of the British Association for the Advancement of Science held at Manchester in June 1842. London: John Murray. Pp. 105–121.

Un Membre de la Société de botanique de Belgique [F. Crépin]. 1862. De l'étude de la botanique. Belgique Hort. 12: 322–327.

Wilmott, A. J. 1944–1945. A discussion on the differences in observance between zoological and botanical nomenclature. 3. A criticism by Mr. A. J. Wilmott. Proc. Linn. Soc. London Session 156: 138–141.

