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Typification and nomenclature of the Convolvulaceae in N. L. Burman's Flora Indica, with an introduction to the Burman collection at Geneva

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ABSTRACT

STAPLES, G. W. & F. JACQUEMOUD (2005). Typification and nomenclature of the Convolvulaceae in N. L. Burman's Flora Indica, with an introduction to the Burman collection at Geneva. *Candollea* 60: 445-467. In English, English and French abstracts.

The history and current status of the Burman Herbarium conserved at Geneva (G) are reviewed. Lectotypifications are made for seven Burman names in *Convolvulaceae*, *Convolvulus angularis* Burm. f., *C. mollis* Burm. f., *C. nervosus* Burm. f., *C. uniflorus* Burm. f., *C. vitifolius* Burm. f., *Evolvulus emarginatus* Burm. f., *Ipomoea paniculata* Burm. f., and an eighth name is neotypified, *Porana volubilis* Burm. f. A new lectotype for *Convolvulus gemellus* Burm. f. is selected. The discovery of the heretofore missing holotype of *Ipomoea sagittifolia* Burm. f. requires a name change for the widespread Old World species, *I. sepiaria* Roxb., which has recently undergone several name changes, latterly to *I. marginata* (Desr.) Manitz.

RÉSUMÉ

STAPLES, G. W. & F. JACQUEMOUD (2005). Typification et nomenclature des Convolvulaceae dans la Flora Indica de N. L. Burman, précédées d'une introduction aux collections Burman déposées à Genève. *Candollea* 60: 445-467. En anglais, résumés anglais et français.

Les auteurs présentent l'histoire et la situation actuelle de l'herbier Burman conservé à Genève (G). Sept noms de la famille des *Convolvulaceae* publiés par Burman sont lectotypifiés, *Convolvulus angularis* Burm. f., *C. mollis* Burm. f., *C. nervosus* Burm. f., *C. uniflorus* Burm. f., *C. vitifolius* Burm. f., *Evolvulus emarginatus* Burm. f., *Ipomoea paniculata* Burm. f., et un huitième est néotypifié, *Porana volubilis* Burm. f. Un nouveau lectotype est désigné pour *Convolvulus gemellus* Burm. f. La découverte de l'holotype d'*Ipomoea sagittifolia* Burm. f., jusqu'alors inconnu, entraîne un changement de nom pour l'espèce très répandue dans l'Ancien Monde, *I. sepiaria* Roxb. Cette espèce est aussi connue sous différents noms, le plus récent étant *I. marginata* (Desr.) Manitz.

KEY-WORDS: CONVULVULACEAE – *Aniseia* – *Argyreia* – *Ipomoea* – *Jacquemontia* – *Merremia* – *Porana* – Nomenclature – Johannes Burman – Nicolaus Burman – Burman herbarium

Introduction to the Burman Herbarium at Geneva, a brief history

The Burman herbaria came to Geneva together with the herbarium of Benjamin Delessert (1773-1847), presented to the City of Geneva by Delessert's daughters in 1869. For many years the Delessert herbarium constituted the main core of the general herbarium (G) of the Conservatoire (created in 1824). Without elaborating the history of the Delessert herbarium we would like to briefly present the circumstances of the purchase of the Burman collections by Benjamin Delessert and the conditions of their conservation at Paris, in the "*Musée botanique*" of Benjamin Delessert and, finally, at Geneva.

The "Burman collections" were constituted at Amsterdam by the Dutch botanists Johannes Burman (1706-1779) and his son Nicolaus Laurens Burman (1733-1793) (STAFLEU, 1971). According to WIJNANDS (1992: 487) although "*Burman's herbarium and library were among the most important ones in the 18th century*" they were not incorporated in the Hortus Botanicus of Amsterdam which «*did not wish to establish a herbarium of its own*». On the contrary, the "*Commissioners of the garden gave all the incoming herbaria to the Burmans*" and also many collections received during the 17th century (WIJNANDS, 1992: 488). Among the latter are a part of the plants collected by Paul Hermann (1646-1695) in Ceylon and in the Cape of Good Hope. Moreover, many pioneers of the botanical exploration of the continental as well as insular areas of Asia, such as Laurent Garcin (1683-1752), F. A. Pryon (x-1765), J. C. Kleynhoff (x-1777), H. O. Van Outgaarden (1702-1779), etc., sent collections directly to the Burmans (WIJNANDS, 1992: 488).

Through a curious twist of history, the destiny of the Burman's collections was changed by Augustin-Pyramus de Candolle, more precisely by the friendship between de Candolle and Delessert. Actually, during his trip to Holland (1799), de Candolle heard about the opportunity to purchase the Burman herbaria. Upon his return, he informed Delessert, who decided (in 1800) to make this acquisition (de CANDOLLE, 2004: 139-140). However, the transaction was realized only in 1810, after the death of N. L. Burman's widow (STAFLEU, 1970: xi). It is perhaps on that occasion that Delessert also acquired a set of ca 300 plants collected by Thunberg in Japan. According to WIJNANDS (1990: 3), this Japanese collection of Thunberg was passed to Houttuyn by their mutual friend Radermacher in Jakarta. Houttuyn's herbarium later came to be incorporated in the Burman Herbarium at Geneva.

As far as we know, the Burmans made no description or inventory of their collection. Hence, the brief survey by LASÈGUE (1845: 65-67) seems to be the first one. The same author also gives insights regarding the links between the collections and the major works of, respectively, Johannes and Nicolaus Burman. The relationship between the materials written by these authors and the specimens in their herbarium seems obvious. Lasègue also points out that the plant collection brought from Ceylon by Paul Hermann, which was the main source for Johannes Burman's "*Thesaurus zeylanicus*" (1737), was bound in a folio volume. The fact is significant because, after Benjamin Delessert's death, this herbarium was regarded as a book. Therefore it was given, together with the Delessert library, to the Institut de France, Paris, where it is still housed (de CANDOLLE, 1880: 401; see also LOURTEIG, 1966; HOQUET, 2002: 106-107).

The same thing happened to the small bound herbarium of plants from Lapland sent by Linnaeus to Johannes Burman. Nevertheless, some duplicates of these gatherings are scattered within the Burman collections kept at Geneva. As mentioned by LASÈGUE (1845), there are also in the Burman herbaria some plants from Switzerland sent to the Burmans by Haller. It is ironic to note that these Swiss plants came back to Switzerland via a Parisian herbarium. It is known that the main herbarium of Albrecht von Haller is housed at Paris (P). Finally, it is amusing to note that in 1845 Lasègue remarked that, despite their age, these plants were in perfect condition ("*Malgré leur ancienneté, ces plantes se trouvent dans un état de conservation parfaite*"). What would he think today?

According to LASÈGUE (1845: 66) the Burman collections were filed in the *herbier général* of Delessert, except three large herbaria from India, the Cape, and Ceylon. On the other hand,

BRIQUET (1896: 99) in his enumeration of the separate herbaria of the Conservatoire, merely mentions "*L'herbier de Burmann*" (sic). We must therefore accept that this mention includes the three herbaria cited by Lasègue.

With regard to the typification of Linnaean plant names, Burman collections at G are of some importance: it is worth noting that they include a significant number of published or designated lectotypes of taxa native to Southern Africa, in particular those linked to Linnaeus' "*Plantae rariores africanae*" (1760). Digitized images of some of them are available on the *Linnaean Plant Name Typification Project* website (<http://www.nhm.ac.uk/botany/linnaean/>).

The Burman collections housed at G do not represent the entirety of the Burman herbaria. Important sets of specimens are conserved in LINN, M, SBT, C-Vahl, L, L-De Gorter, TO-Allioni (WIJNANDS, 1992: 492, see also STAFLEU & COWAN, 1976: 413 and 416). It also must be said that Burman specimens were given by Delessert to A.-P. de Candolle (de CANDOLLE, 2004: 191). His son, Alphonse de Candolle, mentions more precisely that duplicates of 602 species of J. Burman's "*herbier des Plantes du Cap*" were given by Delessert "*à de Candolle*" (de CANDOLLE, 1880: 401). Burman specimens cited in the A.-P. de Candolle "*Prodromus*" are kept in the G-DC herbarium; if not cited, or in the case of monocots (not treated in the "*Prodromus*"), they are included in the general herbarium (G).

The complexity of prelinnean nomenclatural annotations, the problems related to collectors and handwriting identifications would have been sufficient to make the study of the Burman herbaria very difficult. Kept apart by Delessert, as mentioned above, the three herbaria from India, the Cape, and Ceylon were still kept separately in Geneva at the time of Briquet's paper on Delessert's herbarium (BRIQUET, 1896). The fact that these Burman herbaria were filed in the General Herbarium after the premature death of John Briquet (1931), head of the Conservatoire botanique since 1896, imposed a secondary obstacle to study of these collections for the rare botanist facing the challenge. The monographic work about the Burman herbaria at Geneva by D. O. Wijnands was unfortunately interrupted by his early death. However, a first list of collectors is given in WIJNANDS (1992: 487-493) as well as a detailed description of the peculiar mounting of the specimens in the Burman herbaria.

It is not known at what time and for what reasons the plants of the Houttuyn herbarium and the Japanese collections of Thunberg were mixed with the Burman collections. According to WIJNANDS (1992: 492), Houttuyn's herbarium – which "*never formed part of the Burman herbarium*" – was bought by Etienne Delessert (Benjamin's brother), "*and thus, eventually arrived at Geneva. There, they were erroneously stamped as 'Herbier Burmann* (sic)." This was the source of much confusion and ultimately led to some bad choices in later lectotypifications (see below). Wijnands (*pers. comm.*) suggests that the Houttuyn herbarium was offered for sale in 1789, i.e. at the time of the French Revolution. This would explain the lack of information about its acquisition by the Delesserts. For instance, and this is quite amazing, LASÈGUE (1845) makes no comment about Houttuyn, aside from a mere mention (p. 66) in a short list of botanists from whom the Burmans also received plants: "*Allioni, Breyn, Schmidel, Van Royen, Houttuyn, etc.*" On this subject too VAN STEENIS & VELDKAMP (1973), as well as STAFLEU & COWAN (1979: 343) can do nothing but conjecture. The history of the Houttuyn collections at Geneva therefore remains, unfortunately, very unclear. Relevant notes and manuscripts left by D. O. Wijnands concerning the Houttuyn collections – that are being readied for publication in the future (Veldkamp, *pers. comm.*) – may provide us with new insights on the matter.

Wijnands repeated visits to G, devoted to the study of the Burman collection, had an important curatorial consequence. In 1992 it was decided to extract all Burman specimens from the general herbarium and to keep them apart (cryptogams included) in folders provided with a yellow tag. At the same time, the Burman herbarium was excluded from loan. The extraction of the Burman collection remains far from complete. LASÈGUE (1845: 66) records the number of Burman plants acquired by B. Delessert to be 29'000. It is estimated that no more than half this number have to date been located and extracted from the general collections in Geneva.

Convolvulaceae in the Burman Herbarium at Geneva

A sheet-by-sheet search of Asian and Oceanian folders housing *Convolvulaceae* in the G-Delessert herbarium located a considerable number of specimens that were identifiable as Burman material. Every sheet filed in the genera *Aniseia*, *Argyreia*, *Bonamia*, *Calonyction*, *Calystegia*, *Cressa*, *Evolvulus*, *Ipomoea*, *Jacquemontia*, *Lepistemon*, *Lettsomia*, *Merremia*, *Operculina*, *Porana*, *Quamoclit*, *Rivea*, *Stictocardia*, *Turbina*, and *Xenostegia* was examined. Only selected taxa of *Convolvulus* were searched, due to the large quantity of material in G, most of which falls outside the geographic scope that N. L. Burman covered in his *Flora Indica*. Paper size and quality, specimen mounting methods, and the handwriting on the sheets provided clues to identify specimens that belong to the assemblage of diverse materials that comprise the "Burman Herbarium." These specimens were duly extracted from the Delessert herbarium and transferred to the existing Burman Herbarium holdings of *Convolvulaceae*. The net total was 182 specimens of *Convolvulaceae* that could unquestionably be considered Burman Herbarium specimens. Among the specimens found are some that have long been considered "lost" or even not to exist. This makes possible the following new lectotypifications, and requires one neotypification and one name change.

I. New lectotypifications

Burman published 13 new species and one new genus (*Porana* Burm. f.) in the *Flora Indica*. Four of Burman's *Convolvulaceae* names have been effectively lectotypified by SA'AD (1967) [*Convolvulus sericeus*, *C. spinosus*] and VAN OOSTSTROOM (1939) [*Convolvulus gemellus*, *Evolvulus hederaceus*]. The following new lectotypifications are proposed so that all *Convolvulaceae* names published by Burman in his *Flora Indica* are accounted for. In two cases the lectotypifications are attributed to the late D. O. Wijnands who was making a detailed study of the Burman Herbarium at the time of his death. I have examined the specimens Wijnands chose as the lectotypes and fully concur with his choices. Furthermore, the lectotype chosen for *C. gemellus* by VAN OOSTSTROOM (1939) cannot be accepted and a new one is selected here. Finally, one name is neotypified.

In the following section, the collector names are spelled first as Burman spelled them in the protologue, then in [] as Wijnands spelled them. More detailed explanation of synonymies presented here may be found in VAN OOSTSTROOM (1939, 1943, 1953) and FANG & STAPLES (1995).

Convolvulus angularis Burm. f., *Fl. Indica*: 46, tab. 19, fig. 2. 1768. = ***Merremia vitifolia*** (Burm. f.) Hallier f. in *Bot. Jahrb. Syst.* 16: 552. 1893.

Lectotype (designated here): Java, *Pryon* s.n. (G-Burman!) (Fig. 1).

Convolvulus gemellus Burm. f., *Fl. Indica*: 46, tab. 21, fig. 1. 1768. ≡ ***Merremia gemella*** (Burm. f.) Hallier f. in *Bot. Jahrb. Syst.* 16: 552. 1893. Lectotype to be rejected: sine loco, *Thunberg?* s.n. (G-Burman!) chosen by VAN OOSTSTROOM (1939: 299) (Fig. 2).

Lectotype (designated here): Java, collector unknown s.n. (G-Burman!) (Fig. 3).

VAN OOSTSTROOM (1939: 299) stated he saw the type of *C. gemellus* in the Burman Herbarium at Geneva. The specimen he annotated as the type, however, could not be original material available to Burman prior to 1768. Based on what WIJNAND'S (1992) has documented, the handwriting and format on this sheet (Fig. 2) correspond to Thunberg's collection, which was mixed with the Burman Herbarium much later. As such, Van Ooststroom's indication of this specimen as "type" (effectively a lectotypification) cannot be accepted, because the specimen would not have been available to Burman f.

Burman's protologue indicates he had more than one specimen available when he wrote the description. In fact, our search retrieved 17 specimens of *M. gemella* that can be unambiguously considered Burman Herbarium material. Of these, one (Fig. 3) corresponds closely to *Fl. Indica* tab. 21, fig. 1; it has Burman's handwritten analysis on it – part of which agrees with the diagnostic phrase in *Fl. Indica* p. 46 – and which has the epithet "gemellus" written in the

bottom left corner in Burman's hand. This sheet is here designated as lectotype. These two figures demonstrate the differences in format, presentation, and handwriting between a genuine Burman specimen (Fig. 3) and one typical of the Thunberg collection (Fig. 2).

Convolvulus mollis Burm. f., Fl. Indica: 44, tab. 17. 1768. ≡ **Argyreia mollis** (Burm. f.) Choisy in Mém. Soc. Phys. Genève 6: 421. 1833.

Lectotype (designated here): Java, anno 1760, *Kleinhof* [*Kleynhoff*] s.n. (G-Burman!) (Fig. 4).

Convolvulus nervosus Burm. f., Fl. Indica: 48, tab. 20, fig. 1. 1768. ≡ **Argyreia nervosa** (Burm. f.) Bojer, Hort. Maurit.: 224. 1837.

Lectotype (designated here): India, Coromandel, *Outgaerden* [*Van Outgaerden*] s.n. (G-Burman!) (Fig. 5).

Convolvulus uniflorus Burm. f., Fl. Indica: 47, tab. 21, fig. 2. 1768. = **Aniseia martinicensis** (Jacq.) Choisy in Mém. Soc. Phys. Genève 8: 66. 1838.

Lectotype (designated by D. O. Wijnands): Java, *Pryon* s.n. (G-Burman!) (Fig. 6).

Convolvulus vitifolius Burm. f., Fl. Indica: 45, tab. 18, fig. 1. 1768. ≡ **Merremia vitifolia** (Burm. f.) Hallier f. in Bot. Jahrb. Syst. 16: 552. 1893.

Lectotype (designated here): Java, *Garzin* [*Garcin*] s.n. (G-Burman!) (Fig. 7).

The remarkable correspondence between the *Flora Indica* plate and the specimen Burman used to create it is demonstrated by comparing Fig. 7 with Fig. 8; the former is the Garcin specimen from Java used by the artist to prepare the plate (Fig. 8).

Evolvulus emarginatus Burm. f., Fl. Indica: 77, tab. 30, fig. 1. 1768. ≡ **Merremia emarginata** (Burm. f.) Hallier f. in Bot. Jahrb. Syst. 16: 552. 1893.

Lectotype (designated here): Java, anno 1757, *Kleinhof* [*Kleynhoff*] 85 (G-Burman!) (Fig. 9).

Ipomoea paniculata Burm. f., Fl. Indica: 50, tab. 21, fig. 3. 1768. ≡ **Jacquemontia paniculata** (Burm. f.) Hallier f. in Bot. Jahrb. Syst. 16: 541. 1893.

Lectotype (designated by D. O. Wijnands): Java, anno 1760, *Kleinhof* [*Kleynhoff*] s.n. (G-Burman!; isolecto-: G-Burman!) (Fig. 10).

II. Neotypification for *Porana volubilis* Burm. f.

Having spent several weeks studying the specimens of the Burman Herbarium and extracting all those found in the Delessert herbarium at G, it is remarkable that no original material for *P. volubilis* was found in any of the separate collections at G – the Delessert, de Candolle, nor Burman herbaria. Indeed *Porana volubilis* is the only convolvulaceous taxon for which authentic *Flora Indica* material could not be located. The search in 2004 confirmed the results of an earlier loan request (1985) – that the only specimen in G which could possibly be original material differs in the handwriting on the sheet and lacks a provenance (Java) and collector (Kleynhoff) consistent with the protologue. Wijnands examined a photo slide of this specimen (Fig. 11) and concluded (*pers. comm.* 1987):

“Burman had an annotated Kleynhoff specimen from Java.”

“In my experience Burman often had more material that he did not cite.”

“... all handwriting on the Geneva sheet is Burman's.” (Fig. 12)

“Since there is reference to a letter ‘vide epist.’ it is possible that Burman sent his Kleynhoff specimen away. Linnaeus is a good candidate.”

“Burman annotated his G specimen with a draft diagnosis and the remark ‘novum genus’. It certainly was an important specimen for him and I assume that he had it before 1768, although there is no proof.”

After Wijnands wrote this letter he made several visits to G to study the Burman collections, during which he authenticated many specimens and annotated them with the names of the original collectors. He also published one paper on Burman's *Prodromus Flora Capensis* (WIJNANDS, 1992), which offers considerable guidance in identifying authentic Burman material and excluding collections (e.g. Thunberg, Houttuyn) that were added later. Thus, during the 2004 search, it was possible to compare handwriting, paper type, mounting devices, and other physical characteristics with the many specimens Wijnands annotated and it is now indubitable that there is no original material in G that could be the holotype for *P. volubilis*.

Personal visits to most of the herbaria mentioned by WIJNANDS (1992: 488) as having authentic Burman material, e.g., C-Vahl, L, LINN, M, S, UPS, between 1987 and 2004 permitted thorough searches that confirmed no original material for *P. volubilis* could be found in any of them. There is a specimen in C that bears only the words "ded. Burm." without any other information. Thus, choosing a neotype seems to be the best option and that is proposed here.

Porana volubilis Burm. f., Fl. Indica: 51, tab. 21*, fig. 1. 1768.

Neotype (designated here): specimen without locality or collector, annotated by Burman (G-Burman!) (Fig. 11, photo of the whole sheet; Fig. 12, Burman's handwriting on sheet).

III. The identity of *Ipomoea sagittifolia* Burm. f., resolved

There has been debate for more than a century about the identity of Burman's *Ipomoea sagittifolia*. Burman's name is much earlier than all those with which it has been equated, but because the identity for the Burman plant was not known for certain it was impossible to apply the name correctly. The plate (Fig. 8) shows a twining plant with hastate leaves, slender peduncles, paired pedicels thicker than the peduncle, and slenderly salverform corollas with a distinctive 5-lobed limb. The accompanying protologue (p. 50) says the corolla is yellow (*lutea*), and that the plant was collected on Java by Garcin. No known *Convolvulaceae* from Java has this precise combination of characters, though several species have some of them.

Several authors (PRAIN, 1905; GAGNEPAIN & COURCHET, 1915; RIDLEY, 1923; HENDERSON, 1928) used the name *I. sagittifolia* Burm. f. and equated it with *I. sepiaria* Koen. in Roxb., or one of its synonyms. MERRILL (1921: 375) took up the Burman epithet (as *Quamoclit sagittifolia*), but indicated that this Asian plant (formerly known as *Q. phoenicea* Roxb.) might be no more than a variant of the New World *Q. coccinea* (L.) Moench. VAN OOSTSTROOM (1939: 528) said simply the species (*I. sagittifolia*) was unknown to him. On the other hand, HOCHREUTINER (1936) claimed to have found the type specimen for the Burman name in the Geneva herbarium and stated that it was identical with *I. reptans* (= *I. aquatica* Forssk.). VAN OOSTSTROOM (1939: 532) pointed out that if Hochreutiner was right, then the Burman name had priority as it was published much earlier (1768) than that of Forsskål (1775). Because Van Ooststroom was unable at that time to examine the relevant specimen himself he refrained from taking up *I. sagittifolia* in either context.

After the end of World War II, Van Ooststroom examined some of the Burman specimens in G and annotated several as type specimens. He concluded (VAN OOSTSTROOM, 1953: 475) that the specimen Hochreutiner referred to, while it certainly bore the Burman epithet could not be the type for *I. sagittifolia* because a) it did not agree with the published *Flora Indica* plate (tab. 18, fig. 2) and b) the handwriting on the sheet is that of Houttuyn and not that of Garcin, the collector stated in the protologue. Elsewhere, VAN OOSTSTROOM (1953: 473) said that with regard to *I. sagittifolia* "the type of which is unfortunately not to be found at Geneva" which indicates that he did not find any other specimens at that time that he considered original material for this name. Thus VAN OOSTSTROOM (1953) rejected Hochreutiner's assertion that *I. sagittifolia* is identic with *I. aquatica* Forssk. (syn. *I. reptans*) and considered *I. sagittifolia* Burm. f. a name of uncertain application. And there the matter has rested ever since.

Among the material that came to light during our search of the Delessert and Burman collections (in this case, from specimens of *Convolvulaceae* indeterminatae in the Burman Herbarium) were several sheets labeled originally as *Convolvulus medium sensu* Burman. Most of these are what is now known as *Xenostegia tridentata* (L.) D. Austin & Staples [= *Merremia tridentata* (L.) Hallier f.]. One sheet however has two specimens mounted on it (Fig. 13) and the second, smaller portion – hardly more than a scrap really – proved to be the missing type specimen for Burman's *Ipomoea sagittifolia* (Fig. 14). The specimen is an excellent match for Burman's plate (Fig. 8, top left), though part of one leaf and a flower have broken off. The sheet has been authenticated by D. O. Wijnands as collected by Garcin and has been annotated to that effect by Wijnands, though he did not write his own name on the determinavit label. Comparison of Figs. 8 and 14 makes it evident that the artist prepared the plate from this specimen, the correspondence between the two is remarkable – the plate is a mirror image of the specimen. And the identity is now confirmed unambiguously as the widespread Old World species that has long been known as *I. sepiaria* Roxb. and latterly as *I. marginata* (Desr.) Manitz. There is no reason the epithet cannot now be taken up and the relevant nomenclature and synonymy are summarized below. References elaborating fuller synonymies, including citation of type specimens, that are relevant to the names listed here include VAN OOSTSTROOM (1940, 1953) and VERDCOURT (1961, 1963, 1987).

Ipomoea sagittifolia Burm. f., Fl. Indica: 50, tab. 18, fig. 2. 1768.

- ≡ *Quamoclit sagittifolia* (Burm. f.) Choisy in A. DC., Prodr. 9: 335. 1845.
- Holotype:** Java, Garcin s.n. (G-Burman!), mounted on same sheet with "*Convolvulus medium*" [= *Xenostegia tridentata* (L.) D. Austin & Staples] (Fig. 14).
- = *Convolvulus marginatus* Desr. in Lam., Encycl. 3: 558. 1792. **Type:** [icon] Tiru-tali, Rheede, Hort. Malab. 11: 109, tab. 53. 1692.
- ≡ *Ipomoea marginata* (Desr.) Manitz in Feddes Repert. 85: 638. 1974; Verdc. in Kew Bull. 42: 658. 1987, superfl.
- ≡ *Ipomoea sepiaria* Koen. ex Roxb., Hort. Bengal.: 14. 1814. **Type:** [icon] Tiru-tali, Rheede, Hort. Malab. 11: 109, tab. 53. 1692 [nom. illeg. superfl., ROBINSON (1912: 413, 418) and VERDCOURT (1987: 657-658) provide the pertinent facts].
- = *Ipomoea verruculosa* Blume, Bijdr.: 718. 1826. **Type:** Java, Blume 1135 (holo-: L).
- ≡ *Convolvulus verruculosus* (Blume) D. Dietr., Syn. Pl. 1: 670. 1839.
- = *Ipomoea subtrilobans* Miq., Fl. Ned. Ind. 2: 615. 1857. **Type:** Java, Semarang, Horsfeld s.n. (holo-: L).
- *Ipomoea maxima* sensu auct. asiaticae et africanae [non (L. f.) Sweet, 1830]. Vide VERDCOURT (1961: 7) for the disposition of this name.

The yellow corolla color mentioned for *I. sagittifolia* in Burman's protologue has been problematic in reconciling this name with other, potential conspecifics. In general, yellow flowers are rare in *Ipomoea*, but are often indicative for species of *Merremia*. MERRILL (1921: 375) supposed that Burman's plant was a yellow-flowered form of *Quamoclit phoenicea* (Roxb.) Choisy (= *Ipomoea hederifolia* L.) but this is clearly wrong; the calyx lacks the awns on the sepal tips characteristic of members of *Ipomoea* sect. *Quamoclit*. While the collector's annotation on the type specimen does not include corolla color information another specimen of *I. sagittifolia* came to light that, while it lacks the Burman epithet, says "*Convolvulus folio cordiformi minores, flore luteo*" in the handwriting of F. A. Pryon, one of the collectors who sent plants to Burman. Now *I. sagittifolia* is quite variable in flower color, with corollas that range from lilac to whitish, always with a darker purplish throat, but nothing approaching a clear yellow. In Asia, several species of yellow-flowered *Merremia* are often found growing closely associated with *I. sagittifolia* and it is interesting to speculate that Pryon mixed up his plants when writing the Latin phrase on this sheet.

It is likewise speculative that Burman took the corolla color information from this Pryon specimen, but quite possible, given the frequency with which Burman incorporated descriptive information and vernacular names drawn from the notes of Pryon, Kleynhoff, Garcin, and Van Outgaarden into the descriptions he drafted for *Flora Indica*.

Conclusions

Though time consuming, this study bears witness to the value of having researchers with specialist taxonomic knowledge study historic collections. Patient searching is rewarded by locating materials long thought to be lost, or by finding those that the literature says do not exist. Curators and keepers who encourage visiting specialists to take a hands on approach to study of historical collections may well be rewarded by surprising discoveries that would otherwise remain unknown. In this case, though peripheral to the Burman names, two Demidoff specimens of *Convolvulaceae* from "Siberia" were discovered in the Delessert herbarium. Finding two Demidoff specimens in the space of a day was a surprise.

The inescapable fact that emerged as the suite of Burman *Convolvulaceae* specimens was reassembled is how badly Burman misapplied and confused the Linnaean names. Comparison of the original names written on the sheets by Burman with the names in current use revealed that in some cases Burman used the same Linnean name for as many as three distinct species, sometimes in different genera. In trying to match the terse Linnean descriptive phrases with plants his collectors sent him from Asia, Burman often relied on gross morphology and put together under a single Linnaean name plants that do not (by today's standards) look remotely similar. For example, if the flowers were paired it was relegated to "*Convolvulus biflorus*", even though in other features the specimens so-called were quite different in appearance. A more detailed analysis of the Burman Herbarium *Convolvulaceae* would make a fascinating historical study in terms of what it tells us about the working methods of taxonomists living sufficiently far apart that they could not study one another's specimens and thus had to make assumptions about how to apply names published by their contemporaries.

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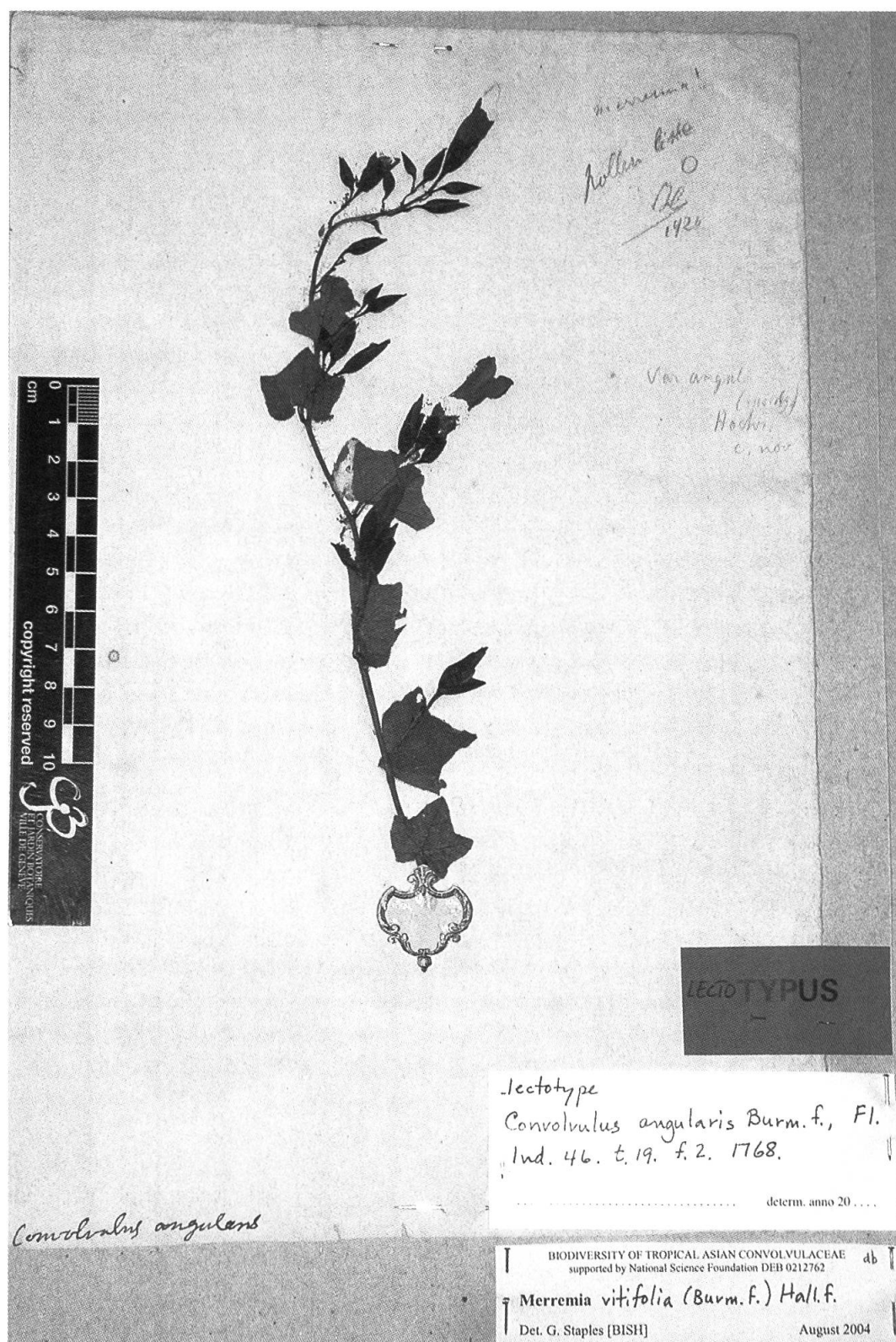


Fig. 1. – *Convolvulus angularis* Burm. f., lectotype, Java, Pryon s.n. (G-Burman).

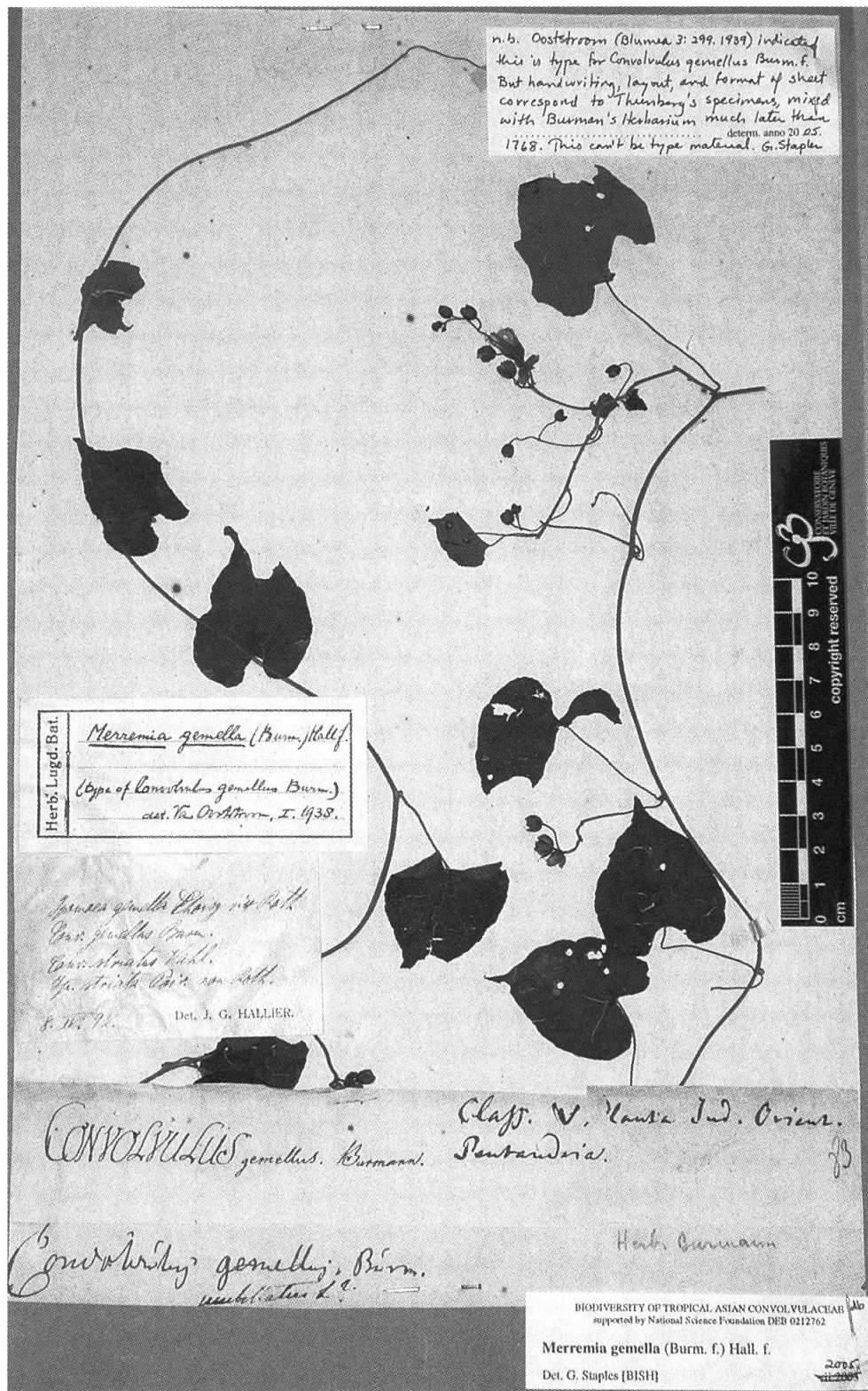


Fig. 2. – *Convolvulus gemellus* Burm. f., Thunberg? s.n. specimen indicated by Van Ooststroom as the type, here rejected as lectotype (G-Burman).

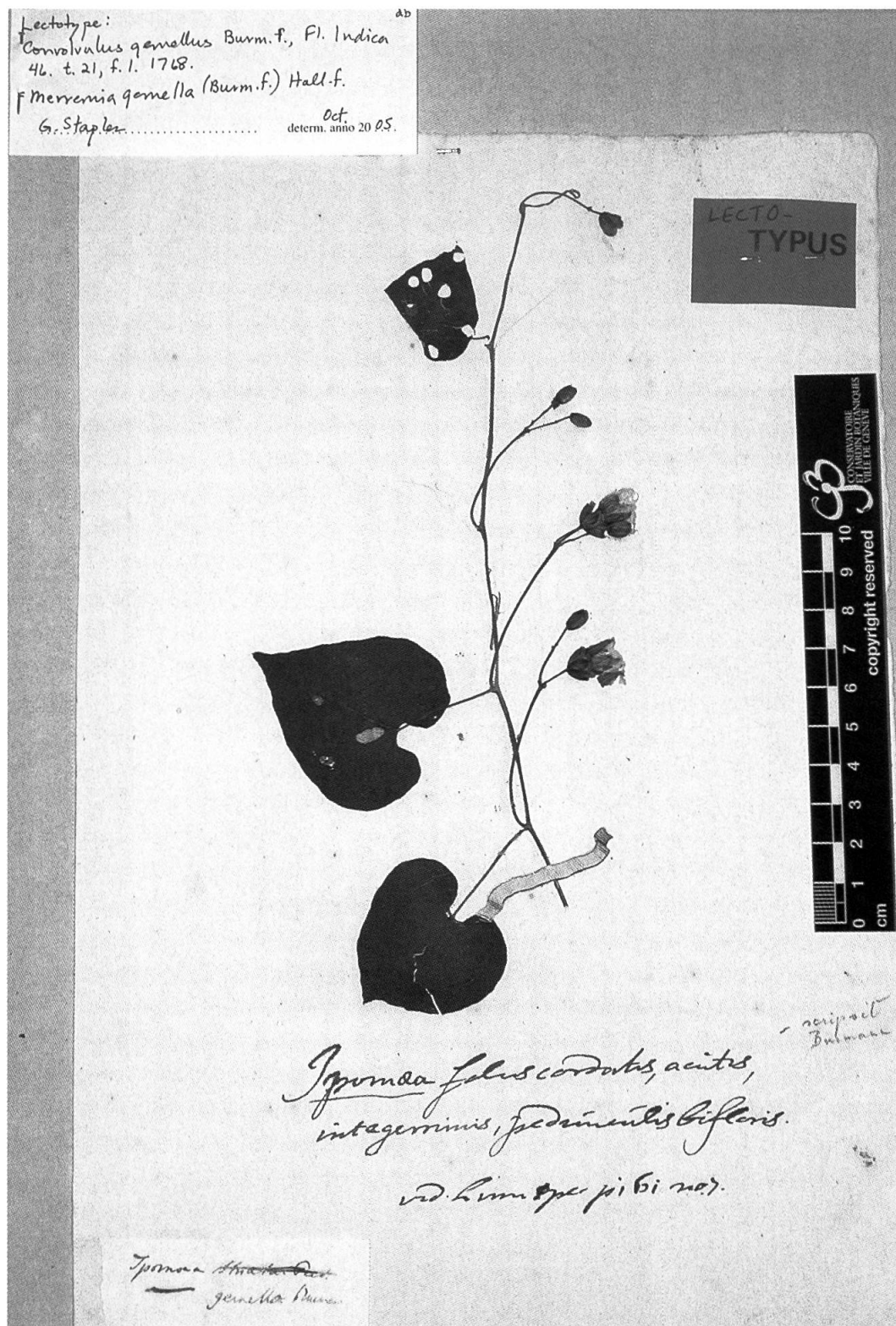


Fig. 3. – *Convolvulus gemellus* Burm. f., lectotype, Java, collector unknown s.n. (G-Burman).

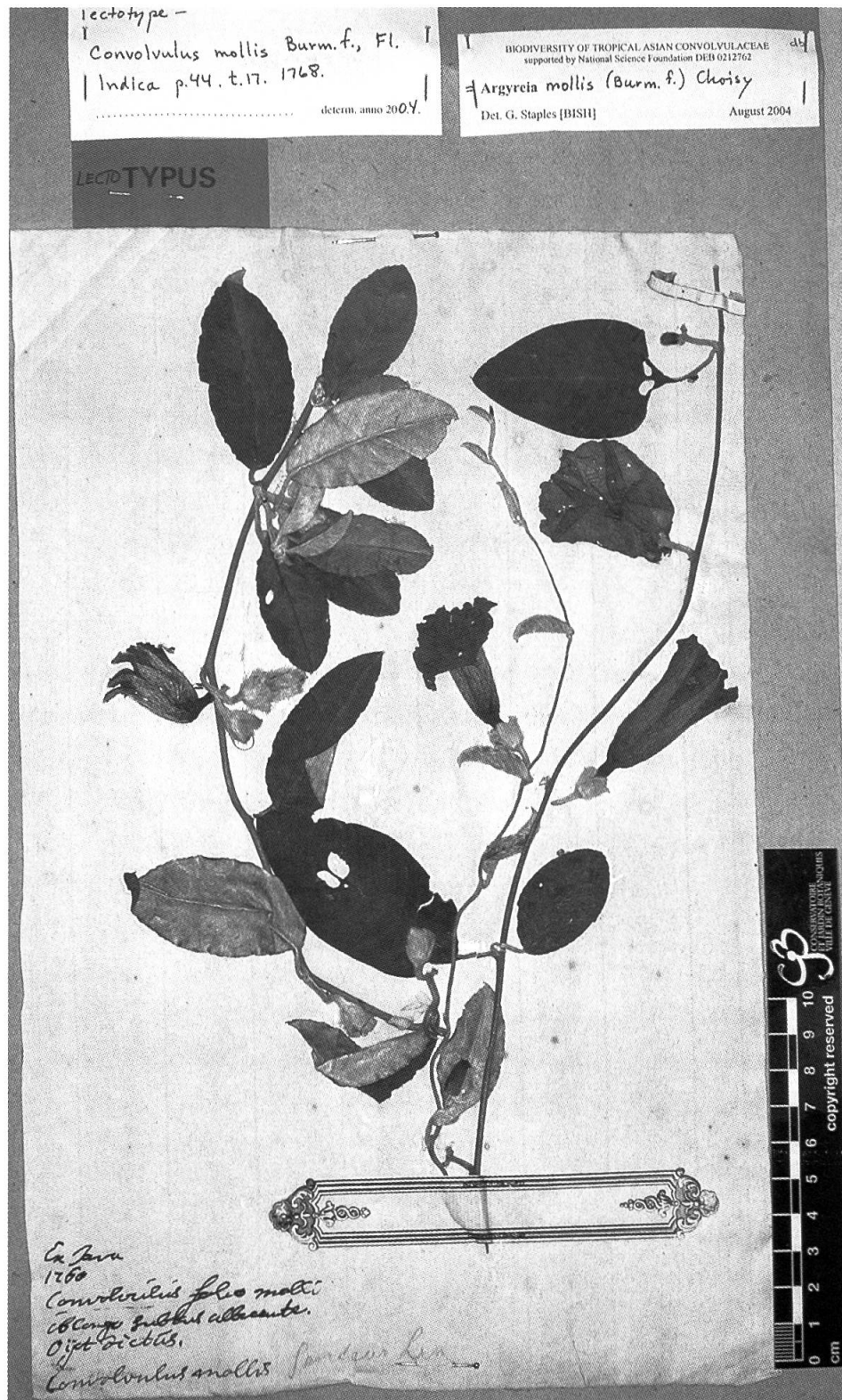


Fig. 4. – *Convolvulus mollis* Burm. f., lectotype, Java, anno 1760, Kleinhof s.n. (G-Burman).

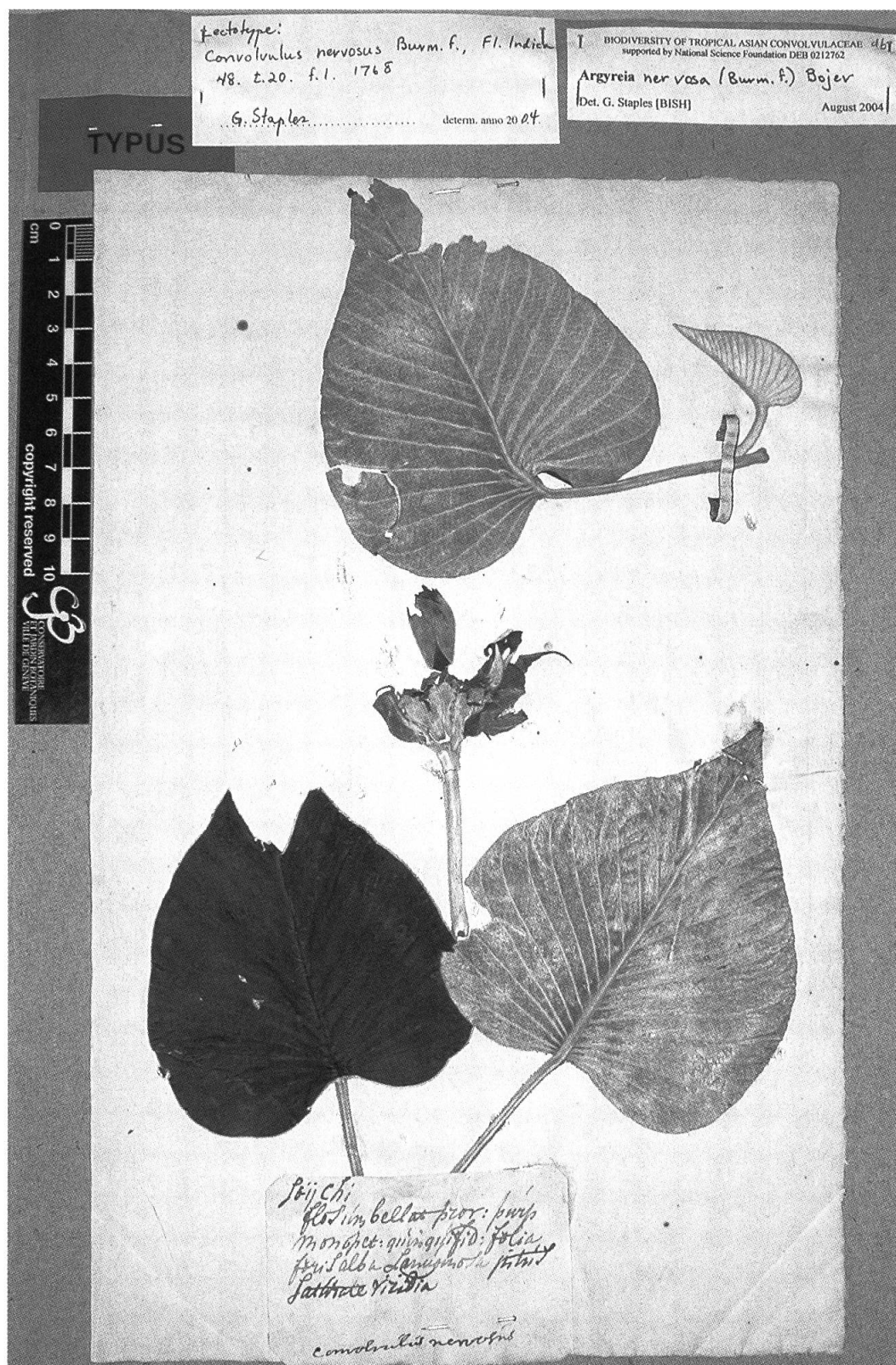


Fig. 5. – *Convolvulus nervosus* Burm. f., lectotype, India, Coromandel, Outgaerden s.n. (G-Burman).

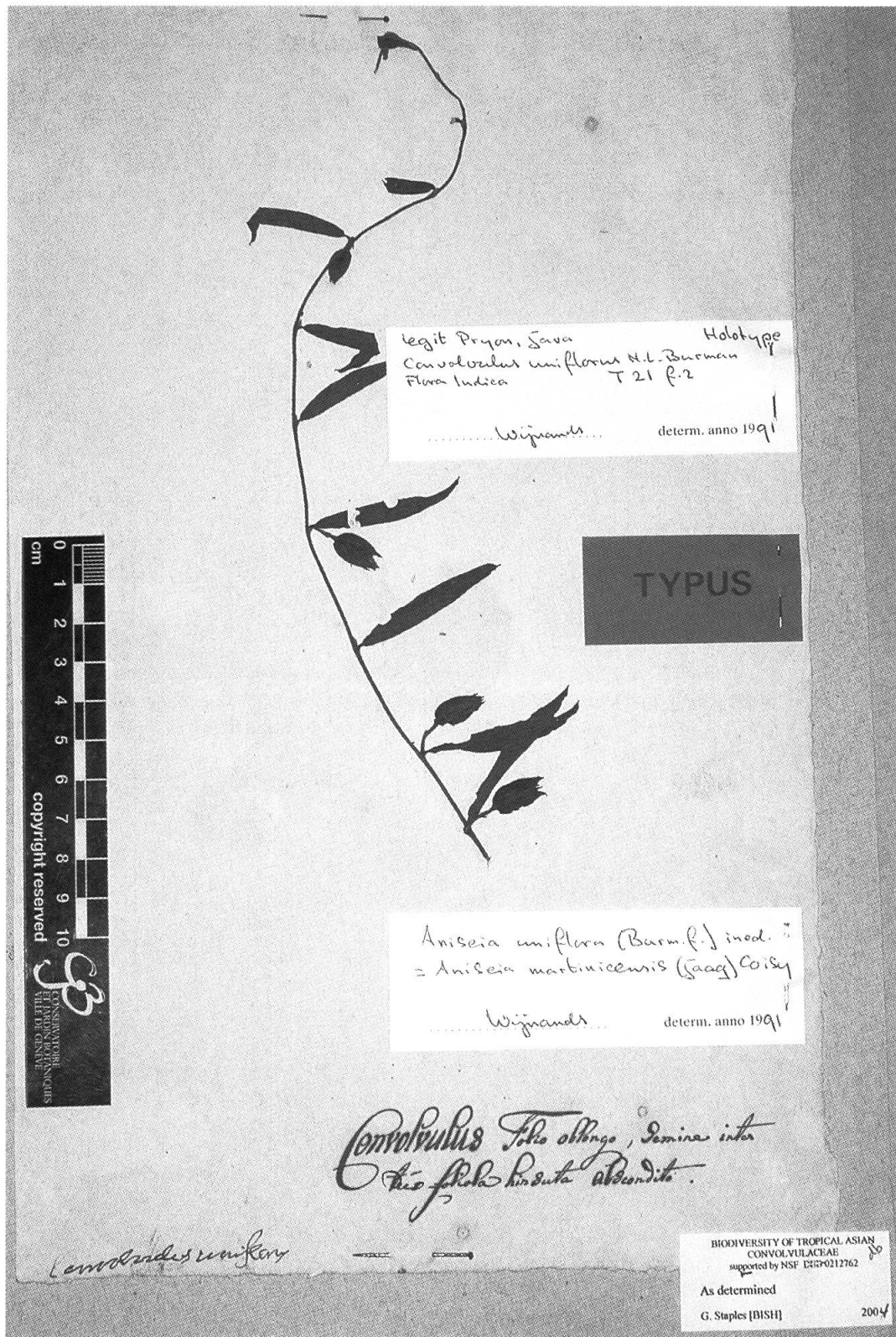


Fig. 6. – *Convolvulus uniflorus* Burm. f., lectotype, Java, Pryon s.n. (G-Burman). Wijnands has verified the handwriting at bottom right as that of F. A. Pryon.

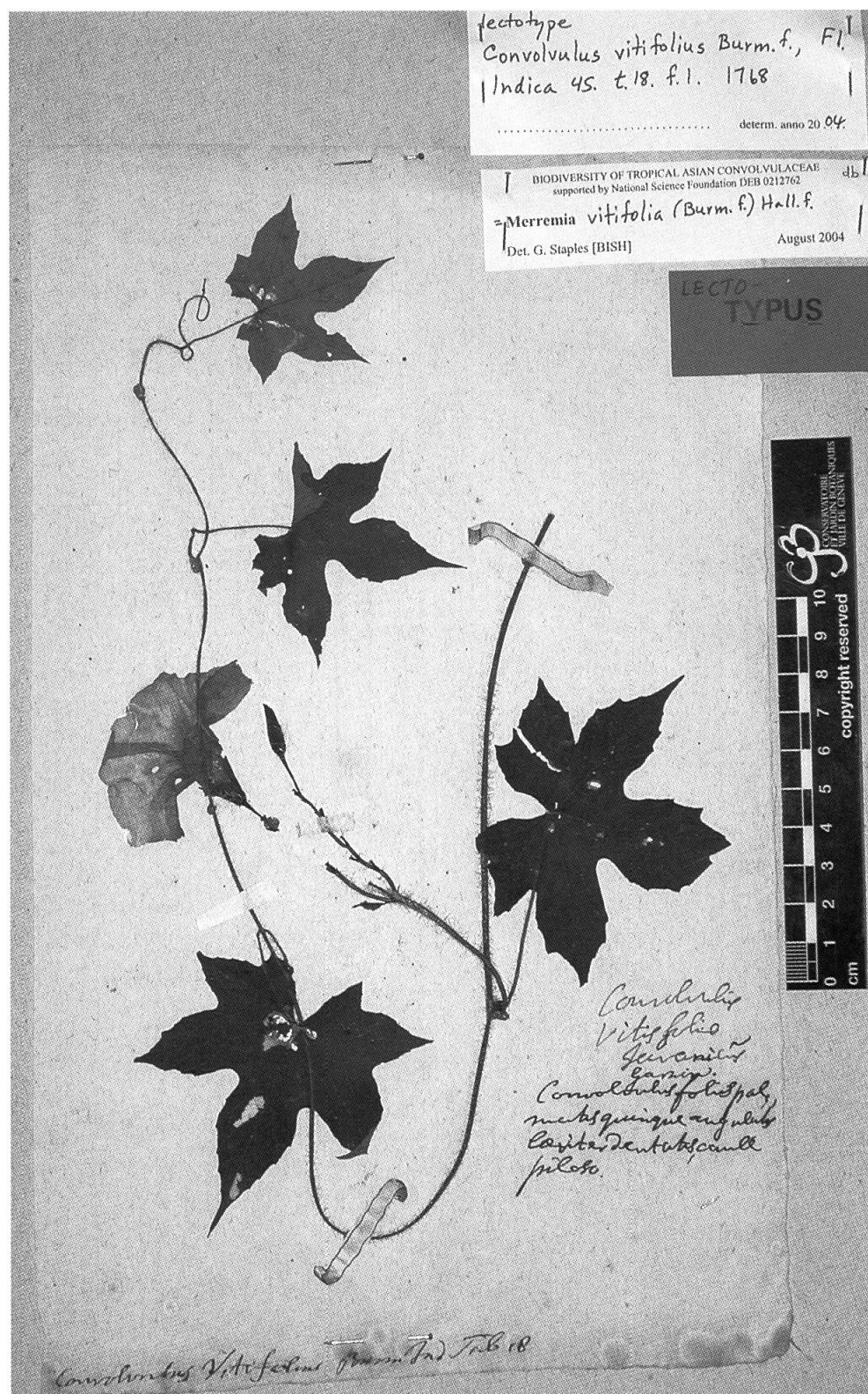


Fig. 7. – *Convolvulus vitifolius* Burm. f., lectotype, Java, Garcin s.n. (G-Burman).



Fig 8. – *Convolvulus vitifolius* Burm. f., *Flora Indica* tab. 18, fig. 1. 1768 and *Ipomea sagittifolia* Burm. f., *ibid.*, fig. 2.

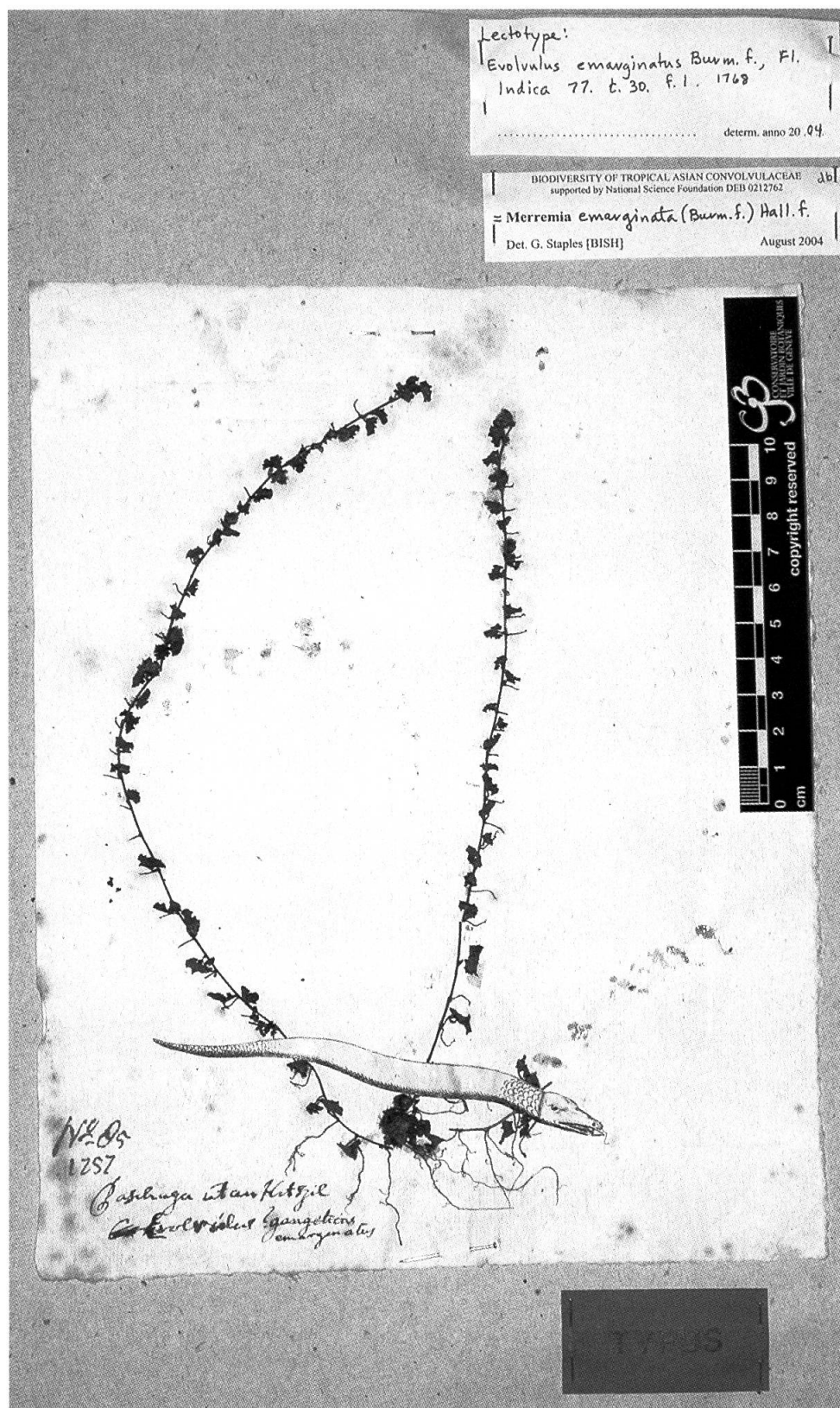


Fig. 9. – *Evolvulus emarginatus* Burm. f., lectotype, Java, anno 1757, Kleinhof 85 (G-Burman).

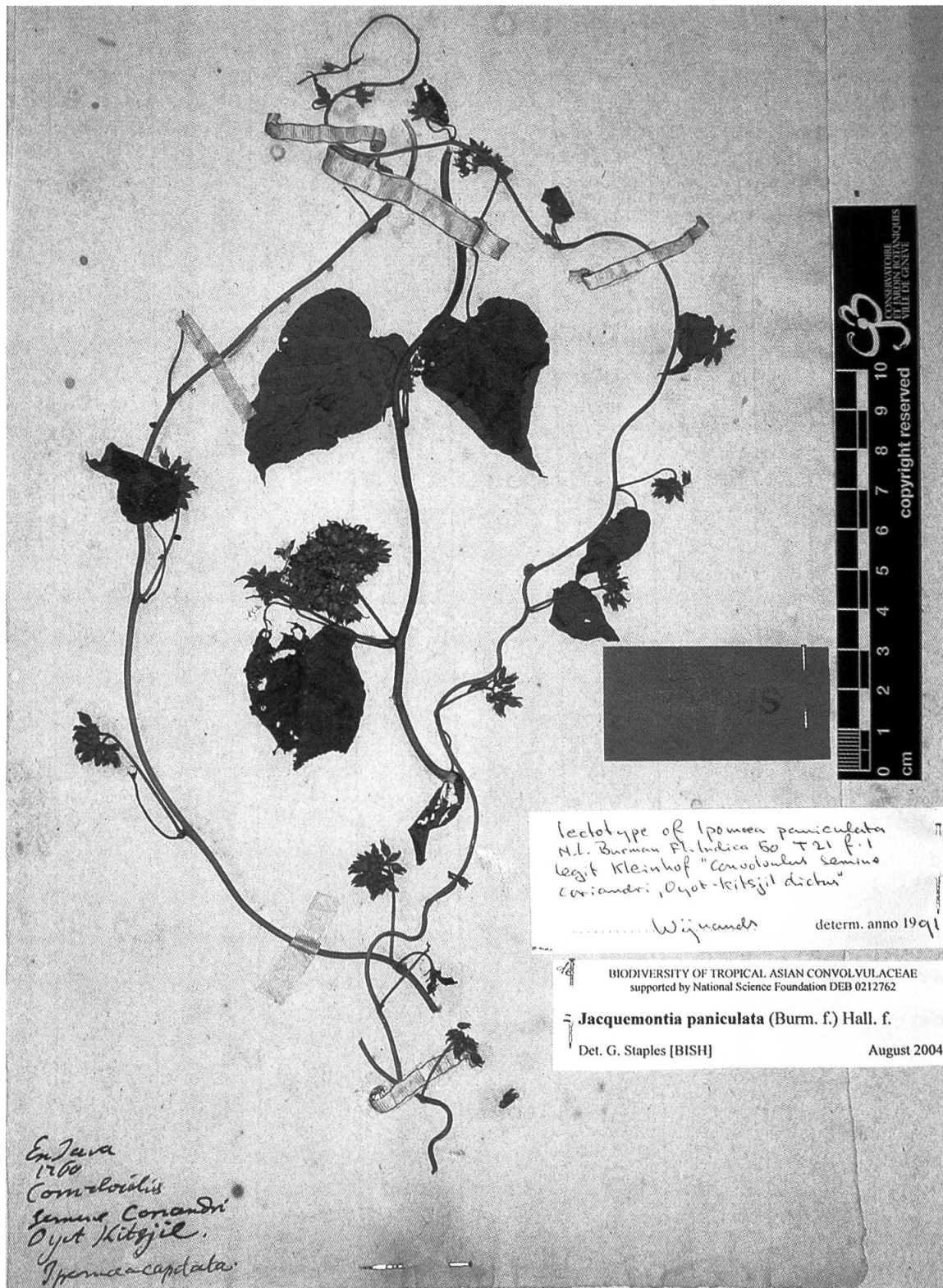


Fig. 10 – *Ipomoea paniculata* Burm. f., lectotype, Java, anno 1760, Kleinhof s.n. (G-Burman). Wijnands has verified the handwriting as that of Kleinhof.



Fig. 11. – *Porana volubilis* Burm. f., neotype, locality and collector unknown s.n. (G-Burman).

CONVOLVULACEAE IN N. L. BURMAN'S FLORA INDICA



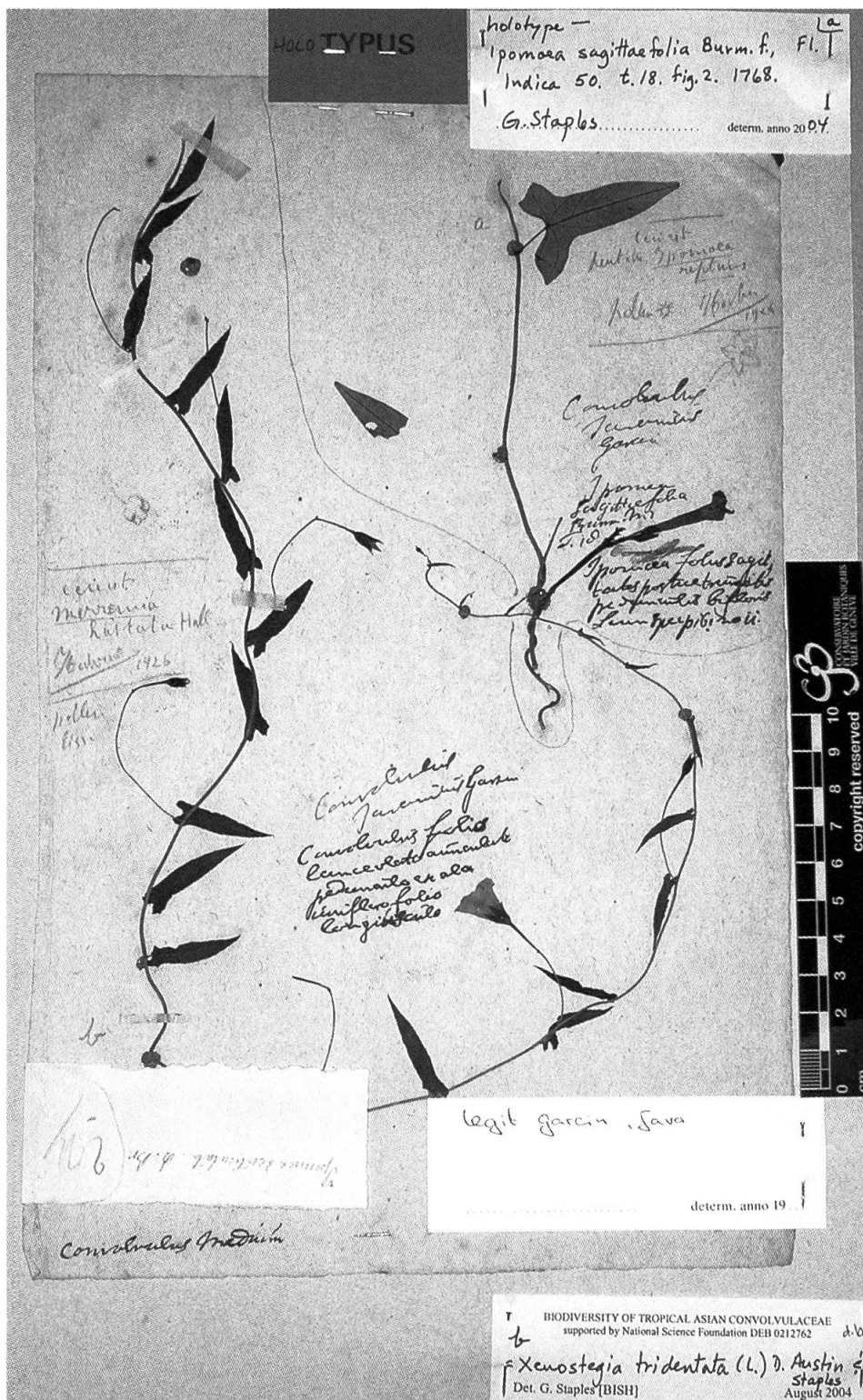


Fig. 13. – The specimen of ‘*Convolvulus medium*’ sensu Burm. f. (his annotation at bottom left) bearing the holotype of *Ipomoea sagittifolia* at top right. The other specimen (part ‘b’) is *Xenostegia tridentata*. Wijnands has authenticated this as one of Garcin’s collections. The name ‘*Convolvulus javanicus*’-Garcin’s name for both specimens-is presumably in Garcin’s handwriting.

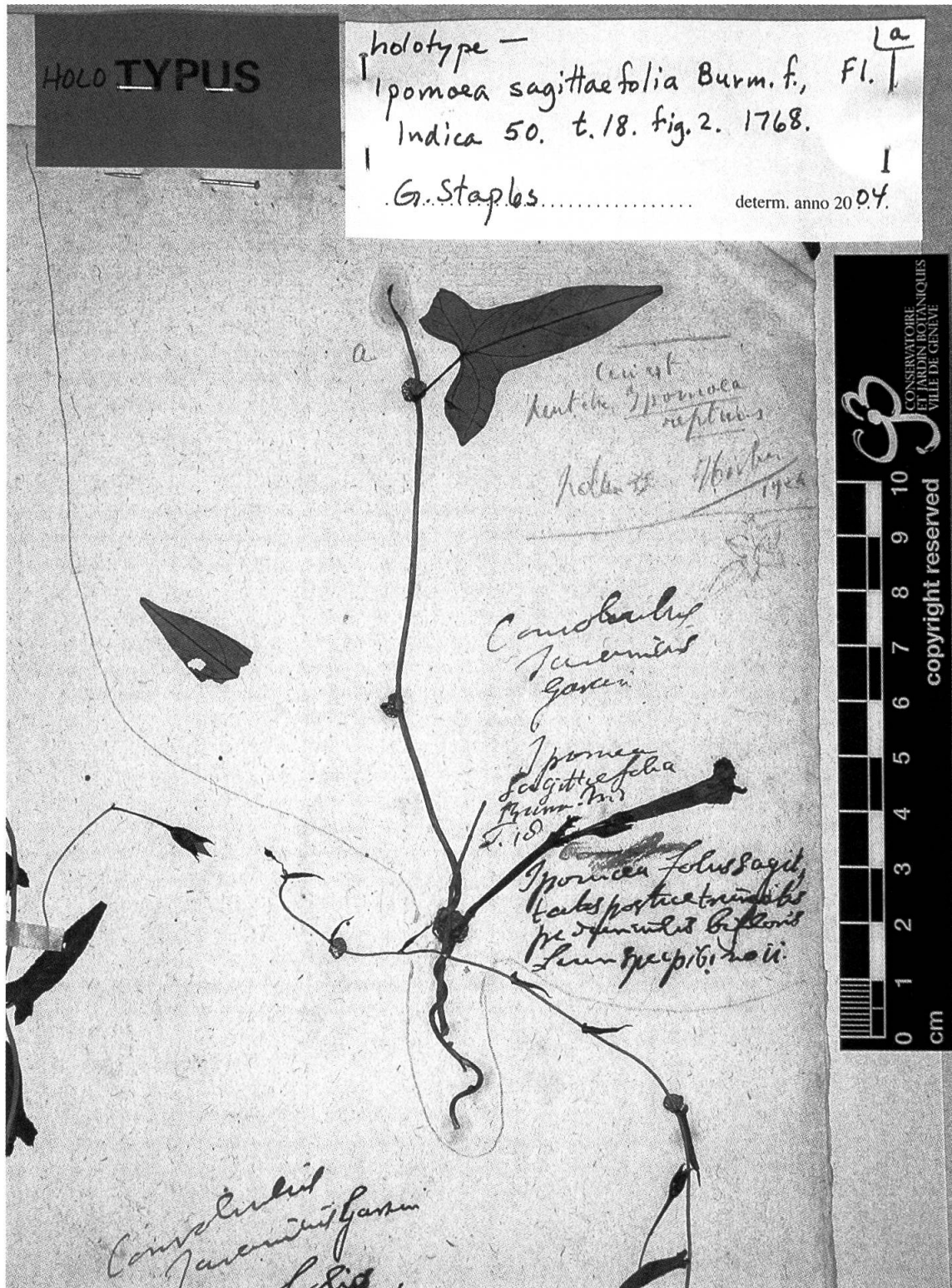


Fig. 14. — *Ipomoea sagittifolia* Burm. f., holotype, Java, Garcin s.n. (G-Burman). Three different handwritings are visible: 'Convolvulus javanicus' in Garcin's hand; the Latin diagnosis below the flower '*Ipomoea foliis sagittatis postice truncatis, pedunculis bifloris*. Linn. Spec. p. 161 no. ii' in the hand of Burman f.; the annotation above the flower '*Ipomoea sagittifolia* Burm. Ind. T. 18' and the word 'Garcin' in an unknown hand. Pencilled annotations evidently by Hochreutiner ca 1926, who correctly recognized this as a mixed collection.

