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Critical notes on some Formosan Euphorbiaceae (II)

By

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クロイツァー・原 寛：臺灣産たかとうだい科植物ニ就テ（其二）

Chamaesyce Makinoi (HAYATA) HARA in Journ. Jap. Bot. XIV, p. 356 (1938).

Syn. *Euphorbia orbiculata* (non HUMB., BONPL. & KUNTH 1817) MIQUEL, Fl. Ind. Bat. I, 2, p. 421 (1859).

Euphorbia Makinoi HAYATA, Mater. Fl. Formos. p. 262 (1911).

In trying to determine the status of this very difficult species we have had access to classic specimens of American and Asiatic origin, including the isotype of *E. serpens* H.B.K. which is preserved in the Parisian herbarium. Our conclusion has been that the type specimen of *E. Makinoi* is most closely related with a specimen described by MIQUEL as *E. orbiculata* and identified by BOISSIER in mss. as *E. Wallichiana* var. *Miqueliana,* which is credited to ZOLLINGER no. 2975 from Java and is cited by BOISSIER under *E. serpens δ. indica* (in DC. Prodr. XV-2, p. 30. 1862). BOISSIER states in a note in the description of the variety that he is doubtful in treating it as a variety of *E. serpens* at the suggestion of ENGELMANN. Without having access to the type of *C. Heyniana* (SPRENG.) [*E. microphylla* (non LAMK. 1786) HEYNE], we may not state definitely whether that species is different from the Formosan plant. We have seen, however, a specimen of HOOKER from Behar, distributed as *E. microphylla* which we accept at least at present as being representative of HEYNE's concept. The stipule in this particular specimen are cleft and fimbriate at the margin, while in *C. Makinoi* they are ovate, subentire and

minutely denticulate at the apex, as in the ZOLLINGER's specimen and the American *C. serpens*. We believe that *C. Makinoi* may be maintained at least provisionally as a separate species.

Galarhoeus calonesiacus (CROIZAT) HARA in Journ. Jap. Bot. XIV, p. 356 (1938).

When publishing *Euphorbia calonesiaca*, the senior author (Journ. Arn. Arbor. XIX, p. 97. 1938) assumed unfortunately that Takao and Taichu were probably mere orthographic variants and that FAURIE no. 220 was from description to be considered conspecific with the entity called *E. orientalis* by HAYATA. Access to the actual specimen of HAYATA proved this to be an error. The FAURIE collection is a most critical plant, which we are at present unable to place with absolute certainty. The HAYATA's material, indeed, is strikingly similar to authentic collections of *G. orientalis* (L.) HAW., and it is fair to acknowledge that were this plant known from the Near East instead than from Formosa it would be perhaps unadvisable to segregate it from *G. orientalis* otherwise than a variety. We do not know of any *Galarhoeus* which is endemic in the range between Asia Minor and Formosa. This is worthy of notice, because the range Asia Minor-Caucasus-Himalaya should be normal for an aggregate with the distribution of *G. orientalis–G. calonesiacus*. The occurrence in Formosa of a species with peculiarly close affinities with *G. orientalis* is very significant for phytogeography, and brings to mind that *Mercurialis* is endemic in Europe and in Far East but does not occur on either the southern or the northern side of the Himalayan range.

In a previously published note the junior author (Journ. Jap. Bot. XI, p. 382, 1935) has rejected *Keraselma* NECK. in favor of *Galarhoeus* HAWORTH. The belief, however, has been recently voiced by WHEELER (Contr. Gray Herb. CXXIV, p. 51. 1939) that *Keraselma* must be retained. In an attempt to justify this contention WHEELER states that: (a) *Keraselma* has priority having been published in 1790, while *Galarhoeus* was not published before 1812; (b) it is possible to identify *Pedilanthus*, *Keraselma* and *Athymalus*, if not all the other genera of NECKER, by the use of "parallel phraseology", which makes it "easy" to demonstrate what figures apply to each genus and

"their identity is then clear"; (c) the genera of NECKER are "obviously genera" in the accepted botanical sense and cannot be dismissed as uncertain or ambiguous concepts.

The first and the second of these allegations have no weight, as such, because they depend upon the fact whether the so called genera of NECKER were validly published in 1790; as it is defined by the Rules of Nomenclature, precedence is not a mere matter of time. It is evident that the arguments of WHEELER are not three, but one, and that this single argument presupposes on WHEELER's part the certain knowledge that the genera of NECKER are obviously genera, i.e., that they are concepts acceptable under the Rules, and that they have been announced in due form in 1790.

The Phytozoologie Philosophique is the work of NECKER which embodies the essence of NECKER's "philosophical" thought on the origin of the genus and of the true species (espèce vraie). The Phytozoologie may not be discussed here because it is not immediately related with the Elementa Botanica, which last is the opus in which are published the "genera" of NECKER that are the concern of taxonomists. It is opportune, consequently, that we restrict our comments of the Prolegomena of the Elementa (Vol. I, p. xiii–xxii) and that we learn from them whether the "genera" of NECKER are "obviously" such, and whether NECKER's concepts are compatible which those sanctioned by the Rules of Nomenclature.

In the Prolegomena NECKER flatly rejects the concept of species and of variety of his predecessors, LINNAEUS included. He states (op. cit. xiv) that single different individuals are still being accepted as species or as varieties without regard to truth (singula individua diversa, in "species" modo, modo in "varietates" etiamnunc per abusum accipiuntur). His predecessors, NECKER says (op. cit., l. c.), were unable to return an absolute definition of the "proles" and showed themselves uncapable of understanding its significance in botany (ejusque in re herbaria existentiam minime dignoscere potuere). The genus of earlier botanists is also challenged by NECKER who sees in it merely an ill assorted group of species (specierum una confusarum partem maximam, pro generibus habuere systematici.) The "systema omologicum seu naturale" is introduced by NECKER (op. cit. xv.) with the purpose of purging botany of

existing misconceptions: the classes and the orders of Linnaeus are rejected and three units are retained in all, namely the "genus", the "species naturalis" and the "prolis".

The characters of the "genus", NECKER states (op. cit. xvi) is derived by all the attributes of the plants (ab attributis vegetabilium universis), which attributes are present in every one of the species naturales of the genus. The characters of the "species immortalis" (i.e., of the "species naturalis") are desumed by the fructifications of different mortal individuals and by the organs that appertain to such fructification (non tantum e fructificatione diversorum individuorum mortalium, sed ex aliis partibus ac ipsi necessariis). The characters of the "prolis" either singly or jointly are eventually determined by the place, the position, the number, the direction, the size, the unity, the "plurality", the shape or figure, the insertion, the "expansion", the "circuit", together: by the state of "simplicity" or of "composition" of the parts of the plant (character naturalis, unius aut plurimarum prolium eandem speciem formantium, ex omnibus exstantibus notis, decucendus, in perpendis loco, situ, numero, directione, dimensione, unitate, multitudine, forma s. figura, insertione, expansione, circuitu, tandem simplicitate aut compositione vegetabilium partium). For the benefit of the user of the Elementa, NECKER explains how *Inula montana* L. is to be identified. The radiate type of inflorescence with florets having a double perianth will tell this user—NECKER writes (op. cit. xvii)—that the plant in question belongs to the first genus of the Elementa, namely *Actinophytum*. The common involucre, the two setae inserted at the base of the anthers, the achene crowned by a pappus, the torus, the florigerous stem, the simple leaves will further tell the user that he is certainly dealing with a "natural species of *Inula*" (ad Inulae [sic] speciem naturalem pertinere pro certo habetur.—op. cit. xviii). The name of the "prolis", *Inula montana* will at last be revealed by the place, position, number, direction, size and structure of the peduncles, by the "unity" or "multitude" of the flowers, by the form, place, "simplicity of composition" of the common involucre, by the shape, place, insertion, surfaces, "expansion", "circuit", "periphery", jointly: by the simplicity or the composition of the leaves.

The basic concepts of this system are incompatible with those of the system

of LINNAEUS and with accepted botanical thought. By NECKER's own admission the Linnean genus *Inula* is not homologous with NECKER's "species naturalis" of the same name (misspelled *Enula,* Elem. I, p. 4), but represents a category apart and presumably more comprehensive, which is proved by the statement: "plantam memoratam [*Inulam montanam* L.] ad *Inulae* speciem naturalem pertinere". In modifying and in shifting the names of the botanical units accepted by earlier post-Linnean botanists, such as "genus" and "species", NECKER does not mean merely to propose new names in the place of older and to him less agreeable ones: he means to cloak "new concepts with new definitions". The system of NECKER is hazy and unsatisfactory, but the statements of the Prolegomena are clear enough to show that the "species naturalis" is prevailingly, if not absolutely, defined by floral structures and their immediate accessories as these appear in individual plants. The Neckerian system relies upon an abstraction based upon the floral characters of individual specimens rather than upon specific and generic concepts in the sense of the Rules of Nomenclature: its "species naturalis" is more or less comprehensive than the Linnean genus, which the cited example of *Inula montana* establishes beyond doubt. Once the thought of NECKER is understood the reason becomes clear why NECKER can exclude certain Linnean species (e.g., *Jatropha Curcas, J. gossypiifolia*) from his own interpretation of the Linnean genus *Jatropha,* but, on the other hand, does not use any of the binomials of his predecessors to typify the "species naturales". NECKER can tell by direct inspection of a plant which supposedly belongs to the Linnaean species whether the Linnean name fits or not his own understanding of the "species naturalis" involved: he can tell us for instance that the characters "of the plant" which Linnaeus names *Jatropha Curcas,* do not fit the "species naturalis", *Jatropha.* NECKER, however, does not use Linnean binomials to typify his own "species naturales" because he rejects the very concept of species and of genus in the Linnean sense (singula individua diversa in "species"....per abusum accipiuntur—specierum una confusarum partem maximam, pro generibus habuere systematici). The peculiar reference to "Quaed. Euphorb. Linn." and to "Quaed. Anthem. Linn." under *Keraselma* and *Lepidophorum* is understandable, as the individual is one of the fundamental units of NECKER's system. It may, and

it does happen, that the limits of a "species naturalis" and of a Linnean genus are nearly coincident; and when NECKER segregates *Lepidophorum* and *Chamaemelum* from *Anthemis* (op. cit. I, p. 14–15) it is possible for a hasty reader of the Elementa to conclude that NECKER effects a segregation such as it is allowed under the Rules of Nomenclature. We do not know, however, what NECKER understands under *Anthemis,* which he describes as a "species naturalis" with an "unica prolis mortalis" (op. cit. p. 43), because the generic names of LINNAEUS are voided of all their sense under the "philosophical" manipulations of NECKER. NECKER, for instance, retains *Jatropha* as a "species naturalis" but does so in rejecting the lectotype, *J. Curcas* as well as *J. gossypiifolia* which is the first species announced by LINNAEUS under the generic name (Sp. Pl. II, p. 1006, 1753). It is to be expected that under the circumstances NECKER does not scruple in indexing as "species naturales" the generic names of LINNAEUS and other post-Linnean botanists, because NECKER acknowledges himself their debtor only to the extent of names (op. cit. xix). *Jatropha,* incidentally, is not one of the genera of LINNAEUS which NECKER has "reformed", because it is not designated by the double asterisk (op. cit. l. c.) which indicates the "reformed" names (quae ad species naturales vegetabilium diversas nobis accomodantur). NECKER has the concept of type, or at least of an archetype, because he defines it (proles antiquior inter caeteras & ab eadem specie composita pendens—op. cit. xvi) but he never used it in the Elementa: the Neckerian types would have been announced in a coming work (Diagnostici & preculiares prolium omnium characteres plantarum earumque varietatum, suo tempore & successive nobis praefinientur —op. cit. xv), which we much regret to say never saw the light, probably on account of NECKER's death following shortly after the publication of the Elementa.

It clearly follows from the preceding considerations that while we have no reason to dispute the use of Neckerian names already in the literature and perhaps legitimized by the first authors who took them up, we emphatically reject any suggestion to use a "generic" name of NECKER which made upon an ill digested review of the evidence. We express our regret at the erroneous animadversions of WHEELER's being appended to a laborious and presumably

authoritative paper which has for its purpose to propose a Neckerian name for conservation.

If, despite the crushing weight of evidence drawn from NECKER's own statements, definitions and comparisons showing that the "species naturalis" is not a genus in the sense accepted by the Rules of Nomenclature, it should still be asserted that such "species" are to be treated as genera, we would like to point out that:

(a) The Neckerian segregates from *Euphorbia* are not typified otherwise than by a reference to "Quaed. Euphorb. Linn.", which is view of the concepts and methods of NECKER makes the application of these segregates uncertain and aleatory.

(b) It is mistaken to accept the illustrations to which WHEELER refers as belonging to the Elementa. These illustrations were printed separately and although they are said to apply to the Corollarium, to the Elementa and to Phytozoologie Philosophique (Coroll. p. (6), 1790), they are credited to the Corollarium in the bibliography of NECKER's works appended to the Elementa (op. cit. I, xii).

中井猛之進教授ノ御好意ニヨリ、故早田教授ノ研究サレタ東大腊葉室所藏ノ臺灣産たかとうだい科植物ノ原標本全部ヲ暫時ハーバード大學ニ拜借スル事ガデキタ。本文ハソノ御蔭デ出來上ツタモノデアル。改メテ中井教授ニ厚ク御禮ヲ申シ上ゲル次第デアル。又ハーバード大學内ノ標本及ビ圖書ノ自由閲覽ノ便宜ヲ與ヘラレタメリル教授、ファーナルド教授ニ對シテ深甚ノ謝意ヲ表シマス。

Antidesma pentandrum ガ臺灣ニ産スル事ハ ENGL. Pfl.-reich IV–147–XV, p. 125 (1922) ニ載ツテヰルガ、今迄我國デハ何ヲ指スカ不明デアツタ。今度各地カラノ標本ヲ檢シテ、ソレガこうとうやまはずニ外ナラズ、シカモ臺灣産ハ *A. pentandrum* ノ原産地タルフィリッピン産ノモノトヨク一致スルノヲ確カメタ。

まるやまかんこニハ *Bridelia ovata* DECAISNE ノ學名ガ使用サレテキタガ、眞ノ *B. ovata* ハ全ク緣ノ遠イモノデ、果實ハ扁球形デ 2 室、蔕ハ無毛デアル。まるやまかんこハ南支ニ廣ク分布スル *B. Balansæ* TUTCHER ト同一デアリ、*B. pubescens* KURZ モ近緣ノモノデアルガコレハ葉下面ノ脈ガ有毛デアル。

かんこのき屬 (*Glochidion*) トこみかんさう屬 (*Phyllanthus*) トノ區別ハ非常ニ困難デ、今迄指摘サレタ何レノ特徵モ例外ガアリ滿足スベキモノデナイ。併シ實際ニ植物ヲ見テ、ソレガ何レニ屬シテヰルカハ一見判斷デキルモノデ、ココデハ自然的ナ一群トシテ兩屬ヲ別ニ扱ツテオク。

うらじろかんこのきハ極メテ明瞭ナ種デアルガ、早田教授ノ命名サレタ學名ハ殘念ナ

ガラ先行同一名ガアルノデ、*Glochidion Hayatae* CROIZAT et HARA ト改名スル。山本由松博士ガ既ニ述ベラレタ如ク支那ニモ分布シ、*G. acuminatum* MÜLL.-ARG. ニ似テキルガ葉脈ノ樣子ガ異ルノデ明カニ區別サレル。

おほばけかんこのき及ビソノ近似種ハ支那ヨリ印度ニ亘リ廣ク分布シ、而モ極メテ變化ニ富ンデキル。コレ等ヲ同一種中ノ變化ト見做スベキカ、或ハ數種ニ分割スベキカハ現在ノ所決定デキナイ。*Bradleia hirsuta* ROXB. ニ基イタ *G. hirsutum* VOIGT ガコノ類ニツケラレタ最モ早イ名デアルガ、ソノ適用ニツイテハ多クノ疑義ガアル。從ツテココニハ確實ニ臺灣產ト同一ノモノニ付ケラレタ *G. dasyphyllum* K. KOCH ヲ採用シテオク。

G. eriocarpum CHAMPION トイフモノハあかげかんこのきト異リ、枝・葉・花梗・果實等ニビロード狀ノ立毛ヲ密生シ、葉ハ卵形又ハ卵狀披針形デ圓脚ヲナス。あかげかんこのきハ支那ニ普通ニアル *G. puberum* (L.) HUTCHINSON デアル。

G. philippicum C. B. ROBINSON ガ臺灣ニ產スル事ハ近年山本博士ニヨツテ初メテ指摘サレタガ、以前カラ他ノ誤ツタ學名デ知ラレテキルけかんこのきガ同一物デアル。

ヘンリーノ臺灣採集品中ニ變ツタかんこのきノ一種ガアル。山本博士ハコレヲ *G. lanceolatum* HAYATA ト同定サレタガ全ク異ツテキル。全體ノ感ジハきーるんかんこのきニ似テ葉ハ大形無毛デアルガ、蒴果ハ有毛デ 4–5 室、徑 8–10 mm、雄花ノ花梗ハ絲狀デ長ク時ニ 2.5 cm ニモ達シ、基部往々毛ヲ散生スル。本植物ニ最モ近イノハ印度產ノ *G. assamicum* (MÜLL.-ARG.) HOOK. fil. デアリ、臺灣產ヨリ蒴果ガ小サク徑 5–7 mm、毛ハ早ク落チ、蕚モ稍小形デアルガ、他ノ性質デハヨク一致スル。海南島ヤ雲南省ニハ臺灣產ニ一致スル形ト印度產ニ一致スル形ト兩方アリ、同一種中ノ變化ト見做スノガ妥當ト思ヒ、臺灣產ヲ var. *magnicapsulum* CROIZAT et HARA トシテ區別シ、和名ヲへんりーかんこのきト名付ケル。今後臺灣ニ於テ本植物ノ豐富ナ材料ガ採集サレル事ガ望マシイ。

ひらみかんこのきガ *G. Fortuni* HANCE デアルカ否カ疑問ノ點デアルガ、基準標本ガ見ラレナイノデ暫時ソノママニシテオク。臺灣產ハ葉ノ形、枝、花梗ノ毛等變化多ク、全ク無毛ナ形モアル。かんこのきハ蒴果ガ小形デ、花柱ガ短カイ點デひらみかんこのきト區別デキルガ、琉球ニハ中間ノ性質ヲ現ハスモノガアル。

かきばかんこのきモおほばけかんこのきト同樣ニ廣ク分布シ變化多ク分類困難ナ一群デアル。*G. zeylanicum* JUSSIEU ハ花梗ガ短イガ同一種ラシイ。

きーるんかんこのきハかきばかんこのきニ近イガ別種デアル。ながばかんこのきトイフモノノ基準標本ハ本種デアリ、原記載ニ子房ニ毛ガアル如ク書カレテキルガソレハ誤デアル。

こばのにしきさうト同一ノ形ハジャバニモ產スル。恐ラク臺灣、南支那、フィリッピン、ジャバニ廣ク分布シテキルモノト思ハレル。印度產ノ *Chamaesyce Heyniana* (*E. microphylla* HEYNE) トハ托葉ノ形ガ少シ異ナル。米國產ノ *C. serpens* (H. B. K.) SMALL モ非常ニ近ク、今後ノ研究ヲ要スル。

たいわんたかとうだいハ小アジアノ *G. orientalis* (L.) HAW. ニ近緣デ、分布上注目スベキ植物デアル。*G. orientalis* ハ葉ノ先端ノ尖リ方ガ少ク、苞モ廣倒卵形、短鋭尖頭デ、ソノ產地カラ考ヘテモ別種デアル。尙たかとうだい屬ガ眞ノ *Euphorbia* 屬ト根本的ニ異ナル事ハ本文ノ著者ノ一人デアルクロイツァーニヨリ近ク詳論サレル筈デアル。

（原 寬）