

Comments on Far Eastern *Euphorbia*.

LEON CROIZAT*

レオン・クロイツァー： 東亞産たかとうだい屬評論

Taxonomists who are interested in *Euphorbia* feel grateful to HURUSAWA for his recent contribution on the genus (Jour. Japan. Bot. 16: 330-346; 391-400; 447-461; 507-516; 571-582; 633-645. 1940). Tackling this very difficult group in its Japanese and Chinese range, HURUSAWA has materially added to our knowledge of interlocking Sino-Japanese species and varieties, and made it easy to extend the scope and the depth of coming investigations. Having accumulated considerable notes on the same subject treated by HURUSAWA, I dissent from his conclusions in certain details. As a contributor to Prof. F. P. METCALF'S "Flora of Fukien", which is being now written in our Herbarium, I must publish my observations to the very extent that they interest Prof. METCALF'S undertaking.

It is not my intention to deal at present with the *Euphorbia* of the Far East otherwise than very briefly. Thus, I purposely refrain from discussing HURUSAWA'S disposition and understanding of the different categories involved in his paper. The mistakes which I am now concerned with are but the natural outcome of HURUSAWA'S lack of familiarity with the voluminous literature published on *Euphorbia*. It is admittedly very difficult for anyone who has not labored upon the genus on a worldwide scale, to fit together the literature that many authors writing different languages have contributed upon this exceedingly large group of plants. Errors of the kind do not detract materially from the soundness of an otherwise interesting work. Since my notes are merely in the nature of comments and corrections, they are given in the sequence of HURUSAWA'S treatment. No account is taken of the species of the Japanese Archipelago, because Japanese botanists are qualified to treat them as plants of their own domain, with full knowledge of essential data not to be learned from herbarium material.

* Arnold Arboretum, Harvard University, Jamaica Plain, Mass., U.S.A.

1) **Euphorbia Fischeriana** STEUD.—HURUSAWA, op. cit. 345.

I have pointed out elsewhere that the correct binomial is *E. Pallasii* TURCZ. (in Jour. Arnold Arb. 21: 492, footnote. 1940).

2) **Euphorbia, Kaleniczenkii** CZERN. ex TRAUT.—op. cit. 393.

Without actually seeing the specimens figured by HURUSAWA (op. cit., loc. cit., Fig. 2), I may not decide whether the plant he lists under CZERNIAEV'S *nomen nudum* is the same one which PROKHANOF figures and describes (Consp. Syst. Tithym. Asiae Mediae, 171 fig. 58. 1933) as *Tithymalus microcarpus* PROKH. (= *E. leptocaula* KRYL., non BOISS., and *E. esula* β . *gracilis* KRYL., Fl. Altaica 5: 1193-1194. 1909) or the one which he understands as *Tithymalus subcordatus* PROKH. (op. cit., 178 fig. 61). It is certainly one of them, and I may add that I am by no means sure that the two are specifically distinct.

A study of this extremely difficult group involves a careful revision of the whole complex centering around *E. Esula* L., which is now impossible. So far as I am aware of forms that very closely match *E. Esula epsilon cyparissoides* BOISS. (syn.: *T. subcordatus*) are endemic in Western Asia and Europe, and I do not know as yet whether it will prove possible to treat the Far Eastern plant as *Euphorbia subcordata* C. A. MEYER in LEDEB., Fl. Alt. 4: 184. 1833, distinguishing it specifically from the forms of the West of Eurasia. What brooks no doubt is that the binomial chosen by HURUSAWA lacks priority, granted that it applies to the plant in question. Under the rather narrow concept of species which HURUSAWA appears at times to favor, the plant he figures should bear the name *E. subcordata*, as cited above. Taxonomists who incline to use broader concepts will do well in using the trinomial *Euphorbia Esula* L. epsilon *cyparissoides* BOISS. in DC. Prodr. 15[2]: 161. 1862. I do not believe that *Tithymalus microcarpus* PROKH. is worthy of being transferred to another genus.

3) **Euphorbia lunulata** BGE. var. **souchouensis** HURUS.—op. cit. 398.

The illustration of the holotype of the variety points to a form which it is hardly possible to separate from *E. hippocrepica* HEMSL., which HANDEL-MAZZETTI (Symb. Sin. 7: 232. 1931) believes to be identical with *E. Erythraea* of the same author (in Journ. Linn. Soc., Bot., 26: 414 & 412. 1891). Taxo-

nomists who desire to treat HURUSAWA'S variety as a species are bound, under the Rules of Nomenclature (see Art. 56), to follow HANDEL-MAZZETTI in the use of *E. hippocrepica*, which is the lectotypic binomial, so long as they agree, as I do, that HEMSLEY'S species are synonymous.

Under Art. 70, Note 4, of the International Rules, *E. Erythraeae* N. E. BROWN in DYER, Fl. Trop. Africa 6[1]: 596. 1912, must be regarded as a mere orthographic variant of Hemsley's *E. Erythraea*. Despite the fact that this binomial has now fallen into synonymy (see Art. 61), a new name is needed for BROWN'S species, which I propose as **Euphorbia Aethiopum** CROIZ., nom. nov. (syn.: *E. Erythraeae* N. E. BR.; *E. candelabrum* var. *Erythraeae* BERG.).

4) **Euphorbia virgata** W. & K.—op. cit. 450.

HURUSAWA is hardly clear on the origin and application of the binomial. The work of WALDSTEIN & KITABEL which HURUSAWA correctly cites as: Descr. & Icon. Pl. Rar. Hungar. 1: 176. pl. 162. 1805, has absolutely nothing to do with the "Tableau" of DESFONTAINES. It is unfortunate that the practically unknown *E. virgata* DESF., 1804, which is apparently a synonym of *E. mauritanica* L., antedates the very well known *E. virgata* W. & K., 1805. As pointed out by WHEELER (in Contr. Gray Herb. 127: 66. 1939) *E. virgata* W. & K. is illegitimate as a later homonym of DESFONTAINES' binomial, and must be rejected. The next available binomial is *Euphorbia uralensis* FISCH. ex LINK, Enum. Pl. Hort. Berol. 2: 136. 1822.

I do not know the plants that HURUSAWA understands as *E. virgata* and *E. virgata* var. *orientalis*, but I feel reasonably certain that, nomenclatural validity aside, his use of this binomial and trinomial is a misapplication. I suspect very strongly that HURUSAWA'S *E. virgata* var. *Kitagawae*, illustrated op. cit., 452 fig. 8, is the form called by PROKHANOF *Tithymalus cyrtophyllus* (Consp. Syst. Tithym. Asiae Mediae, 191 fig. 65. 1933). This plant is near, indeed, to another, which PROKHANOF understands as *T. jaxarticus* (op. cit., 192 fig. 66), listing *E. virgata* var. *orientalis* BOISS. in synonymy.

The difficulties in the way of the classification of the aggregate of forms centering around PROKHANOF'S two species are greater, if possible, than those in the path of a treatment of the *Esula* complex. I do not see how it is

possible to extricate *E. virgata* var. *orientalis* BOISS. from the form which has been described by KOCH (in *Linnaea* 21: 728. 1848) as *E. lucida* W. & K. γ. *androsaemifolia* KOCH. It is plain that the geographic epicenter of all these forms is in the Caucasus, and that from the Caucasus have radiate eastwards and westwards the plants of Central Europe and temperate and cold Far Eastern Asia.

While I am wholly unable to suggest at present a final disposition for the plants described and illustrated by HURUSAWA, I advise that they be looked for in the vicinity of *T. cyrtophyllus* and *T. glomerulans* PROKH. (see for the latter, PROKHANOF, op. cit. 183, fig. 63). PROKHANOF lists in the synonymy of these species, *E. glomerulans* and *E. cyrtophylla*. It is necessary to point out that neither one of these binomial is available to taxonomists who use *Euphorbia*, as they are published in synonymy, and evidently offered as alternatives (see Art. 37 ter. 1936, on "nomina provisoria", and Art. 40 of the Rules of International Nomenclature). HURUSAWA's constant use of "nom. alternat. mss." serves no purpose, because it falls under the dispositions of the two Articles cited above, not only, but it violates Recommendation xxii, which advises to avoid publishing or mentioning names that an author does not accept.

5) **Euphōrbia Esula** L.—op. cit. 453.

I can not agree with HURUSAWA, not at least in full, that *E. Esula* of Europe is different specifically as a whole from the plants called *E. Esula* in the Far East. Reference made in a discussion to "specimens of *Euphorbia Esula* in Europe", without giving full indications of collectors, localities, number and the like, is meaningless. The "*E. Esula*" of Europe and of America normally includes an heterogeneous set of forms and species, which must be critically worked out before they are used. Both MORTON and WHEELER, as cited by HURUSAWA (op. cit. 455, in text. & not.) err in believing that in the U. S. A. we have either all *E. virgata* or *E. Esula*. Reserving a full discussion of the issue for a separate paper, I wish to point out that in the material seen by those two authors are mixed specimens of the following entities: (a) *E. uralensis* FISCH. ex LINK (= *E. virgata* W. & K.); (b) *E. pseudolucida* SCHUR (= *E. intercedens* PODPERA); (c) *E. lucida* W. & K.

γ. *androsaemifolia* KOCH (= *E. virgata* var. *orientalis* BOISS.); (d) *E. Esula* L.

6) ***Euphorbia Nakaii*** HURUS.—op. cit. 457.

I have seen the holotype of *E. octoradiata* LÉVLÉ. & VAN. and I have a photograph of it in our herbarium. This specimen, FAURIE 1977, was collected "in petrosis littoris Quelpaert", which is the *regio classica* of *E. Nakaii*, and agrees all too closely with HURUSAWA's specimens figured op. cit., figs. 9 and 10. The "*Euphorbia Esula* of Asia" seen by HURUSAWA is almost certainly *E. Maackii* MEINSH. This plant, readily recognizable in the herbarium, is apparently common in northern Manchuria and in the adjacent Siberian regions, thriving in as cold a domain as that of any other *Euphorbia*. A stringent critical examination of *E. Nakaii*, *E. octoradiata* and *E. Maackii* is desirable, the last named having priority. These three binomials, furthermore, should be diligently compared with *E. lunulata* BGE. It would seem that HURUSAWA himself (op. cit. 460) treats *E. octoradiata* as a likely synonym ("Synonymum esset..") of *E. Nakaii* f. *caespitosa*, which is a flagrant violation of priority, unallowable under Art. 16 and Art. 60(1) of the International Rules of Nomenclature. *Euphorbia taikouensis* LÉVLÉ. & VAN., the holotype of which I have seen, may also prove to be the same species as *E. Nakaii*.

7) ***Euphorbia tarokoensis*** HAY.—op. cit. 461.

I am deeply indebted to Prof. T. NAKAI for having had the opportunity of studying the holotype of this species. This plant has absolutely nothing in common with *E. Sampsonii* HANCE. It is represented in our herbarium by: GRESSIT 440, Formosa, Sakahen Alt. 1370 m., Cliff side, 1934 which was distributed provisionally as "*E. Esula*?"

This plant, in different forms, ranges into China, and merges, forming a nearly inextricable complex of intermediates, with *E. laticola* HAND.-MAZZ. and *E. hippocrepica* HEMSL. To the best of my knowledge the plant from Kwangtung is nearest to *E. tarokoensis* than to any other and may be described as its variety:

Euphorbia tarokoensis HAY. var. ***kwangtungensis*** CROIZ.—A forma typica formosana habitu robustiore, partibus omnibus majoribus distinguitur. Ad

E. hippocrepicam HEMSL. atque *E. luticolam* HAND.-MAZZ. formis innumeris transitum præebet.

Holotypus; WANG C. 30436, 1930; Kwangtung, Yingtak (sub: *E. pekinensi*)

The disposition under *E. tarokoensis* is tentative. It may not be considered to be final until and unless the full complex of the three mentioned binomials and their allies is explored and elucidated in the field. The plants of this group are very quickly influenced by soil and climate and should be cultivated in addition to being studied there, where they grow. The holotype is in the herbarium of the Arnold Arboretum.

8) ***Euphorbia formosana*** HAY.—op. cit. 579.

I have seen the holotype of HAYATA'S species, the holotype (or isotype) of *E. Sampsonii* HANCE, the holotype of *E. sinensis* JESS. & TURR., and the isotype of *E. lanceolata* LIU-TCHENG-NGO. I believe that all these are the same species, and but slightly distinct from *E. pekinensis* RUPR. The complex involved is an exceedingly large one, with many forms in Japan (*E. pekinensis* var. *Onoei* MAK., with f. *maritimus* and f. *densifolius*, etc.), specimens of which were kindly supplied by the friendly interest of Dr. H. HARA.

The northern Chinese plants (*E. pekinensis*) would seem to have constantly a larger seed than the southern ones (*E. Sampsonii*), but they are unquestionably connected by numerous intermediates and the taxonomy of the whole group must be worked as a unit before any disposition can be attempted. For the present, I feel to be justified in affirming that *E. formosana* HAY. var. *kiangsuensis* HURUS., as illustrated and described op cit., 580, fig. 28, is but a straight synonym of *E. Sampsonii*.

In concluding these brief notes I wish to thank Prof. T. NAKAI for his very generous loan of material, and Dr. H. HARA, to whom I am indebted for advice and help in my work on the Euphorbiaceae of the Far East.