PLANT NOTES

170/5. OXALIS MEGALORRHIZA Jacq., 1794, *Oxalis Monogr.*, 33; *O. carnosa* sensu Lindl., non Molina. A recent publication by one of us (Young, 1958) introduced the name *Oxalis carnosa* Molina into the British flora. Reference to the original place of publication, however, has shown that not only is this name wrongly applied, but it is illegitimate in any case. Molina's diagnosis (1810) reads: "1. Oxalis *carnosa*; scap. 1-floris; foliol. subrot. emarg. carnosis. *O. magellanica* Forst." From this it is perfectly clear that the name was only a superfluous substitute for *O. magellanica* Forst. f., which is the correct name for a white-flowered species of the section *Oxalis*.

Molina's definition is taken entirely from the younger Forster's definition of *O. magellanica* (Forster, 1789), and there is no evidence that he ever saw a specimen of this plant. In the first edition of his *Saggio* (1782) Molina described two new species of *Oxalis* which he himself had discovered in Chile. In the second edition (1810) he attempted to list all the species known in that region. Under *Oxalis*, therefore, he included his two original species (which are followed by "*M.*") together with four others which he had culled from the literature, and which he referred to other authors. For three of these he retained the existing names, but in the case of *O. magellanica* he changed the epithet to *carnosa*, presumably because he did not care for the epithet *magellanica*.

It therefore becomes necessary to find the correct name for the plant long known as *O. carnosa*. In doing so one runs into taxonomic difficulties, but it seems to us that the most satisfactory name is *O. megalorrhiza* Jacq., based on the *Oxys luteo flore, radice crassissima* of Feuillée (1714, *Journal des Observations*, **2**, 734-735, t. 25). Feuillée's description and engraving are insufficiently detailed, but there appears to be no species other than the present one that he could have been describing—especially as his material came from Peru, where this section of the genus is not well represented. A perplexing point is his description of the leaflets as being of a beautiful violet underneath. The same thing, however, is seen in *O. rubrocincta* Lindl. (1842, *Bot. Reg.*, **28**, t. 64), which appears to be an anthocyanin-flushed form of the species under discussion. (Will anyone who possesses a plant of so-called *O. carnosa* with leaves violet below kindly inform us?)

Since Molina's original account of *O. carnosa* had no connexion whatever with *O. megalorrhiza*, it may well be asked how the name ever came to be misapplied. The usage stems from a plate and description by Lindley in the *Botanical Register* (1827), closely followed by one in *Curtis's Botanical Magazine* (Hooker, 1828), which both clearly portray the species under discussion. Lindley states that there is no doubt that his plant is the *O. carnosa* of Molina; but how he reached this firm conclusion is not clear, for he does not refer to Molina's publication but merely cites "O. carnosa, *Molina*." (his own quotation marks), indicating that the plant had been named by someone else. Now Molina's

species no. 2, immediately following *O. carnosa*, is *O. megalorrhiza*. It seems possible that the namer of the plant had written down the name of the species no. 1 (*O. carnosa*) as a slip for the next one. Molina's book is much less accessible than the *Botanical Register*, and it is clear that later monographers, including Reiche and Knuth, never bothered to consult the original description, but relied on Lindley's. Thus Reiche (1894) cites "*O. carnosa* Molina in Lindley". C. Gay (1845) in his *Flora Chilena* gives descriptions, differing but little, under both *O. carnosa* and *O. megalorrhiza*. It seems unlikely that he really knew two different taxa. Knuth (1930) in his monograph of *Oxalis* cites *O. megalorrhiza* Jacq. with a query under "*O. carnosa*", but Macbride (1949) in his *Flora of Peru* adopts Jacquin's name with *O. carnosa* Molina as a synonym.

A true synonym for *O. megalorrhiza*, also based on Feuillée's plant, but antedated by Jacquin's name, is *O. bicolor* Savigny (1797, *Encycl. Méth., Bot.*, **4**, 687). The epithet *Carnosae* for the section containing *O. megalorrhiza* is not affected.

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—J. E. DANDY and D. P. YOUNG.

188. CYTISUS L. Although a number of authors recognise to-day the genus *Sarothamnus* Wimm. as distinct from *Cytisus*, neither Briquet (1894) nor Rothmaler (1944), the most recent reviewers of the group, has been able to maintain the distinction. The single character which serves to separate the taxa is the inrolling of the long style in *Sarothamnus*, but even this is not unambiguous. At least one hybrid is known between *Cytisus* and *Sarothamnus* (not that this necessarily militates against generic recognition) and one species, *C. commutatus* (Willk.) Briq. was placed in *Cytisus* sect. *Sarothamnus* by Briquet and in sect. *Corothamnus* (Koch) Nyman by Rothmaler! In this species the style is scarcely inrolled and the calyx is that of *Cytisus* sect. *Corothamnus* not sect. *Sarothamnus*. Vicioso (1955) however retains the species in *Sarothamnus* which he recognises as a separate genus.

For those who like myself are unable to accept *Sarothamnus* as a genus distinct from *Cytisus*, the correct name of the British species under *Cytisus* is *C. scoparius* (L.) Link. A new combination is given below for the well-known prostrate maritime form which occurs in a small number of localities in the British Isles, Channel Islands and other parts of Europe.

Genista scoparia var. *maritima* Rouy, 1897, in Rouy & Fouc., *Fl. Fr.*, **4**, 204.

Cytisus scoparius subsp. *maritimus* (Rouy) Heywood, **comb. nov.**

Sarothamnus scoparius var. *prostratus* C. Bailey, 1868, *Mem. Lit. Phil. Soc. Manchester*, Ser. 3, 3: 285.

Sarothamnus scoparius subsp. *maritimus* (Rouy) Ulbrich, 1921, *Mitt. Deutsch. Dendrol. Gesellsch.*, 135.

Sarothamnus scoparius subsp. *prostratus* (C. Bailey). Tutin, 1952, in Clapham, Tutin & Warburg, *Fl. Brit. Is.*, 416.

Details of the synonymy are given by Tutin (1955). This name may cover both genetically dwarf forms and phenotypic modifications, and a full investigation is being undertaken at Liverpool by Heywood, Sheppard & Walker.

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—V. H. HEYWOOD.

527. CHAMAEMELUM Mill. The genus *Chamaemelum* is represented in the British flora by *C. nobile* (L.) All. which is frequently included in the genus *Anthemis*. Cassini (1818) first recognised the genus (as *Ormenis* Cass.) as distinct from *Anthemis* and this was confirmed by Schultz Bipontinus (1854, 1860) in his classic work on the taxonomy and carpology of the Chrysanthemineae. More detailed carpological studies were published by Briquet (1916) who clearly distinguished *Ormenis* from *Anthemis* in volume 6 of Burnat's *Flore des Alpes Maritimes*. The recent embryological researches of Harling (1951) reinforce the separation of the two genera.

The principal differences between the two genera are in the structure of the cypsela and are shown in the table.

ANTHEMIS	CHAMAEMELUM
Cypsela with at least 10 ribs; anterior-posteriorly compressed, if at all.	Cypsela without ribs, laterally compressed.
Myxogenic cells of the epicarp (when present) localised on the ribs or on the verrucosities of the ribs.	Myxogenic cells equally scattered over the whole surface of the epicarp.
Fibrovascular bundles in the cypsela as many in number as the ribs.	Fibrovascular bundles 3, in the mesocarp on the posterior surface of the cypsela.
Plane of symmetry of the embryo coinciding with the plane of symmetry of the ovary and flower. Cotyledons transverse.	Plane of symmetry of the embryo perpendicular to the plane of symmetry of the ovary and the flower. Cotyledons anterior-posterior.

Ormenis is currently accepted by many European and North African writers. The correct name for the genus, however, appears to be *Chamaemelum* Mill. Although the generic name *Chamaemelum* has been widely employed in different senses, the first valid publication is by Miller, and it should be typified by Chamomile, that is, the species known today as *C. nobile* (L.) All.

Chamaemelum [Tourn.] Mill., 1754, *Gard. Dict. Abridg.*, ed. 4; Druce, 1913, *Rep. Bot. Exch. Club. Brit. Isles*, **3**, 430.

Ormenis Cass., 1818, *Bull. Soc. Philom.*, 167; Briquet, 1916, in Burnat, *Fl. Alpes Marit.*, **6**, 138.

Typus: *C. nobile* (L.) All., 1785, *Fl. Pedem.*, **1**, 185.

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V. H. HEYWOOD.

533. CHRYSANTHEMUM—PYRETHRUM—LEUCANTHEMUM—TANACETUM. British botanists since Bentham and Hooker have adopted what appears a rather illogical attitude to the classification of this group, as Briquet forcefully pointed out in 1916.

As in the case of *Anthemis* and *Chamaemelum*, Schultz Bipontinus was the first to draw attention to the importance of the anatomical characters of the cypsela in the classification of this group of Compositae. Briquet's intensive work on the carpology, floral morphology and anatomy of the Chrysanthemineae using modern techniques put the results on a firm foundation.

Bentham united *Pyrethrum* and *Leucanthemum* with *Chrysanthemum*, but kept *Tanacetum* as a separate genus. Briquet said of this "if they had in their emendation of the genus (Chrysanthemum) arrived at a natural group clearly distinguished from its neighbours their work would have been justified but this was unfortunately not the case. The synthesis was often illogical for Bentham generically separated *Tanacetum* from *Chrysanthemum-Pyrethrum*, a quite impossible and artificial state of affairs . . . ."

Briquet showed how *Chrysanthemum* is at once separated from the other groups by its heteromorphic cypselas and the anterior-posterior orientation of the embryo. He also distinguished between *Tanacetum* and *Leucanthemum* as independent genera, differing mainly in characters of the cypsela. His classification has largely been ignored even by Continental botanists (largely I feel because it was first made public in what is essentially a local Flora, Burnat, *Flore des Alpes Maritimes*, vol. 6) but it has been taken up by Hayek, Rechinger, Maire, Rothmaler, Font Quer and others. The most frequent classification adopted in this group is that of O. Hoffmann, 1897 (in Engler & Prantl, *Nat. Pflanzenfamilien*, IV, 5, who included *Pyrethrum*, *Leucanthemum* and *Tanacetum* in the genus *Chrysanthemum*.

The present position represents two extremes—the 'Briquet-Tanacetum' school in which *Pyrethrum* is a section of a large *Tanacetum*

genus, whereas *Chrysanthemum* is a small separate genus; and the 'Hoffmann-Chrysanthemum' school in which *Pyrethrum* is a section of a large *Chrysanthemum* genus, as is *Tanacetum*. In the former *Chrysanthemum* is a very small, more or less natural genus; in the latter it is a very large and heterogeneous one.

Most students of the group are now agreed that *Pyrethrum* and *Tanacetum* are only sectionally distinct, so that to keep *Tanacetum* as a separate genus from *Chrysanthemum* including *Pyrethrum* and *Leucanthemum* is untenable.

More recently Harling (1951, *Act. Hort. Berg.*, **13**, 1-56) has published important embryological studies in this group which lend considerable support to Briquet's classification. He prefers, however, to follow Hoffmann in according the genus *Chrysanthemum* a wide circumscription.

My own studies (Heywood, 1954, *Anal. Inst. Bot. Cavanilles Madrid*, **12**, 313-377) have shown how *Leucanthemum* and *Tanacetum* are linked to some extent by the subsection *Leucanthemopsis* of *Tanacetum* sect. *Pyrethrum*. In a recent paper (1958, in Press) I have proposed a number of changes in Briquet's classification, concerning particularly the genus *Leucanthemum*, but these do not affect the group as represented in the British flora.

The formal citation of the British species follows, and the differential characters of the groups are outlined in the accompanying key.

A. Cypselas homomorphic. Embryo with transverse cotyledons.
  I. Cypselas with 5-10 ribs projecting little; no myxogenic cells (except Subsect. Leucanthemopsis). Embryo-sac 4-sporic ..... TANACETUM
    a. Ray flowers ligulate, rarely 0, white, yellow or purplish; heads relatively large ..... Sect. Pyrethrum
      1. Leaves without epidermal glands in small pits; cypselas without secretory canals or myxogenic cells ..... Subsect. Pyrethrum
      2. Leaves with epidermal glands in small pits; cypselas with secretory lacunae but without myxogenic cells ..... Subsect. Cinerariifolia
      3. Leaves without epidermal glands in small pits; cypselas sometimes with probably secretory lacunae and frequently with mucilaginous cells ..... Subsect. Leucanthemopsis
    b. Ray flowers all tubular, yellow; heads relatively small; leaves with epidermal glands in small pits ..... Sect. Tanacetum

II. Cypselas with 10 micropterous ribs, bearing epicarpic myxogenic glands, with deep valleculae each enclosing a voluminous secretory canal. Embryo sac monosporic ..... LEUCANTHEMUM

B. Cypselas heteromorphic—those of the rays triquetrous, often with winged ribs; those of the disc cylindrical. Embryo anterior-posterior ... CHRYSANTHEMUM

CHRYSANTHEMUM L.
Chrysanthemum segetum L., 1753, *Sp. Pl.*, 889.

LEUCANTHEMUM Mill.
Leucanthemum vulgare Lam., 1778, *Fl. Fr.*, **2**, 137.

TANACETUM L. Sect. *Pyrethrum* subsect. *Pyrethrum* (Zinn) Heywood, 1956.
Tanacetum parthenium (L.) Schultz Bip., *Tanac.*, 55 (1844).
Sect. *Tanacetum*.
Tanacetum vulgare L., 1753, *Sp. Pl.*, 844.

V. H. HEYWOOD.

642/2. ORCHIS MILITARIS L. Druce in his *Flora of Oxfordshire* states that he had seen *O. militaris* from Kent. A search of the Druce Herbarium at Oxford revealed two specimens named as this species, originating from "near Deal, Kent, May 22, 1910", the collector's name being unfortunately illegible*. As this locality is so far from the known area of distribution of the species in Britain, permission was obtained for the sheet to be taken to Kew for a thorough examination.

Both specimens are in full flower with some swelling of the ovaries, suggesting that fertilisation may have taken place. The sepals show a pink or reddish coloration similar to that shown by other specimens of undoubted *O. militaris* (not from Kent) on the same sheet, while the deep blackish colour characteristic of *O. purpurea* Huds. is wholly lacking. But in each flower that was examined, or was easily visible on the plants, the labellum was found to be deformed, the two basal lobes ("arms") being well developed, while the remainder is much shortened and reduced to an irregular, more or less ovate, simple structure shorter than the basal lobes. Examination of this portion revealed several veins of which the lateral diverge markedly and terminate on the margins. This is in agreement with the divergent veins of the broad middle lobe of *O. purpurea*, but differs from the arrangement in *O. militaris* where the narrow mediastin contains 3 more or less parallel veins.

*When Druce first published the record in July 1910 (*J. Bot.*, **48**, 188) he stated that the specimen was sent by G. W. Harris, and indicated doubt about the identification. When the record next appeared (*Rep. Bot. Soc. & E.C.*, **2**, 521) it was given as "W. Harris, in lit." (sic), and there was no mention of a specimen.—J. E. LOUSLEY.

Although it is often dangerous to try to draw conclusions from abnormal specimens it appears from the venation of the labellum that the plants are abnormal examples of *O. purpurea* Huds., into whose British distribution the occurrence easily falls. The pale colour on drying, which is not usual in this species, might well be another aspect of the evident abnormality present. It is worth noting that there is a specimen in the Kew Herbarium, collected near Dover by Mr. J. Jacob, which shows the same type of abnormality in the labellum but in which the flowers have dried to the usual dusky colour.—R. A. GRAHAM and V. S. SUMMERHAYES.