

An Account of the Sempervivum Group

von
Lloyd R. Praeger

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Lloyd R. Praeger

An Account of the *Sempervivum* Group



J. Cramer

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AN ACCOUNT OF THE SEMPERVIVUM GROUP

by

L. P. PRAEGER



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An Account of the Sempervivum Group

R. Lloyd Praeger

Front cover: *Sempervivum tectorum*
left: Lithograph from the turn of the 20th century (unknown),
right: from page 66 of this work.

Back cover: Details of *Sempervivum tectorum*:
Left and center: *S. tectorum* var. *alpinum*,
right: *S. tectorum* var. *tectorum*,
from page 66 of this work.

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AN ACCOUNT OF THE SEMPERVIVUM GROUP

By R. LLOYD PRAEGER, D.Sc.

PART I. GENERAL.

I. PRELIMINARY.

IN prefacing an account of part of the genus *Sedum* a few years ago * I wrote : " It is doubtful if any genus of plants which is widely cultivated is in such a confused state in our gardens and horticultural books as is the genus *Sedum*." This remark might be applied with even greater justice to the allied genus *Sempervivum*, whether we use the name in its wide Linnaean sense, or in its more restricted application. This confusion in the European *Sempervivums* is to be imputed partly to a general generic resemblance among the different members, but chiefly it must be laid at the door of a single widely spread species, *Sempervivum tectorum*, which not only exists upon the European mountains in a large number of forms [for France alone nearly fifty subspecies, varieties and forms are segregated in ROUY and CAMUS' *Flore de France* (1, 1901)], but in both the native and cultivated states hybridizes freely with its allies, producing much confusion. In the largest British collections of hardy *Sempervivums* which I have examined (numbering over 100 named "species") more than half the names were attached to forms and hybrids of *S. tectorum*. In the extensive Canarian section of *Sempervivum* (in its wide sense), confusion is equally great, arising partly from the species being less known (though generally more distinct) than the European forms, and partly from the fact that they too hybridize freely. In some of the Botanic Garden collections of Canarian *Sempervivums* which I have examined, as many as one-half consisted of garden hybrids of unknown and uncertain parentage, but bearing a brave display of specific names. For the confusion existing in gardens, the gardeners have mainly themselves to blame ; instead of distributing offsets or cuttings (which in this group are mostly produced freely, are most tenacious of life, and can be dispatched to great distances without loss), and thus ensuring specific continuity, it is the practice to collect seed, and seed

* PRAEGER, R. Ll., " An Account of the Genus *Sedum* as found in Cultivation," *Journal R.H.S.*, 46, p. 1 (1921).

in this group is seldom pure. One has only to raise seedlings of almost any species of *Sempervivum* sent out by any European Botanic Garden to prove that this statement is not an exaggeration.

Again, as in *Sedum*, offsets easily get adrift. This applies particularly to the European *Sempervivums*, and in gardens the result is constantly seen in the clumps composed of several different plants which claim to represent a single species.

A third source of error, in this instance among botanists rather than gardeners, arises from the difficulty of drying these very succulent plants. Much herbarium material is of little assistance in the naming of species. To this may be added the fact that few of the original descriptions give any comparative notes as between the species described and their nearest allies; and as a strong family likeness pervades the group, discrimination often remains difficult.

In such circumstances, the use of living material, full descriptions, comparative notes, and figures acquires a special value, and in the following pages I have used all of these aids to the greatest possible extent. Also, garden plants and dried specimens being so unsatisfactory, I have resorted to native living material so far as opportunity served, and have drawn the descriptions and figures which follow mainly from large collections made in Switzerland, North Italy, Tirol, the Balkans, the Canary Islands, Madeira, &c. Even by collecting the species in their native habitats, sources of error are by no means avoided, since (especially among the European *Sempervivums*) natural hybrids abound, and one has carefully to study the plants *on the ground* before one can feel sure that one has secured a pure strain of any species. The emphatic remarks of BURNAT on this subject * will be endorsed by all who have practical experience among these plants.

It is only fair to add that the difficulties of identifying *Sempervivums* have often been exaggerated by writers. Some would almost have us believe that differences of soil and aspect can cause one species to change into another. *Sempervivums* are just like other plants in their response to their environment. In the garden, as in nature, they will grow large or small, lax or dense, red-leaved or green-leaved, according to soil and situation. But these superficial characters are not those by which the plants can be diagnosed, though they have their value. It is to the critical characters of each species which we must appeal if we hope to name them correctly.

Since the present volume is issued by a horticultural society and primarily for the benefit of its members, I have kept the requirements and difficulties of the gardener in view throughout, especially as regards the much grown and much confused hardy section. For the same reason I have avoided technical terms as much as possible.

In groups such as the *Sempervivums* the horticultural aspect assumes great importance, since succulent plants like them will never properly be worked out from herbarium material, on account of the

* BURNAT, *Flore des Alpes-Maritimes*, 4, pp. 35-36.

difficulty of drying them satisfactorily. Where species are variable and hybridization rampant, as in this group, prolonged field-work and cultivation alone will lead to reliable results. In the present instance, by growing all the plants for at least several years under similar and uniform conditions, and observing them at all seasons, it is hoped that error has been reduced to a minimum.

If the publication of this account and the distribution of correctly named plants which has accompanied it have any effect in the way of improving the nomenclature of the Sempervivums in gardens, and assisting towards a better knowledge of them, it is to be hoped that care will be taken to maintain pure strains by the use of cuttings and offsets, not seeds, for propagation and exchange.

II. SYSTEMATIC.

Among the genera of Crassulaceae, Sempervivum and its segregate genera are distinguished by possessing free carpels (thus cutting off Diamorpha, Penthorum, and Triactina, in which the carpels are united half-way up or more), stamens twice as numerous as the petals (cutting off Tillaea, Dinacria, Crassula, Gammathes, and Rochea, in which the stamens equal the petals in number), free petals [cutting off Bryophyllum, Kalanchoe, Cotyledon, and Sempervivella, in which the petals are usually united half-way up or more (in Sempervivella much less)], and flowers not to many-parted (cutting off Sedum, in which the flowers are usually 5-parted).

As in most genera of Crassulaceae, Sempervivum (using the term in either its wide or its restricted sense) is not very clearly defined as to its boundaries, either botanical or geographical. While across Europe it forms a well-marked group of small rosulate plants, the Himalayas yield one or two species of similar facies, intermediate in character between Sempervivum and Sedum, which appear best placed in the latter genus, or at least not in Sempervivum; and a couple of others with affinities to Sempervivum and Rosularia (formerly a section of Umbilicus) which have recently been placed in a separate genus, Sempervivella.

In Africa, and particularly in the Canary Islands, where the group is developed to a striking degree, evolution has proceeded on different lines, and Sempervivum is represented by a series of sub-shrubs and annual or biennial herbs, as well as by a few low tufted perennials recalling, in habit at least, the species which colonize the mountains of Europe. These have been placed by WEBB and BERTHELOT in three separate genera, Aichryson, Aeonium, and Greenovia. Centred also in the Canaries is the related group Monanthes, differing from the rest of the Sempervivum-complex in its growth-form and especially in the large size and curious shape of its hypogynous scales, but in other respects conforming to the general definition of Sempervivum, in which it was originally placed.

In Morocco are two plants which occupy a position between *Monanthes* and *Sedum*, but appear better placed in the latter genus as *Sedum atlanticum* and *S. Jaccardianum*.

In Abyssinia is another anomalous plant, *Sempervivum abyssinicum* of Hochstetter, which has been referred to *Sedum* by HAMET; more recently BERGER has created a new genus, *Hypagophytum*, to receive it.

Similarly *S. simense* of Hochstetter, from Abyssinia, has been made over first to *Umbilicus* or *Cotyledon*, and lastly to a new genus *Afrovivella*.

The botanical characters of the various segregate genera of the *Sempervivum* group conform so well to their geographical range, that they can conveniently be grouped in two categories :

1. HARDY SEMPERVIVUMS, consisting of *Sempervivum* proper [*Eusempervivum* (European and one African) and *Jorisbarba* (European)].

2. TENDER SEMPERVIVUMS (*Aichryson*, *Aeonium*, *Greenovia*, *Monanthes*, all belonging to Africa and the Atlantic islands, and all mainly or exclusively Canarian).

Not only are the genera of the *Sempervivum*-complex somewhat ill-defined, but the species in some of these genera also approach each other so as often to render identification difficult. And the species themselves are by no means constant; almost any character may vary, rendering exact description to some extent futile. In some, the leaves vary widely in shape; in colour they may be glaucous or green, purple-tipped or colourless; and in some of the *Aeoniums* the characteristic saw-like ciliation of the leaf-margin may be present or absent. The size, both actual and relative, and in many cases the number also of calyx-segments, petals, stamens, hypogynous scales and carpels is seldom constant,* so that one has either to give average dimensions which may be considerably exceeded or the reverse, or to give maximum and minimum measurements, which renders comparison with other species difficult.

The *Sempervivum* group displays in a marked degree the succulence which is so characteristic a feature of the *Crassulaceae*, and with few exceptions they are able to endure intense drought. The thickest leaves, relative to breadth, occur in some of the species of *Monanthes* (e.g. figs. 102, 105, 107): but this is almost equalled in dry-grown examples of some of the section *Goochia* of *Aeonium* [e.g. *A. Lindleyi* (fig. 89), *A. viscatum*]. The actual extreme of succulence is found in *A. nobile*, whose leaves may attain a thickness of half an inch (12 mm.); this is a plant of very hot dry rocks. Almost the whole *Sempervivum* group, indeed, consists of plants of dry rocks. The most marked exceptions are found in *Aichryson*, of which genus several species

* See, for instance, the figures of the parts of the flower in *Sempervivum arenarium*, *S. grandiflorum*, *Aeonium Castello-Paivae*, *A. ciliatum*, *A. tabulaeforme*, and others.

*Weber Alp.-Pfl., ed. 3, 2, 155; *Seboth Alpine Pl. 2, 32; *Schlechtendal etc. Fl. Deutschland, ed. 5, 2654; *Heathcote Fl. Engadine 88; *Reichenbach Icon. Fl. German. 23, 69; *Hartinger Atlas Alpenfl. 3, 213; *Hoffmann Alpine Fl. 16; *Flahault Nouv. Fl. Alpes et Pyrén. 2, 45; *Thompson Alp. Pl. Europe 22; *Hegi & Dunz. Alp. Fl. 13; *Penzig Fl. Alpi Illustr., ed. 2, 16.

This handsome plant is of *tectorum*-like aspect, especially in its quite smooth rosette-leaves, but these leaves are fewer, the younger ones being usually gathered into a large closed conical bud, and they are of a glaucous or greyish-green hue, without purple tips, but with a rosy-purple base. In bloom the yellow flowers at once separate it from *tectorum*. The long and stout stems of its offsets are also characteristic.

DESCRIPTION.—Rosettes large, 8 (5 to 9) cm. across, *tectorum*-like open, but with the younger leaves mostly gathered into a large erect conical or bulb-like bud. Offsets few, strong, on unusually stout at first leafy stems up to 10 cm. long and 4 mm. thick. Leaves greyish-green, 2 to 4 cm. long, 1 to 1.5 cm. broad, smooth on face and back, oblong-spathulate, strongly cuspidate, tapered downwards, often broadened at the extreme base, tip not purple, basal portion rosy-purple. Cilia glandular, strong, patent, sometimes erect. Flowering stem glandular-hairy, especially above, about 20 (10 to 30) cm. high, clothed with rather spreading clasping hairy ciliate deltoid-ovate acute leaves of rather uniform size about 1.5 cm. long and 1 cm. broad. Inflorescence glandular-hairy, compact, flattish, of about 3 short branches. Bud closed, pointed. Flower 12- to 15(-18) parted, stellate, about 2.5 cm. across. Calyx green, glandular-hairy, 6 mm. long, cut $\frac{3}{4}$ -way down into lanceolate acute segments, sometimes purple-tipped. Petals linear-lanceolate, acuminate, 9 to 11 mm. long, concave transversely, glandular-hairy on back, edges, and upper part of face, yellow or greenish-yellow, purple at base. Stamens 5 mm. long, filaments tapered, glandular-hairy, purplish or purplish-green to red, anthers yellow. Scales quadrate, small, 0.25 mm. long, 0.5 mm. broad. Calpel green, ovaries glandular-hairy inside and outside, 2 mm. long, styles 2 mm. long. Fl. July–August.

HABITAT.—Austrian and Swiss Alps. Rather rare.

A rare plant in cultivation, partly, no doubt, because it is a rather shy grower; it increases but slowly, and seldom blooms. In nature however, though a slow grower, it sometimes makes large clumps. One in the Hohe Tauern (German valley) measured 15 inches across and included a hundred rosettes. Among the yellow-flowered *Eusempervivums* it is the only one with smooth leaves; all the rest are hairy. Alone among the yellow-flowered species, the petals turn green when dried.

Named after Franz Xaver, Freiherr von Wulfen (1728–1805), who first named it (as *globiferum*).

Hybrids between this species and *S. arachnoideum*, *S. tectorum* and two forms of *S. montanum* occur in nature, also a triple hybrid, *arachnoideum* $\times$ *montanum* $\times$ *Wulfenii* (see pp. 40, 43, 48, 72).

Section JOVISBARBA Mertens & Koch.

SYNONYMY.

Jovisbarba Mertens & Koch Deutschlands Fl. 3, 389 (1831).

Jovibarba Opiz Seznam 54 (1852) (as genus) (not of De Candolle Prodromus 3, 413, which includes both *Eusempervivum* and *Jovisbarba*).

Diopogon Jord. & Fourr. Breviarium Pl. Nov. 2, 46 (as genus) (1868).

Dipogon Farrer Engl. Rock Garden 2, 351 (1919).

Calyx-segments, petals, scales and ovaries 6 to 7. Petals erect, fringed, pale yellow.

19. *Sempervivum Heuffelii* Schott (fig. 31).

SYNONYMY.

Sempervivum hirtum Sibthorp & Smith Fl. Graec. Prodromus 1, 334 (1806)
(not of Linnaeus, Jacquin, Allioni, Sternberg, nor of Wimm. & Grabowski,
see p. 97).

S. Heuffelii Schott in Oesterr. Bot. Wochenblatt 2, 18 (1852).

S. patens Grisebach & Schenk in Wiegmann Archiv 18, i, 315 (1852).

S. Brassaii Schur Enum. Pl. Transsilvaniae 229 (1866).

Diopogon Heuffelii Jord. & Fourr. Breviarium Pl. Nov. 2, 47 (1868).

D. stramineus Jord. & Fourr. l.c.

Sempervivum stramineum Baker in Gard. Chron. 1874, ii, 104.

S. kopaonikense Pančić Fl. Princ. Serbiae 314 (1874); and Elem. Fl. Bulg. 30
(1883).

S. Reginae-Amaliae Baker in Gard. Chron. 1877, ii, 230, and of garden
(not of Heldreich & Sarnthein ex Boissier Fl. Orientalis 5, 176 =
Schlehanii, see p. 59).

S. hirtum L. subsp. *patens* Stojanoff & Stefanoff Fl. Bulgarie 546 (1904).

REFERENCES.—Schott l.c.; Griseb. & Schenk l.c.; Jord. & Fourr. l.c.;
Schur l.c. 229; Baker in Gard. Chron. l.c., also 1874, ii, 104 and 1875, ii, 428;
Boissier Fl. Orientalis 2, 797; Halaczy Consp. Fl. Graecae 1, 580; Velenovsky Fl.
Bulgariae 188; Hayek Prodr. Fl. Penins. Balcan. 621.

FIGURES.—*Jord. & Fourr. l.c. Fl. Europae, fig. 193 (as *Diopogon stramineum*);
*Regel Gartenflora t. 858, fig. 2; Rümpler & Schumann Sukkulenten 63 (as
Reginae-Amaliae).

When in bloom, this otherwise *tectorum*-like plant is at once relegated to the section *Jovisbarba* by its narrow yellow few-petalled flowers. Among the members of this section it is easily distinguished by its solid *tectorum*-like rosettes, and among both its allies and the members of the *Eusempervivum* group it is distinguished by the absence of even shortly stalked offsets, the new growths being sessile, and usually arising from the symmetrical splitting up of the parent rosette into two or more equal rosettes.

DESCRIPTION.—A medium or large puberulous or glabrous plant with rosettes resembling *S. tectorum*. Rosettes of 30 to 40 leaves, about 5 to 7 (3 to 12) cm. (1 to 5 inches) across, flattish, expanded. Branches arising not as offsets, in the manner of the other hardy species, but by the dividing of the rosette into two or more, mostly of equal size; in consequence the rootstock becomes very thick and shortly branched or lobed (fig. 31, A). Leaves varying much in size and colour, oblong-obovate, very acute, tapering slightly to a broad base, about 4 (2 to 6) cm. long by 12 (10 to 15) mm. wide, flat on face, convex on back, light or dark green, or glaucous, with or without a brown-purple tip, finely glandular pubescent (in the type) on face and back, densely ciliate on margin with stiff deflexed white hairs. Flower-stem 10 to 20 cm. high, glabrous or finely glandular-pubescent, clothed with broad-based clasping lanceolate acuminate ciliate purple-tipped leaves 1 to 3 cm. long. Inflorescence of three dichotomous branches, dense, flattish, 4 to 6 cm. across. Buds oblong-lanceolate, very blunt. Flowers 6- to 7-parted, narrow, 12 to 15 mm. long. Calyx deeply cup-shaped, 6 to 10 mm. long, cut $\frac{3}{4}$ -way down into linear-lanceolate acute greenish-yellow often red-tipped glandular-pubescent strongly linear erect segments. Petals erect, tips sometimes spreading, pale yellow or yellowish-white, 11 to 12 mm. long, 5 mm. broad at base, oblong, expanded and rounded at apex, ciliate and sometimes slightly fimbriate on the edges and on the strong keel, glandular-pubescent on back, mostly with three cusps at apex. Stamens 7 to 8 mm. long, filaments lightly hairy below, pale yellow, anthers roundish, deep yellow. Scales quadrate-rounded, greenish, 0.6 to 0.75 mm. long and broad. Ovaries 5 mm. long, slender, lightly hairy, greenish, styles 2 mm. long. Fl. August, and in the garden at various times.

HABITAT.—South-eastern Europe, widely distributed, as far south as Greece (Hayek).

M. microbotrys Bolle in Bot. Jahrb. 14, 240 (*Petrophytes microbotrys* Bolle and Webb ex Bolle in Bonplandia 7, 245), from Pico de la

Zarza in the Handia mountains of Fuerteventura, is difficult to determine. The description (which, as usual with Bolle's otherwise excellent work, is unaccompanied by any note as to the respects in which his plant differs from its nearest allies) contains very little to distinguish it from *M. laxiflora* or one of the hybrids of that species. Bolle writes to Hooker [Hooker Jour. n. Bot. 5 (1853), 21] that four species of *Monanthes* occur in the Handia cliffs, but he does not name them. Later (Bot. Jahrb. 14) he reduces this number to three, including *M. microbotrys*, which he describes. I saw there only a peculiar small form of *laxiflora* (f. *minor* supra), a species not referred to by Bolle as growing on Fuerteventura; but my time was limited. If his statement as to the occurrence of additional species there is correct, the chance of a hybrid is considerable, as the species of this genus cross freely. Bolle did not know *Monanthes* very well, as is shown in his *Exsiccata*, among which several are misnamed. Till we know more about the Handia species, *microbotrys* is best under *laxiflora* as a variety or more likely a hybrid. I would place it directly under *laxiflora* were it not that Bolle and Webb must have known that widespread species well—though possibly they did not realize the wide range of variability which it displays. Bolle states that in habit *microbotrys* approaches *muralis*, which is true of *M. laxiflora* f. *minor*.



FIG. 103.—*MONANTHES LAXIFLORA*
Bolle.

Burchard (Kanarenpflanzen 144) records *microbotrys* from Fuerteventura and Lanzarote under the name *M. laxiflora* var. *microbotrys*.

M. laxiflora × **pallens** Praeger 1929 494.FIGURE.—*l.c.* fig. 32.

DESCRIPTION.—Habit of *laxiflora*, but differs in its crowded alternate flattish leaves broadest near the apex (not rather distant, opposite, channelled, broadest in the middle), and in its branched (not simple) inflorescence, larger flowers and narrower petals. From *M. muralis* it differs in its non-shrubby habit, longer stems, leaves, and inflorescence, more cuneate smooth leaves, etc.

HABITAT.—Teneriffe, in the Anaga region; Gomera, near Hermigua: always with the parents.

In western Teneriffe, where the form of *pallens* prevailing is var. *silensis* Praeger, a different form of the hybrid occurs, having the habit of *laxiflora* but smaller in all its parts—5 cm. high, stem much branched, leaves loosely rosulate, with the grey-green colour of var. *silensis*, inflorescence as in *laxiflora* but few-flowered. This form of the hybrid looks much like a small grey *laxiflora*.

M. laxiflora also crosses with *anagensis* (see p. 238), and with *brachycaulon* (see p. 229).

6. Monanthes anagensis Praeger 1925 210 (fig. 114).REFERENCES.—Praeger *l.c.* and 1920 489.

This *Monanthes* is the largest in the genus, forming little bushes about 15 cm. high. The only other shrubby species is *M. muralis*, but it is only half that height and its leaves are quite different, being very crowded, rhomboidal-obovate, pillose, and 0.5 to 1 cm. long, while in *anagensis* they are laxly spaced, linear-elliptic, quite smooth, and 1.5 to 2 cm. long. When stunted it somewhat resembles *M. laxiflora*, but differs from any form of that variable species in its distinctly shrubby habit, alternate (not opposite) longer and narrower leaves which are green, red or purplish, never grey, and ovoid buds, the buds of *laxiflora* being broader than long.

DESCRIPTION.—A small erect, glabrous, much-branched subshrub, up to 15 cm. high and wide. Roots fibrous. Branches grey, tortuous, bare save near the apices (more leafy in cultivation). Leaves alternate, not rosulate, sessile, glabrous, linear-elliptic (or in cultivation linear), rather blunt, subterete, flattish and channelled on face, about 1.5 cm. (in cultivation up to 2.5 cm.) long, 4 mm. broad, 3 mm. thick, green, in exposure red or purple. Inflorescence pseudo-terminal, 2- to 6-flowered, racemose, pedicels glabrous, filiform, up to 2.5 cm. long. Buds broadly ovoid. Flowers 7-parted, 1 cm. across, greenish-yellow. Calyx glabrous, cut half-way down into deltoid subacute segments. Petals deltoid-lanceolate, acute, 4 mm. long, greenish-yellow with a reddish nerve. Stamens nearly equalling the petals, filaments reddish, anthers yellow. Scales 1 mm. long, 1.5 mm. broad, narrow below, expanded above into two subcircular scabrid pale green lobes. Carpels 2.5 mm. long, the short styles at first erect, later divergent. Fl. May–June.

HABITAT.—Canary Islands: Teneriffe, abundant along the watershed of the Anaga Mountains, 2000 to 3300 feet, on rocks, and at Taganana, 300 feet.

This plant when not in flower has a great look of *Sedum fusiforme* of Madeira. Burchard suggests (*Kanarenpflanzen* 144) that it is

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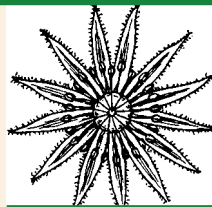


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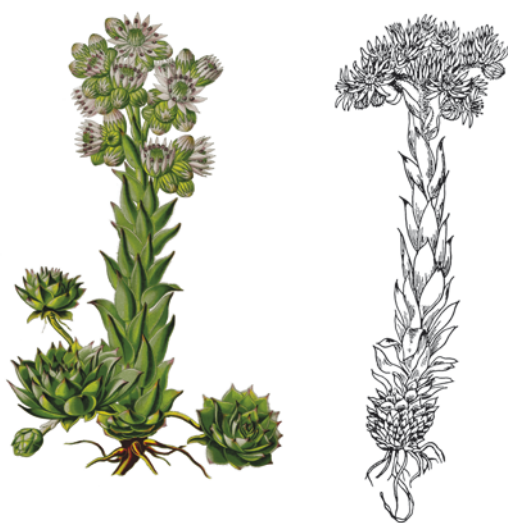
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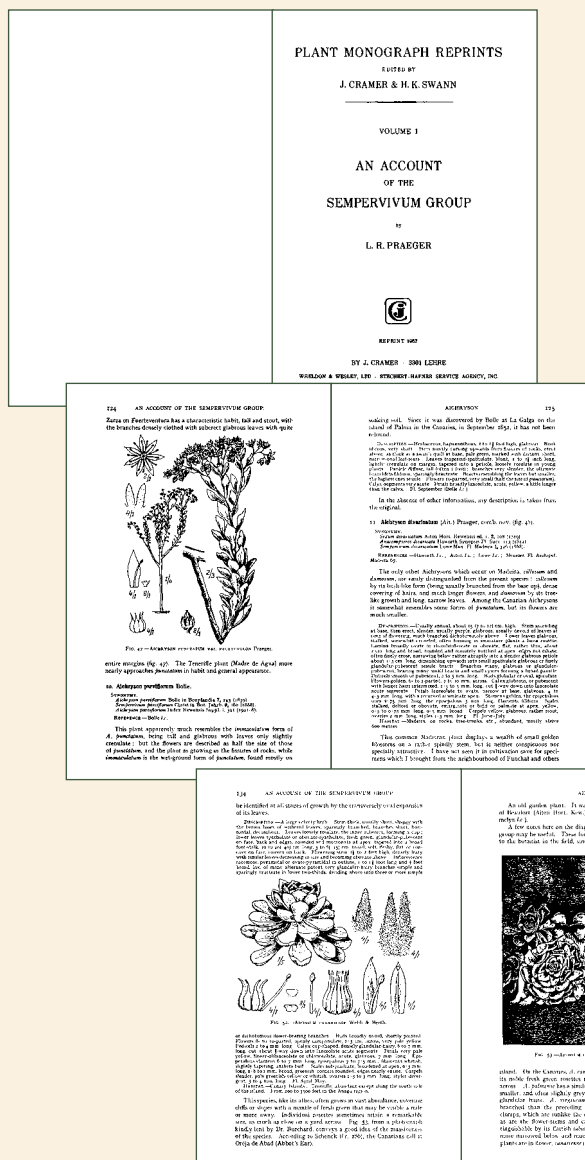
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