President's Message

It is with great pleasure that I welcome our new editor, Richard L. Critz, and this his first issue. I am sure he will be an asset to the Primrose Society. An editor cannot and should not do all the writing. He needs timely articles about Primula and Society activities. There is no better source than our members with their varied experience and knowledge. Do not be afraid to record your experience and send it to the editor. If a special article is requested, do it promptly for the benefit of all members.

In spite of the problems of changing editors and seed exchange directors, the late publication of the summer Quarterly, The A.P.S. is prospering and increasing its membership. We look forward to continued growth.

Here in the Northwest the summer and early fall has been kind to us and our Primroses. I hope our members in other parts have fared well.

With this end of the year issue of the Quarterly I wish all a joyous holiday season and a bright New Year.

Sincerely,

Herb Dickson
A.P.S. President
From The Editor

Greetings, primula lovers! — and let me introduce myself. I'm Richard Critz, the new Editor of Primroses. Carolyn and I live in Rosemont, Pa. (just outside Philadelphia) and are members of the Doretta Klaber chapter, which we helped found some three years ago. I am an architect and a plant lover, both from way back. Some of you will recall that I was Seed Director last year, a post which I was reluctant to give up. But this task is important too, and because I have spent a number of years as Editor of various publications I thought I had best give it a try.

I want to serve all of you, the members of the Society, well, as Editor. But in order to do so I will need to hear from you — from just as many of you as will take the time to write. I want to know about your garden experiences with primulas, what you like and don't like about them, how you treat them and much, much more. I want your suggestions for the magazine. As a starter, how do you feel about the lengthy reprint from Cultivated Species of Primulas? Many knowledgeable gardeners have told me that it is one of their 10 or 15 all-time favorite gardening books. It certainly is one of mine. Do you want the magazine strictly informal (laid back), or would you like to have more formal, more technical information? Write and tell me what you'd like.

Some of you can write. I know — I've seen articles by you, or corresponded with you. Please do not hesitate to send me anything you prepare, and urge the knowledgeable folks in your chapter to do the same. We can only serve you well if you let us know what you want.

Oh, one other thing. The deadline for submission to the Seed Exchange is fast approaching. Please rush everything you can spare to Mrs. Ester Strickland, 2722 E. 84th, Tacoma, WA 98445. We want to have the best Seed Exchange ever this year. And do let me hear from you right away.

Warmly,

Richard L. Critz, Editor

The Cultivated Species of PRIMULA

By
WALTER C. BLASDALE
PROFESSOR OF CHEMISTRY, EMERITUS, UNIVERSITY OF CALIFORNIA
UNIVERSITY OF CALIFORNIA PRESS
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Chapter I — An Introduction to the Genus Primula

The trail which I am asking the reader to follow in these first chapters may call for some effort: its course rises at times rather steeply and there are rough places and boulders of considerable size to be surmounted. It is believed, however, that those who find their way to the point of vantage to which the trail leads will find the panorama there spread before them worth the effort expended. The devotee of the noble art of gardening who is not prepared to enjoy the exhilaration which the study of plants from the scientist's point of view gives him misses a large part of the pleasure...
which his hobby is capable of yielding. Long familiarity with the more obvious features of the plant kingdom begets a certain amount of indifference to the mysteries it presents. If we are to replace this indifference by an aroused curiosity and more appreciative sensibilities, we must seek the needed stimulation through acquaintance with the discoveries and experiences of those whose observations have been less superficial, and whose information is more comprehensive. By way of introduction to the more general point of view, this chapter discusses briefly what we mean by the terms species, variety, genus, and natural family, and how the species of the genus Primula may be recognized and divided into groups which satisfy both practical needs and a discriminating judgment.

To trace through several centuries the progress made by many men of different nationalities in their attempt to arrive at a satisfying conception of the nature of the plant kingdom is an alluring task which can only be hinted at here.

Origin of the concept of the genus. The study of plants, as we now know it, originated as a result of the belief that every variety of plant was created for man's use as a source of food, clothing, or remedies for disease. With the invention of printing from movable type (1438) efforts to catalogue plants, for the purpose of identifying them and associating them with their real or fancied remedial virtues, began to appear in the important centers of culture of western Europe. These so-called "herbals" were at first crude in form and full of superstitions; in time they took the form of ponderous quarto's, illustrated by thousands of woodcuts, in which an attempt was made to portray and describe all the different plants known to their authors.

It is in these herbals that the first records appear of certain of the species of primula which grew naturally in Europe. Primroses and cowslips were too conspicuous and too common in European floras to escape attention. Early in the sixteenth century we find descriptions and figures of both (fig. 1, a and b). Very early, also, there appeared accounts by Matthiolus (1544) of the auricula (fig. 1, d), a succulent species from the mountains of southern Europe, and by de Lobel (1576) of the bird's-eye primula (fig. 1, c) from the mountains of Austria. It is noteworthy that, in spite of the diversity in the general appearance of these four species, these herbalists segregated them from other herbs as though they were related to each other. This appears from the fact that each writer used the same Latin word (Verbaculum, Sanicula, Paralytica, Primula) as the first word of the sentence describing the individual "kinds" of the group concerned and, where more than one of these words were used follow each other consecutively. Hence it seems evident that, even before there was any science of botany, men desired to classify plants on the basis of inherent natural relationships. Their perceptions must have been purely intuitive, for the writers of these herbals had not yet learned to think of plants as structures composed of organs, each having a characteristic form and function, nor had they perfected a terminology by which these organs could be clearly described.

In the works of Caspar Bauhin (1623) we find the first clearly defined notion of the grouping together of kinds, that is, species, of related plants and of associating each group with a "generic" name. Tournefort (1694) first associated these generic names with generic descriptions by combining those characters which were common to all members of each genus. To Bauhin also we owe the invention of the binomial system of nomenclature, that is the replacement of the long descrip-
tive phrase by which each species was defined, by a single word, either a Latin adjective or the genitive form of a noun, thus giving a compound name composed of the word naming the genus and a second qualifying word which named, and to some extent characterized, the species. It remained for the great Linnaeus, the father of systematic botany, to put into effect the suggestions of Bauhin. His monumental work, The Species Plantarum (1753), is now universally accepted as the starting point of systematic botany. In it the hosts of ill-defined and meaningless species and the hundreds of duplicate names, which encumbered the botanical literature of the time, were eliminated and a single binomial name was associated with a concise description of each of the species then known.

The scheme of classification used by Linnaeus was a purely artificial one. Although he worked on a natural system of classification he was never able to complete it to his satisfaction, and believed it was an ideal rather than a realizable possibility. In the work of Antoine Laurent de Jussieu we find the beginnings of a comprehensive system for the natural classification of the vegetable kingdom. His method was to group those genera which clearly exhibited natural relationships into still larger groups, which he called natural families. In his work the genus Primula is associated with twenty-one others to form the family Lysmachiae. Ventenat, in 1799, believed this aggregation too inclusive and eliminated from it all but thirteen of these twenty-two genera. He summarized the characteristics which were common to them and gave the group the name Primulaceae, derived from the genus Primula, because he believed that genus to be the most typical of the family. No important changes have been made in the composition of this family since Ventenat's revision. It includes a number of genera well known to horticulturists, namely Anagallis, Androsace, Cortusa, Dodecatheon, Cyclamen, and Soldanella.

I have sketched briefly the growth of the notion of a species from the cruder idea of kinds, of the grouping of related species into genera, and of related genera into families. Of these three units the species is the most fundamental, yet it still cannot be defined with exactness. It is a concept whose nature varies with the person who makes use of the term. Before the time of Darwin the general concept of a species was that of an aggregate of individuals, each aggregate differing from all other aggregates and between any two of which no individuals could be found whose characters varied continuously. This criterion had to be abandoned with the general acceptance of the theory of evolution. Linnaeus, because of his belief in the immutability of species, found it necessary to associate the primrose, the cowslip, and the oxlip with the same specific name, Primula veris, but owing to the obvious differences between these plants, he assumed there were three different varieties of P. veris, to which he gave the varietal names aculis, officinalis, and elatior respectively, making use of a fourth, smaller aggregate or unit of classification. Many of Linnaeus's varieties are now considered good species and certain modern botanists have continued to narrow the conception of the term species until the differences between the species which they name and describe are too small for anyone who is not a specialist in the genus concerned to recognize with certainty. This is one of the reasons why the pages of botanical literature are burdened with hundreds of specific names which, so far as the average individual is concerned, have but little significance.

The term variety unfortunately has acquired a double meaning. The botanist surrounds the creation of a new variety with the same safeguards as the creation of a new species. He is required either to publish the Latinized varietal name and a complete description showing wherein the variety differs from the typical species, or to file a dried specimen of it in an easily accessible herbarium. The horticulturist, on the other hand, finds it desirable to create new varieties based on characters which the botanist may consider unimportant or ephemeral in nature, such as shades of flower color, size of the plant or certain of its organs, or differences in earliness of bloom or hardiness. They are created largely by plant breeders or seed firms who usually have a financial interest in their creation and are under no restrictions other than those needed to maintain their standing with the gardening public. The new varieties proposed by botanists represent forms which are different in easily recognizable characters, even though these differences are of little or no horticultural interest.

Still another term which is freely used by certain botanists is "subspecies." It applies to plants which, though not entitled to specific rank, differ from other species more than the name variety signifies.

Expanded concept of the genus. The organization of expeditions for the collection of plants, largely initiated through the influence of Linnaeus, became a significant part of the progress of botanical science during the latter part of the eighteenth century. These expeditions brought to light relatively few new species of Primula. It was not until the nineteenth century, when expeditions were able to reach previously inaccessible parts of the Himalaya, western China, and Tibet, that the enormous wealth of primulas which these regions possessed was discovered and that any adequate conception of the size and range of variability of the genus became possible. These explorations also aroused the interest of horticulturists since they brought to light a large number of valuable garden plants. Such expeditions began with the work of Sir Joseph Hooker, who from 1849 to 1851, assisted by a number of collectors, explored the Himalaya, giving special attention to the Sikkim region. His collections, especially of rhododendrons and primulas, aroused widespread interest. Later, certain Catholic missionaries began to tap the rich primula floras of western China. Pere Amand David (1869) explored the forests of western Szechwan; Pere J. M. Delayv collected in the Tali Lake region from 1884 to 1895; and Pere P. Varges explored northern Szechwan. Their collections, mainly of herbarium specimens, were sent to Paris, and many of these species, now well known in cultivation, were first described by the French botanist, Franchet. These discoveries led to the organization of expeditions, financed by such institutions as the Royal Horticultural Society of London, the Royal Botanic Gardens of Kew and Edinburgh, and the Arnold Arboretum of Boston, as well as by commercial plant firms and enthusiastic amateurs, for the specific purpose of obtaining seed of new ornamentals. Plant collecting became a profession — a profession calling for extensive botanical training, a wide acquaintance with the merits of horticultural plants, and unusual resourcefulness and administrative ability. Formidable hardships were encountered by these men — the lack of maps, absence of roads and adequate means of subsistence, the hostility of both government officials and native populations, trying climate, and the prevalence of contagious diseases. The numerous volumes in which some of them recorded their experiences (21, 25, 62, 63, 68) are of intense interest to casual readers, as well as to botanical
quires the judgment and knowledge to ascertain the true names of the plants obtained at so great cost. To the Arnold Arboretum and were concerned for the most part with the provinces of Hupeh and Szechwan. It is to him that we owe the Kurume azaleas, *Lilium regale*, and dozens of fine trees and shrubs. Starting in 1904 George Forrest, an indefatigable collector and an accomplished botanist, made eight expeditions to Yunnan, from which he entered adjoining Burma, southwest Szechwan, and southeast Tibet. He died when about to bring his last trip to a conclusion and was buried in western Yunnan, near Teng-yueh. Reginald Farrer, whose brilliant imagination and gifted pen impart an enchanting charm to his writings, collected extensively in 1914-15 in the Satani, Min Shan, and Da-Tung mountains of Shensi and Kansu, and in 1919-20 in northern Burma at two widely separated localities on the lofty range which separates the Salween from the smaller rivers which drain into the eastern branch of the Irrawaddy. He also died before bringing this work to its conclusion. F. Kingdon Ward, an intrepid explorer and student of plant distribution, explored wide stretches of difficult country in northern Burma, Assam, and Tibet. There are still areas in these regions which have never been explored and our list of primulas from them is destined to grow for many years. Much credit should also be given to those institutions, as well as certain amateur gardeners, who undertook the task of making effective use of the specimens and seeds obtained at so great cost. To ascertain the true names of the plants which appear in such collections requires the judgment and knowledge of a trained taxonomist, and to determine their horticultural requirements and merits calls for the experience of a trained gardener. We are especially indebted to the Royal Botanic Garden at Edinburgh for making the results of many of these explorations available to the public. It possesses the largest collection in existence of both living and dried specimens of the species of *Primula*.

Recent summaries of the genus. Although monographs on the genus were published by Lehman in 1817 and by Duby in 1884, it was not until 1905 that a monograph appeared which presented, even approximately, the real wealth of this genus. This work forms a part of the monumental work of Pax and Knuth (46) devoted to the family *Primulaceae*. It describes 210 species and many varieties of *primula*; however, soon became inadequate because of additions to the knowledge of both new and old species. Its inadequacy was clearly brought out at the Third Primula Conference (51), sponsored by the Royal Horticultural Society of London in 1913. A beginning toward meeting this need was made at a fourth conference (52) held under the same auspices in 1928, at which Professor W. W. Smith and George Forrest presented a revised list and a greatly improved classification of the valid species known up to that date. It lacks descriptions but lists 391 species and 147 subspecies, in addition to varieties. This and other papers presented at this conference were reprinted in the form of a 110-page pamphlet which is still in print and available at small cost.

**Distinguishing features of the genus.** The characters which distinguish representatives of the genus *Primula* are easily summarized. All are low-growing, stemless herbs, usually biennials or perennials and only rarely annuals. The leaves form flattened or dome-shaped rosettes or tufted crowns, and are either sessile or petiolate, with a blade which is usually simple but may be variously lobed or, more rarely, dissected. The flowers are usually showy, sometimes borne on separate peduncles but more frequently in umbels, spikes, heads or racemes. The five sepals are united below into a tube, which may be narrow and round, or five-angled, or sometimes bladder-like. The corolla is either salverform with a flat limb, or bell-shaped; its limb is normally divided into five segments. The five stamens are usually sessile and inserted within the corolla tube or at its throat. The pistil consists of a slender style, a broad stigma, and a superior ovary, which is frequently globular but sometimes cylindrical. Figure 2 indicates the form and arrangement of the parts of a typical *primula* flower; it also illustrates the phenomenon of dimorphism which will be discussed in the following chapter.

The fruit consists of a capsule which is globular or cylindrical; at maturity it usually breaks at the apex into a series of short teeth, but it may form valve-like openings or burst open irregularly. The seeds usually acquire an irregular polyhedral form owing to the closeness with which they are packed into an envelope surrounding the placenta. The outer seed coat is thick and either deeply pitted or papillate. The peculiarities of the seed, though variable and difficult to classify, are of use in identifying the genus and sometimes the species.

**Division of the genus into sections.** With a genus as large as *Primula*, division into sections becomes an obvious necessity. As compared with many of the larger genera, such as *Rosa* and *Rhododendron*, diversification within the genus is large; indeed it is surprising that proposals to break it up into smaller aggregates have not been made. One does not need to be a taxonomist to recognize certain groups of species within the genus which are closely related, but it is not easy to perfect a system in which the limitations of each group are defined and all the species of the genus are accounted for. These groups or sections, of course, represent natural relationships within the genus and therefore should correspond to the various branches of a family tree. Expressed differently, the sections should represent the phylogenetic relationships of the species, or the sequence of changes supposed to have taken place in the evolution of the genus. To pretend, from what we have learned about the genus during the last four centuries, to be able to unroll its history back to

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*Figure 2. Parts of the flower of a typical, dimorphous species of primula: (a) from a short styled or thrum-eyed plant; (b) from a long-styled or pin-eyed plant.*
its origin in geologic time, is to disregard the difference between conjecture and real knowledge. Nevertheless, a natural system of classification assumes we have some knowledge of portions of that history and justifies the hope that it may be possible to discern some of its main features.

Pax and Knuth (46) in their monograph of 1905 outlined twenty-one sections, many of which are still acceptable. In 1913, largely owing to the great increase in the number of species, their system was greatly modified by Professor I. Bayley Balfour in a paper (51) read at the Third Primula Conference. In 1928 this system was further revised and completed by W. W. Smith and George Forrest, who recognized thirty-two sections. Still more recently Smith has shown (55) why the number of sections should be increased to thirty-four.

The use of cytological methods in studying the genus. The system of classification of Smith and Forrest, like the systems which preceded it, is based almost entirely upon easily observable characters. A different and possibly more fundamental method of approaching the subject makes use of peculiarities in the nuclei of the cells of which the individual plants are made up.

It has long been known that the nucleus of every living cell contains a substance which forms well-developed structural aggregates just prior to the division of a cell into two daughter cells. These structures are known as chromosomes. They can be differentiated from the remaining components of the nucleus by the intense color which they acquire when treated with certain staining reagents. There is abundant evidence that these chromosomes are bearers of hereditary characters of individual plants. Variations in the number per cell and in their form and size might be expected to supply clues concerning relations between species. These assumptions have been confirmed in cytological studies of a number of genera, and Dr. H. G. Bruun has made such a study (10) of 161 species of Primula. He found that in all of the species studied the number of chromosomes per nucleus was a simple multiple, namely, one (haploid), two (diploid), or four (tetraploid) of a specific basic number characteristic of the species. In more than half of the species studied the basic number was 11, but the numbers 9, 10, 12, 22, and 36 were frequent and the numbers 13, 18, 27, and 63 were characteristic of single species only. He found also that the form and size of the chromosomes, as well as the range of variability in their form and size, were equally characteristic of each species. Nearly all the species belonging to the same sections, as defined by Smith and Forrest, had the same basic number and were in remarkably close agreement in form, size, and variability of their individual chromosomes. The details of his findings are too elaborate to be summarized here. They justify the conclusion, as shown in a paper by W. W. Smith (55), that if either morphological or cytological methods are used in dividing the species of Primula into genetically related sections, the resulting groupings are essentially the same.

Classification of the sections. The peculiarities of the sections into which the genus has been divided, will be outlined in chapters iv to xviii. Some familiarity with the general characters of what might be called the type species of each section will usually make it possible to recognize the section to which an unknown specimen belongs. Classification of the sections into related groups will assist further in correctly associating a species with its proper section. Such a classification is represented graphically in the accompanying chart (fig. 3), which is essentially the same as one devised by Smith and Forrest (52, 55). In it the different sections are represented by areas the relative positions of which indicate relationships and the size of which indicates roughly the number of species of which they are made up. Their division into groups of related sections is indicated by means of horizontal and vertical dividing lines. The numbers which appear in each area indicate the basic chromosome number characteristic of the section.

The chart shows that there are four sections in which the leaf edges curl inward (involute), as exemplified in P. auricula and P. verticillata (pl. 8, 8), as contrasted with thirty in which they curl outwards (revolute) as exemplified in P. Poissonii. One of the involute sections, namely Verticillata, is further distinguished by the folding of its leaves like a fan (conduplicate). As this section has little in common morphologically with the other three, it has been separated on the chart by a vertical line. Subdivision of the revolute sections is based on the presence or absence of "farina," the white or yellow meallike secretion derived from small gland-bearing hairs which arise

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**Figure 3. Natural relationships and classification of the sections of the genus Primula.**

The size of the areas outlined indicates roughly the number of species in the various sections, the position on the chart their relationships, and the associated number the basic chromosome number.
on the leaves, scapes, calyces, and more rarely the petals. There is a wide variation in the abundance of this farina in the different species, but the presence of even a small amount on any of the organs of the plant is evidence that the plant is capable of producing farina, and this is of at least some taxonomic significance.

Mr. Kakos has a very impressive list of seed to exchange for primula and rock garden plant seeds. The seed list is too lengthy to print, however, if interested send postage stamp to me. Will send copy of same. This is a wonderful opportunity to share with members across the waters - a way to truly open the APS

Mr. Josef Kakos
Dvorakova 1316, 25801 Vlasim,
Czechoslovakia
WANTED TO EXCHANGE SEED:

Those Phabulous Philadelphians
by Dee Peck

The end of October is hardly primrose time. But the Doretta Klaber chapter always seems to need a "Primula Fix" about then to get them through the barren winter ahead. (I think it's really "Any excuse for a party"!)

So – on Saturday evening, the twenty-seventh, we all converged at our president's house to eat, drink, and exchange our extra primrose plants. And plenty of extras there were! Our cool, wet, prolonged spring was perfect for primroses and tough on spider mites, our local curse.

The highlight of the evening was a program by Robert Cook of northern New York state. We saw his slides of hardy polyanthas which he grows with great success, despite the rugged winters in his area.

It was, as usual, great fun to spend an evening together. Now spring doesn't seem so far away!

Primulas of the
USSR Native Flora

P. I. Lapin, R. A. Karpisonova

On the vast territory of the Soviet Union, from the Carpathians to Sakhalin, from the Kolsky peninsula to the Pamirs, there are over 120 Botanic Gardens, whose activities are all under control of the USSR Botanic Gardens Council. The main objective of the Council is to search out, study and introduce useful forms and species. Great importance has also been attached recently to the problem of rare and endangered plants conservation. Building up collections of rare species is one of the ways to conserve them and increase their number.

Much attention has been attached to the introduction into cultivation of primula species. Among 80 Primula species growing in the USSR, 11 are considered to be rare and endangered, according to the classification adopted by the international Union for Nature and Natural Resources Conservation.

Specialists of our Garden start for different regions to collect seeds and plants in early spring. They reach areas difficult of access in Siberia and the Far East, the Caucasus and Middle Asia by specially equipped cars. The Caucasus is especially rich in Primulas. From sub-tropical forests up to Alpine meadows, there grow 22 Primula species. Among 80 Primula species, P. meyeri, yellow Primula amoena, P. pseudoelatior, P. ruprechtii, whitish P. pallasi, and others. They make the meadows colourful and irresistibly attractive. Flowering Primulas can be found in different zones of the Caucasus from early spring to late summer. Many of them are already well-known, others are under primary test in cultivation. Seeds and living plants collected in the wild are brought in to the Main Botanic Garden where they are tentatively sown out on testgrounds. Their growth and development are observed carefully, time of flowering is determined, as well as seed productivity, growth ability, resistance to pests and diseases and to unfavourable climatic conditions (hardiness, drought resistance). Primulas most promising and resistant under Moscow conditions are widely propagated and conveyed to other Botanic Gardens and

The APS Open Door
By Harriett Gurney

Summer has given way to Fall, 'tis time to take inventory of our Primulas. Send me your list of surplus seedlings and plants, also your wish list of the elusive ones for your Primrose path. No list is too large or too small. Those wishing to participate in the APS Open Door please contact me, or write direct to those who have already made a request.

Mr. Josef Kakos
Dvorakova 1316, 25801 Vlasim,
Czechoslovakia
WANTED TO EXCHANGE SEED:

The ten revolute nonfarinate sections are further divided into two sections whose leaf margins are either entire or slightly indented and eight whose leaves are long-petioled and the blades are lobed or dissected. For the twenty revolute, farinate sections there is no satisfactory system of subdivision.

(to be continued)
A Silver Laced Revival in the United Kingdom

by Bernard M. Smith

Whilst the A.P.S. grow and show both gold and silver laced polyanthuses in mixture simply as Laced Polyanthus, in the United Kingdom the silver has been sadly neglected for many years and was even classed as extinct. However today attempts are now being made to revive interest in this Old Florist's flower and to restore it to its rightful place on the Show Bench.

We know that the Old Florists knew the Silver Lace for they mentioned them in their contemporary literature and even today silvers crop up now and then in batches of gold lace and are in fact a planned ingredient in the Barnhaven strain of laced polyanthus.

Yet Sacheverell Sitwell in his "Old Fashioned Flowers" published in 1939 wrote "So far as is known, a laced polyanthus with a blue ground was never arrived at by these old growers. This must remain the ultimate possibility for this flower. And its beauty must be left, probably forever, to the imagination". In 1981 Dr. C. Jones of Llaneli arrived at by these old growers. This must remain the ultimate possibility for this flower. And its beauty must be left, probably forever, to the imagination". In 1981 Dr. C. Jones of Llaneli was showing his Dyfed Silver Laced Strain of polyanthus, a blue ground plant of which, albeit a little mauve, was awarded a First in London on 11th April 1981.

In 1971 Mr. W. R. Hecker in his excellent book 'Auriculas and Primroses' wrote "The old florist's magazines also make mention of silver laced polyanthuses but these have long since been lost to cultivation. Attempts are now being made to breed a new race of silver laced varieties and, from a botanical standpoint there is no reason to suppose that they will not ultimately be successful". At the London Show on 3rd April 1982 one of my Windways Strain of Silver Laced Polyanthuses (cross S/1/80) was awarded a First and a Premier Card. This cross was from (Agnes Johnson seed X Cy Happy seed) X M. reselected Barnhaven strain.

The Southern N.A.P.S. has a class for silvers from 1969 to 1975 when it was dropped for lack of support and the Midland N.A.P.S. had a class for silvers from 1975 to 1979 but now their schedule calls for 'Laced Polyanthus' as does that of the A.P.S. The Northern N.A.P.S. refuses to accept silver lace and prides itself that it is the champion of the Gold Lace, however this opinion is not always accepted in the South of England.

The Southern N.A.P.S. is expected to include a class for silver again when the 1984 schedule is issued and already many members are starting to raise silvers again. I myself had about 1500 seedlings of my silver laced cross S/1/82 but alas, due to the dry summer and neglect on my part due to circumstances beyond my control, I have lost most of them. I still hope to salvage a
few to show in the Spring and to yield a few seed for the future.

It is of interest that Mrs. Florence Bellis in a piece in the Southern N.A.P.S. Year Book for 1982 mentioned having not only 6-cleft gold lace but 6-cleft silver lace. This latter I have yet to come across, but it opens yet another avenue for the keen 'new florist' as does the Gold Lace with P. juliae rootstock reported to be growing in Edmonds. Perhaps the juliae-rooted silvers are not far away. I would welcome correspondence with any member who grows either the 6-cleft or the juliae-rooted (stoloniferous) silver or gold laced polyanthus.

And bear in mind that although the Old Florists went mad over the Gold Laced Polyanthus, when spare plants of both gold and silver lace were put on sale at Barnhaven Nursery in Cum-bria, the gardening public showed a greater preference for the silvers. It makes you think, doesn't it?

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Mr. H. V. Calvert's 'Cross 24/5'

photo by H. V. Calvert
1985 Dues Reminder

1985 Membership renewals are now due.

The annual membership rate is unchanged in 1985. It remains at $10.00. The label on the envelope in which this Quarterly was mailed shows your current status re membership dues. Those members whose label reads "84" are requested to mail their 1985 dues to:

APS Treasurer
6730 W. Mercer Way
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Please mail in time for your check to reach the Treasurer by December 15, 1984. That means mailing today (next week at the latest).

The APS is a tax exempt organization under Section 501(c)(3) of the Internal Revenue Code. Contributions to the APS are fully tax deductible to the extent of the law.

Your Board of Directors recognizes that there are members who are prepared to contribute to the operations of the society more than the regular dues. A "Sustaining" category of membership has been established for members who contribute a minimum of $50.00 in a year. (Contributions of any size will be gratefully accepted and acknowledged.)

Despite steadily increasing costs, the Board has decided not to increase regular annual membership dues in 1985. But changes have been made.

The three year membership category has been eliminated. However, members may pay for two or more years at the current fee of $10.0 a year. e.g. two years for $20.00, or three years for $30.00.

In addition, Life Membership is now available for $200.00.

The Board wishes to acknowledge with thanks donations of $200.00 each received from the Washington State and Eastern Chapters of the APS. Donations such as this, and a continuing drive for new members, make it possible for the high quality of the Quarterly to be maintained.

Reminder

The 1985 seed exchange is available only to APS members who have paid their 1985 dues.
Did you remember?

The cut-off date for receiving seed in the Exchange is November 25. Chairman Strickland asks that all seed be cleaned and chaffed, and no chemicals (insecticide/fungicide) of any kind be used on contributed seed. To date sufficient amounts of candelabras, vernales and garden auriculas have been donated. The exchange would especially like to have seed of American natives and small alpines in the farinosa and auricula sections, i.e. parryi, incana, mistassinica, marginata, glutinosa, etc.

I am prompted by the articles in the Fall 1983 Quarterly to make a few comments of my own about double primroses old and new. I could not agree more with what Mr. Holt says about the faults of most of the older doubles, the flopping habit of Alba Plena is perhaps the best example. However, all the surviving old doubles have one great point in their favour, namely the very fact that they have been tough enough to survive, in some cases for centuries.

It is always desirable to maintain as large a pool of genes as possible for future breeding and the old doubles are so varied in habit and have so many diverse strains in their make up that it must be advantageous to keep them in being for this purpose alone apart from their historic interest.

In the spring of 1982 all my old doubles except Alba Plena and Lilacena Plena produced pollen which I was able to use on robust singles to obtain large amounts of seed. The spring of 1983 which was wet and cold was very poor in pollen but even so an otherwise normal plant of Alba Plena produced a single flower with a little pollen.

I share Mr. Holt's views on the optimistic lists in books of plants given as still available but it must be said that most of these books are getting on for over 25 years old. Genders 'Primroses' for instance was published in 1959 when more plants were available. I am informed by a friend who has a large garden full of rarities, including some
primroses, that up to the late sixties it was possible to get most then listed with a little trouble. Such is far from the case now. I question whether the old plants we grow now are as ancient as they are made out to be. It is always said that Double Sulphur dates back to the one described by Tabemontanus in the early 1500's. When one thinks how often the double mutation must have arisen in the wild and been taken into cultivation it is far more likely that the several forms of Double Sulphur around today are of much more recent date. Similarly, Alba Plena is always said to be the plant depicted in Gerard's 'Herbal' of 1597. The plant illustrated shows a strongly polyanthus stemmed plant, nothing like the plant we know today. In stem and flower shape it is strikingly like the modern 'Penlan Cream', itself quite the best double I have seen anywhere.

The raiser of 'Penlan Cream' is incidentally the creator of the desirable double flowered Jack-in-the-Greens. Through a very generous gift of seed from the originator I have raised several of these and they should be more freely available in a year or two as stock gets around.

Members may be interested to know that I have rediscovered 'Downs Hill Ensign', long lost sight of, via an old garden near Malvern, Worcestershire. The plant is shown in full colour in Genders book and identification has been confirmed further by persons who used to grow it. As all descriptions state, it is a straggling untidy plant but unique in its tiny flowers and very long footstalks on short polyanthus stems. These latter characteristics would be worth carrying over in a breeding programme and it does bear pollen.

John W. Martin, 45 Seaton Avenue, Tupsley, Hereford, HR 1 1NP, England

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Primrose Culture

by Ronnie T. German

Some of the more knowledgeable growers are producing very nice 3½" - 4" pots of Polyanthus and Primroses as a new and exciting and extremely bright pot plant.

The colors available in these varieties are from white primrose to bright yellow, pink through rose shades, light sky blue through dark blues and scarlet through deep bright crimsons. In fact nearly all the known colors in the flower spectrum are available.

Careful culture under very cool, well ventilated conditions is a pre-requisite in order that success can be assured.

Flower size is large and the Primrose strains which are generally named Primula Acaulis are usually (but not always) crosses between Polyanthus and Primrose and produce very compact nicely shaped plants with crinkled strong leaves and have a bright color range, many shades have bright yellow eyes. They are also very hardy and can stand extremely cold temperatures, they overwinter well here where temperatures reach 30 below. The Polyanthus types represented by the Pacific Hybrids and similar strains make excellent pot plants, but with longer stems. Extra cool temperatures (45 degree nights) are necessary to maintain rigidity. They can be used for bedding in milder areas, but good drainage is essential, together with some protection from cold spring winds.

What you need to grow Primulas:

1 — Cool growing conditions — produces small leaves.
2 — Careful control of watering and feeding to avoid excessive leaf growth.
3 — Clean glass — especially during winter period.
4 — Minimal heating (frost protection) is essential.
5 — Real application to culture and complete commitment to quality from the minute the seed is sown until final marketing.

Which variety to grow???

Our listing is divided into 2 groups — (1) Polyanthus (Primula Veris elator) — types with central stem and (2) Primrose (Primula Acaulis).

Growers method of culture vary so widely that it is virtually impossible to find one strain that will do equally well under all conditions. The performance of a strain can be affected by such factors as temperatures, light intensity and duration, pot size, type of greenhouse, length of growing period, soil, etc. Primrose strains vary, as they are produced by different breeders working under a wide range of climates, thus there is no ideal strain that will suit all growers. Trialing under your own growing conditions is the best way to find the most suitable strain.

Sow seed early March/April for plants that are to be lined out and lifted for Autumn sales. April/May will give a succession for spring sales. August sowing will bloom February through April.
For pot work sow Polyanthus — Pacific Giant March/April for 4" pots, sow May/June for 3½" pots. Sow August for 3" - 4" pots for sale from February through April. Transplant to 2½" pots and use a light, well drained soil high in organic matter. Grow on at 45 to 50 degrees F, and move to 4" pots when they become pot bound.

Special germination notes for Polyanthus and Primrose:
1 — Sowing medium, use a compost with high peat content. Water flat thoroughly before sowing.
2 — Sprinkle seed thinly and evenly as possible. Press in very lightly, but do not cover seed. Lights help germination.
3 — Place clear plastic over flat, then vary treatment according to season.
   Spring sowings: put box over mild bottom heat at 60 - 70 degrees F. Be sure that you check soil temperature with a thermometer and be sure that it reaches this range but does not exceed 70 degrees. If temperature exceeds 70 degrees you will fail to get germination.
   Summer sowings: Place flat in cool part of greenhouse where the thermometer shows that the above range will be achieved. Heated benches are likely to be too warm during summer months.
4 — Protect flat from direct sunlight, which can cause overheating and drying out.
5 — Seeds should start to have sprouts starting about 7 to 10 days after sowing. If they do not, then soil temperature is almost certainly too high.
6 — Remove plastic and sprinkle finely sifted compost over surface. This anchors the sprouting seedlings. Replace plastic and maintain flat at about 65 F.
7 — As soon as Cotyledons (leaves) appear, remove the plastic.
8 — At this point take great care to prevent drying out of soil surface. At all times keep shaded from direct sunlight. Seedlings should grow on well at 60 degrees.

American Primrose Society

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Dues of $10 a year are payable Nov. 15. Membership includes four issues annually of the Quarterly, cultural chart and seed exchange privileges. Sustaining member $50. Life membership, $200; garden club affiliated societies, $10 a year; library and horticultural societies, $10 a year; second member in family, $1 a year. Overseas members, $10 a year; please send by international money order. Send dues to the treasurer.

Publications
Back issues of the Quarterly are available. Order from the secretary.
Manuscripts for publication in the quarterly are solicited from members and other gardening experts, although there is no payment. Please send articles and photographs to the editor's committee at 1570 - 9th Ave. N. Edmonds, WA 98020.
Advertising rates per issue: full page $60; half page $30; quarter page $15; eighth page and minimum $10. Submit advertising to the editor.

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