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1960 NATIONAL SHOW
Seattle, Washington
April 30th and May 1st
The National Show for 1960 will be
THE NATIONAL AURICULA SHOW
presented by
The Washington State Primrose Society
Queen Anne Field House
3rd West and West Howe Street, Seattle, Washington
1 p.m. to 9 p.m. Saturday, April 30th
10 a.m. to 8 p.m. Sunday, May 1st
Admission 50c
Show Chairman: John Shuman

Annual Awards Meeting and Banquet of the American Primrose, Primula, and Auricula Society

President Anne Siepman has designated April 30, 9 p.m., as the time of the Annual Meeting which will immediately follow the Annual Banquet which is called for 7:15 p.m. The place is the Norseland Seafood Restaurant at Norway Center, 300 Third Ave West, Seattle 99, Washington. This is not far from the Queen Anne Field House where the National Show will be held, there is loads of parking and a large attendance is expected.

Banquet tickets will cost $2.75 for a roast sirloin of beef dinner. Payment may be made at the dinner but reservations should be sent, as soon as possible, to Mrs. Ralph Balcom, 6216 N.E. 25th, Seattle 15, Wash. (Phone LA 5-6270).

The nominating committee have submitted the following panel of officers for 1960. Members in good standing who cannot attend the meeting may send their votes to Mrs. P. B. Charles, Corresponding Secretary, 1013 84th N. E., Bellevue, Washington.

President—Anne Siepman (Mrs. John)
Vice President—Mr. Herbert Dickson
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Director—Mr. Orval Agee
(The two outgoing directors are Ross Willingham and Wesley Bottoms)

(For a pleasant place to stay during the Show see ad on page 28)

Officers for 1960-Affiliated Clubs and Societies

SPRING SHOW DATES

MT. ANGEL PRIMROSE SOCIETY
Mt. Angel, Oregon
President .................. Mrs. Victor Hoffer
Vice President ........... Mrs. Eyward Berning
Secretary-Treasurer ............ Mrs. Alcuin Beyer
Show Chairman ........... Mrs. George Schmidt
Show Date .................... April 24

OREGON PRIMROSE SOCIETY
(1960 Officers to be elected in April—see p. 91, Summer, 1959, Quarterly for 1959 officers)

1960 Show Dates ............ April 9-10
Show Chairman .............. Mrs. Gilbert Hanson

LEWIS COUNTY PRIMROSE SOCIETY
Chehalis, Washington
President .................. Mrs. John Daniels
Vice President ............ Mrs. Reuben Stohr
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Recording Secretary .... Mrs. June Harr
Corresponding Sec. ....... Mrs. M. H. Monteith
Treasurer ................. Mrs. William Dines
Show Chairman ............ Mr. John Shuman
Show Dates ................. April 30, May 1

FRIDAY HARBOR PRIMROSE SOCIETY
Friday Harbor, Washington
President .................. Mrs. B. F. Hannah
Vice President ........... Mrs. A. F. Gilner
Treasurer ................. Mrs. John A. Reed
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Corres. Secretary ........ Mrs. B. F. Hannah
Program Chairman .... Mrs. Frank Dearborn
Show Date .................... April 15th
Show Theme ................. Primrose Luncheon

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Kirkland, Washington
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Vice President ............ Mrs. John Siepman
Treasurer ................ Mrs. L. S. Myers
Recording Secretary .... Mrs. E. A. Johnson
Corresponding Sec. .... Mrs. H. C. Stuart
Show Chairman ............ Mrs. E. T. Wold
Show Theme ................. Primroses by the Sea
Show Dates ................. April 22, 23, 24

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Vancouver, British Columbia
President ................ Mrs. Douglas W. Duncan
Vice President ............ Mrs. F. J. Macey
Secretary ................ Mrs. E. C. Darts
Treasurer ................. Rev. H. Stewart Forbes
Show Manager ............. Mr. George Boening
Show Dates ................. April 22-23

TACOMA PRIMROSE SOCIETY
Tacoma, Washington
President ................ Mrs. Richard Backberger
Vice President ............ Mrs. Richard Klassen
Secretary ................ Mrs. Floyd Kellner
Show Dates ................. April 9-10
Show Chairman ............ Mr. John Kueker

CLARK COUNTY PRIMROSE SOCIETY
Vancouver, Washington
President ................ Mrs. Virgil Tippit
Vice President ............ Mrs. Raymond Horn
Secretary-Treasurer ..... Mrs. Seth Barnett
Show Chairman ............ Mrs. Walter Roe
Show Dates ................. April 23-24

DATES SET FOR GRESHAM SHOW

According to Melvin Surface, Surface Nursery, Gresham, Oregon, and general chairman of the Multnomah Parade of Gardens, the annual spring show will be held April 27 to May 1, 1960, Larry Underhill, Portland landscape architect, will design the theme garden and Harold Miller, Miller Landscape Service, Milwaukie, is co-chairman coordinator.

AMERICAN PRIMROSE SOCIETY
Trips Afield In New England

What matters if the day
Be fair or foul
What matters if the way
Be steep or rough
The hunt's the thing
It is enough — Namby Selrahe

BY Alice Hills Baylor

There is a mysteriously beautiful swampy area close to my home to which a neighbor took me the first spring I was in Vermont and to which we have made many return visits. The trees are spruce and white birch on the upland side and, as the ground becomes more moist, the trees change to hemlocks. Here the earth is a mat of hemlock needles where ferns, groundpine and groundcedar, run ning pine, and club moss make the ground cover. The shining foliage of Partridgeberry is studded with tiny pink flowers and the Trailing Arbutus makes the air fragrant when we go for our spring visit. In the hollow where the water gathers, the Marsh Marigold (Caltha palustris) makes the expanse of earth glow with its golden flowers. Here in New England it is called Cowslip and the leaves are gathered in baskets to be cooked for early spring greens. On our second visit later in the spring we find the pink and yellow Lady Slippers in bloom and, in the summer, the Pitcherplant (Sarracenia purpurea) lifts its dark red carnivorous flower. Each time we leave this spot it is as though leaving a Cathedral.

The first of many field trips of a group under the leadership of the veteran plant collector, Mr. James Mitchell of Barre, Vermont, to collect native plant material took place in 1952 when we climbed the mountain I see from my garden, Mt. Mansfield. We met in the parking lot of what is known as Smuggler's Notch. This is a narrow cleavage in the mountain through which a road called "Dead Horse Road" was used in the early days by smugglers to take goods to Canada. The space is only about fifty to seventy-five feet wide and is strewed with mammoth boulders which have broken from the sides of the mountain and tumbled down. Now the State of Vermont has built a good road and, although steep, it is no longer known by the fearsome name that described the punishment to which the horses were put in Jefferson's time.

We had a plant exchange while waiting for the Maine folks to arrive. When we had all gathered, we started to climb through thick brambles, over fallen logs and rock strewn ledges for a quarter of a mile. Exhausted, we came at length into the open and, looking above, saw the river of stones where the alpines which we sought grew. It was on the bottom of this moraine where we ate our lunch, drank of the spring water, and prepared ourselves for the climb. The men went first and spread out as the loose rocks came tumbling down in their wake. I was one who crawled on all fours! Here was one of nature's rock gardens where rare plants grow.

We found in abundance, Saxifraga oppositifolia and S. aizoides, the beautiful encrusted rosettes. Both varieties collected are now large mats in my garden. The blue bells of Campanula rotundifolia showed clearly on their thread-like stems and the pink tinted white flowers of Erigeron hyssopusfolius had as companion plants the silvery, silky Artemisia canadensis and the shrubby Potentilla fruticosa. The pale cream flowers of Castilleja pallida and the deep green Draba arabisans rosettes mingled their way together. The treasure I brought home from the high reaches of the Notch was Pingrücula vulgaris which is as rare in Vermont as the more numerous stations are on the Gaspe Peninsula. It has a bulb-like root that is delectable as a tidbit for rodents but has survived as it was planted in a little basket made of screening. The leaves are oval shaped and the flowers are purple and similar to an inverted violet.

It was a wonderfully rewarding day in good companionship, plants exchanged and collected, but, best of all, it was the beginning of many trips afield to find plants in their native habitats. Now when I look up at the towering chin of Mt. Mansfield from my garden I know what is growing in the depths of the notch and the mountain becomes an old friend.

Lake Willoughby in Vermont is considered by many the most beautiful lake in America. From its deep blue water rise sheer, steep mountains on both sides, one of which is Mt. Pisgah. Our group met at a lake shore cottage in the summer of 1953 to climb the moraine in search of alpines. The ascent through dark forests where shafts of sunlight filtered through to light up the ferns and moss-covered fallen logs was steep from the beginning. Threads of silver streams bounded over boulders and often these small brooks were our paths. We came abruptly from dark woodland to the foot of the moraine. Looking up was overwhelming for above us was a great bend of loose rocks made from the disintegration of the giant shoulder of Mt. Pisgah. A clue to the approach of a moraine is indicated by enormous rocks strewn at the base and along the mountainside throughout the fringe of forest. This is the result of alternate freezing and thawing when landslides are common in late winter and early spring; the eternal process of the crumbling of mighty granite. Above us where water trickles through the mountain debris grow the alpines we sought, paramount among them the tiny rosette of Primula mistassinica.

I have collected P. mistassinica in two stations. The first at Apple River Canyon State Park in Northern Illinois in 1942 when I was State Naturalist and collecting with Dr. George D. Fuller, University of Chicago, and for Dr. George Nevells Jones of the University of Illinois; the second on Mt. Pisgah in Vermont. This plant is identical at both stations although the character of the terrain is so different. At Apple River Canyon in Illinois, P. mistassinica grows in the crevices of the sedimentary limestone. The river has cut the canyon and the talus slopes on each side are exposed limestone in layer formation telling the geological history of once being oceanic floor. On Mt. Pisgah in Vermont the needed lime is furnished by the water running beneath having passed through a limestone strata. This
little Primrose knows where to thrust its slender roots and is scattered from its Vermont home along the Great Lakes into northern Illinois. In such isolated stations it is seldom seen in its native haunts since it takes climbing to reach it.

On the moraine of Mt. Pisgah we found two members of the Pea family, the bright red flowered *Hedysarum boreale* and the white to blue *Astragalus blakci*. The foliage of the *Hedysarum* is glossy while the under side of the leaves of the *Astragalus* are grey.

*Viola nephrophylla* was found in a cool mossy site and the blue *Lobelia Kalmii* out in the open. *Rosa blanda* was on the edge of the loose rocks growing in association with *Clematis verticillaris*. Both are attractive in flower as well as in fruit. The red pips of the *Rosa* would be a fall picture with the seed plumes of the *Clematis*.

The steep wall of the mountain above the moraine was dripping with water. It glistened where it slid over the bare face of the cliff and was caught on the little shelves on which there was heavy growth. Here clinging to wet ledges were the *P. mistassinica* its tiny rosettes of foliage trimming the shelves of the face of the wet wall that rose hundreds of feet above the moraine. Grass of Parnassus (*Parnassia caroliniana*) wedged on the ledges also. The clump I brought home had the two plants intertwined. Here also was the real arctic plant *Braya humilis* which is also found in the Canadian Rockies.

The moraine and the sheer wall of the mountain above us was fascinating but to turn and look far below at the lovely lake hemmed by rugged mountains and reflecting their height in the clear blue water was a sight long to be remembered. The association we shall all remember on the day on Mt. Pisgah was that the late Harold Goddard Rugg was with us. As we rested before the cliff, we had listened intently to him relate his experiences of plant hunting in the Alps and his vivid description of *Gentiana* and *Primulas* growing there.

A trip to the northern section of the White Mountains in New Hampshire took place during the summer of 1954 when we met at Dixville Notch. Forty to fifty years ago the enormous frame hotel with its circle of porch was a noted summer resort. Here we found Mountain Ash, *Pyrus americana*, in abundance. The leaves are compound, the flowers in flat clusters in May and the brilliant berries hang heavy in fiery red,—a feast for the Warblers on their way south in September. They grow on top of the rocky formation and often the roots will wander across a large rock until it finds a crack into which it works its way to food and water beneath. It was possible to collect only small specimens which have grown quite fast for they were used as a background plant for *Primulas*. The Mountain Ash quickly adjusted itself from lean mountain soil to rich Primrose fare and grew, bloomed, and fruited in a period of three to four years. They have since been removed to another portion of shrubbery planting where they are developing into handsome trees.

In the mossy, fern-studded ledges in Dixville Notch we found the pros-

The Primulas Of Central Asia

Central Asia is dominated by the great high plateau of the Pamirs and the stupendous mountain ranges that radiate star-like from it. The Thian Shan extend northeast to the Altai; to the east go the Karakorams and the Kuen Lun; southeast go the Himalayas; to the south go the Sulaiman mountains while the great Hindu Kush stretches to the west to join the Elburz mountains that flank the southern shores of the Caspian Sea and link with the Caucasus which range northeast to the north shores of the Black Sea.

Between the Hindu Kush and the Thian Shan lies Turkistan as far as the Caspian, including the ancient lands of Bokhara, Samarkand, and Fergana between the rivers Sir Daria known as the Jaxartes about 3000 years ago and the Amu (Oxus), which flows into the inland sea of Aral, east of the Caspian.

Between the Thian Shan and the Karakorams lies Eastern or Chinese Turkestan watered by the Yarkand and Tarim rivers. Between the Karakorams and the Himalayas lies Tibet holding the sources in well nigh the same place of the two rivers, the Indus and the Tsampo, which flow in opposite directions and pierce the two ends of the Himalayas to reach, one, the Arabian Sea and, the other, the Bay of Bengal. The land between the Himalayas and the Sulaiman range is watered by the Indus whose five (panch) waters (ab) give the area its name, Punjab. Between the Sulaimans and the Hindu Kush is Afghanistan containing a whole system of secondary ranges from the latter and watered by the Helmund River which also flows into an inland sea about the junction of lines 61 E. and 31 N. West of Afghanistan lies Persia and south of it Baluchistan runs to the Arabian Sea.

The land within 1100 miles about Bokhara is a convenient geographical unit for the Primulas of Central Asia since the circle includes Persia but not Turkey, Tiflis in the Caucasus, and the southern end of the Ural mountains. It has been known from the time when Herodotus of Halicarnassus wrote his famous History about 2370 years ago. It was traversed by Marco Polo and his uncle, whose travels Colonel Sir Henry Yule has most graphically arranged and annotated) in the thirteenth century who followed the age old trade route between China and Europe, by way of Constantinople, Trebizond, Teheran, Merw, Bokhara, Samarkand across the Pamirs to Yarkand—names of thousands of romances down the years. From both of these writers a vivid impres-
The road from Yarkand south to Leh in Ladakh and here, north of the Himalayas at 16,000 ft. below the Bara Larcha pass, which it crosses and goes south to Delhi. The hooves of caravan animals tread channels through the sharp rock debris to pass without discomfort (left bottom). My baggage train appears (middle left edge). The peaks are of snow in the back but left top, the flaking limestone rock which holds fossils of fish.

The road from Yarkand south to Leh in Latlakh and here, north of the Himalayas at 16,000 ft. below the Earn Larcha pass, which it crosses and goes south to Delhi. The hooves of caravan animals tread channels through the sharp rock debris to pass without discomfort (left bottom). My baggage train appears (middle left edge). The peaks are of snow in the back but left top, the flaking limestone rock which holds fossils of fish.

Just the sound of the wind and the feel of the grit it carries and the steadily shining breathless.

A Stage in the Road—Where two great roads meet 11,000 ft.—Lahual Juniper on the slopes and willows planted beside the stream by the villagers for fodder and fuel.

Transport—Sheep laden with full herd fleeces come through the stage to the market. They take back salt and metal. Even the dog—Tibetan mastiff—has been clipped. Note the intelligence of the bell weather who really carries a bell.

One parent of that well known hybrid Primula kewensis, Primula floribunda grows on the Sulaiman range in Afghanistan and extends into the northwest Himalaya whence Lt. Col. J.C. Dundas, D.S.O., sent home seed. (The other parent, P. verticillata, grows in Arabia.) In nearby Baluchistan, P. Lacey grows abundantly in limestone cliffs at Torhan. Allied species have been found in Persia, Egypt, and Abyssinia. The habitat of P. Lacei gives a clue to their cultivation. In Persia, too, are found those desirable rock garden plants so close to Primula, the Dionysias.

The presence of farina seems an impractical character for the Primulas grouped in the section Farinosae; however, the species occurring in the Himalayas very few are found to the east of Nepal.

Right in the centre of the area and west of the great plateau, in Bokhara, Samarkand, and Ferghana, are some of the well known Cortusoideae section. One, P. Kauffmanniana, was introduced to cultivation in 1883. It also ranges to the Thian Shan. Near it grows a white flowered plant not yet introduced, P. lactiflora. (P. cortusoides itself grows five hundred miles further north from the Ural Mountains through Siberia to Japan. It was introduced in 1794 by a Hammer-smith firm of Lee and Kennedy. Next came P. mollis from Bhutan in 1854, P. Sieboldii by Veitch from north-east Asia in 1862 and P. Polyneura from Wilson's Chinese seed in 1905.)

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About forty Primulas have been found in the area, the earliest by Russian biologists of the Czar of Russia's time, many of them good garden plants of long cultivation. They have been classed in the Sections of the Genus Primula under Cortusoideae, Floribundae, Farinosae, Grandis, Nivales, and Vernales, and their relations with allied species outside the area are thought-provoking. Some range the Altai and seem to have features in common with certain American species beyond the Behring Straits. Others have links with species in Arabia and Afirca, while others range through the Caucasus into the Balkans and the Alps of Europe even as far as Britain. Yet of the species occurring in the Himalayas very few are found to the east of Nepal.

One parent of that well known hybrid Primula kewensis, Primula floribunda grows on the Sulaiman range in Afghanistan and extends into the northwest Himalaya whence Lt. Col. J.C. Dundas, D.S.O., sent home seed. (The other parent, P. verticillata, grows in Arabia.) In nearby Baluchistan, P. Lacey grows abundantly in limestone cliffs at Torhan. Allied species have been found in Persia, Egypt, and Abyssinia. The habitat of P. Lacei gives a clue to their cultivation. In Persia, too, are found those desirable rock garden plants so close to Primula, the Dionysias.

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Quite intriguing is the existence of P. Minkwitziae of the Ceramioides sub-section in the neighborhood of the members of the Eu-cortusoideae. Since they grow in the shade of light woodland, in moist meadows and in the lee of rocks these species are best placed similarly in our gardens, but the roots must be kept cool.

Author's note: For my notes and photographs (micro) upon seeds, please see Journal of the Scottish Rock Garden Club, Vol. 4 (1954): text p. 44 and figure 18 opp. p. 64

*This name is inadequate. The feature for which they are named is quite different to that which distinguishes the section Auricula. Confusion impends. They constitute as well defined a group as any in the genus. They are naked of farina. They have distinctive necklaces of saccate bracts below the inflorescence; and they have distinctive seed in the genus. They could be better described as "the naked ones with necklaces"—ignoring visions of a Papuan!
tinctive for the assemblages of plants in Cortusoides, Candelabra, Nivales, and Vernales; and seems to be so here. None of them have farina. P. auriculata, the type species, decorates wet meadows and the banks of streams of 14,000 feet elevation in Persia, Asiatic Turkey, and the Caucasus with its trusses of yellow-eyed, rose coloured flowers. It has been in cultivation since 1784.

P. luteola with distinctive yellow flowers, which grows by springs and in meadows of the eastern Caucasus was first grown in Leningrad (old St. Petersburg) gardens in 1867. P. rosea grows in marshes and ravines by melting snow in Afghanistan and the drier (Tibetan) northwest Himalayan areas like Lahaul. It has been in cultivation for many years and has produced larger flowers and also white flowered plants as evidence of its capability. In the wild, a number of forms occur. P. elliptica, a slighter plant with blue flowers, grows in slightly moister climates but the same situations in the vicinity of Kashmir. It has appeared in gardens sporadically over the past seventy years. Our open winters may account for this since in its home it is drained of water when the frosts of winter come down and thereafter might be in a refrigerator until spring melts the snow covering it. Plants closely associated with P. elliptica occur in Turkestan Bokhara. The well known white-flowered P. involucrata of the Himalayas, with which the purple P. yarigongensis (P. Wardii) grows all mixed up in Bhu- tanso that they might be considered merely colour forms of the one species, has an associate, P. sibirica, which ranges from Central Asia northwards to arctic Europe, the Tien Shan and the Altai, Siberia and Alaska, where it finds somewhat related plants in all. It has been in gardens (and out again) for the past hundred years. Its seed, and that of P. involucrata, shows it to be different from the Auriculatae. P. tibetica, although not Central Asian, is considered to be very like P. sibirica.

Of the truly farinose species of Farinosae, there are plants with interesting connections on each side of the Pyrenees. On the north, P. intermedia goes from Bokhara into the Thian Shan and on to the Altai, growing in moist meadows of river valleys in steppe country until in the Siberian Yenisei River valley it meets (?) an efarinose variety of P. farinosa called degradata (!!). On the east, P. hazarica, which grows in moist rock cliffs of the Tibetan N. W. Himalaya links with P. ilhasensis (now sunk in the well established P. tajfeyanu) of the Tsanpo valley in south Tibet and with the Chinese P. pulchella. The Sualman mountains in Afghanistan have P. capitellata which has also been found in high elevation in moist meadows of South Persia. Its associations with other primulas are con- junctural. It has been seen in gardens but seems hard to keep. On the west in Turkestan is P. algida which ranges from there through Persia into the Caucasus and north to the Altai. The different findings of this plant show an amazing range in meallness. It has been pointed out that in the Altai only the farinose states occur, in Samark and only the farinose, while in the Caucasus both are found growing together. The meal can be white or yellow. In the northwest Himalaya is P. iiyaytti with its long, narrow foliage covered below with sulphur yellow meal and a loose inflorescence of bird's eye flowers on slender stems. It has been in cultivation but is hardly worth it. Very obscurely it smells of the yellow meal, Chinese P. pulchella; but it has the tiniest seeds of the whole genus.

A plant that ranges into Europe from the Caucasus is P. longiflora, a name that must now give way to the far less descriptive P. Halleri of which Farrer says it is so much easier to grow and keep than P. farinosa one wonders why everyone wrestles bitterly with the one while the other is hardly ever seen in the garden. In the high limestone meadows of the Dolomites he portrays it "dotted all the grassy lawns with its long budged stars of dim rose". He complains too that slugs have a way of "eating off all the pink and gold star of the flowers face ... leaving nothing but the long bugle of the tube behind." Maybe that is why it is not popular.

In the Caucasus also is another solitary living plant, P. grandis, as tough as nails, of handsome stature — grand indeed — but with no presence for the garden. It is about the size of that glory of the section Sikkimensis, P. Floriniae, and as Farrer says "breaks like a rocket into a thick crowd of trailing little sparks", the small tubular yellow flowers, "preposterously mean for such a stalwart". If, as this writer opines, the Sikkimensis are related to the Farinosae, a relation traceable in the seed, P. gran- dis could be reasonably included as their progenitor. The Caucasus is regarded as the home of so many of our elaborated (cultivated) plants.

The name plant of section Nivales, P. nivalis, was first found by Pallas in 1772 on the Altai mountains. This purple flowered plant was also seen later by Ludlow in the Thian Shan growing in sodden soil recently uncovered by melting snow in the spring, along stream banks and on tussocks in stream beds. In Central Asia a whole range of forms occurs. The species itself is without farina but var.

farinosa has white farina while the variety subintegerrima has yellowish farina. They are mostly fine plants about a foot high at flowering time but they only occasionally appear in gardens. East of the Pamirs in the western Himalayas grows that much better known, purple-flowered P. macrophylla which throws an occasional white sport. It grows under similar conditions to P. nivalis. In Afghanistan, on the drier (?) Sulaiman range its variety Aitchisonii grows profusely. At Trebizond, beside the Black Sea, grows P. longipes similarly proportioned in its parts to P. macrophylla but differing in its white eye to the flower instead of being dark purple. It too grows under the usual conditions for these Nivales, in ground soaked with running water. The collector E. K. Balls got seed of it in 1933 but plants were not established. A species with white flowers was found in the Caucasus by Bayan in 1861, P. Bayernii, growing in water-logged ground of the moraines beside the Zoi glaciers at about 9,000 feet, where in adjacent meadows Dr. Guiseppi says (in 1936) "it grew in enormous numbers close below the highest cliffs with large coryms of white flowers and great long leaves with frilled white edges." It is not yet in our gardens. A more amenable species is the Himalayan P. Stuartii which has pleasantly perfumed yellow flowers, whereas P. macrophylla has a rather acrid metallic scent. It has been in cultivation but like the other Nivales we cannot keep it.

There is only one man's writing that I know of in which "The natural habitats of . . . Primulas" are described in terms that the cultivator can understand. The Chinese primulas are so treated by Dr. H. Handel Mazzetti in vol. LIV, part I of the Journal R.H.S. Every grower of Primulas should
possess it, read it, and apply its hints to his plants. I won't go so far as to say that primroses are the same the whole world over but the various results of weather and climate upon earth are the same in various lands. Consequently many of Dr. Mazzetti's observations on Chinese primula habitats apply to central Asia. About the Nivale species that does best in our gardens, P. chionantha, he says, "I saw it fruiting among high herbs along streams, (it grows above the woodland at 13,000 feet or more) always on markedly vegetable sub-stratum, especially between the roots of Rheum officinale Baill." The clue here is Rheum officinale, which can be interpreted in garden terms in only one way. Since it is not possible to give a recipe for a rhubarb plot, I suggest that a mature rhubarb plot be divested of its rhubarb and species of Nivale primulas put therein. One year old seedlings can be transplanted into it as they show their first tiny point of green in the spring. Take the utmost care that even the tips of their tiny roots are not damaged and screen them from the wind and strong sun until they are established; say in a month or so's time.

The general softly hairy, loose and graceful appearance of the Cortusoides with their easily swayed stalks of flowers seems appropriate for living in their light-shaded dry forest homes, that of the stocky, meal-clad Farinosae to their auster sites. P. floribunda cuddles happily into clefts of Sulaiman's limestone cliffs while the lus-ness of the Nivalids as they flush their showy heads of bloom amid the shallow rippling waters of snow fed streams also seems quite fitting. It is more difficult to reconcile some of the species of the Vernales (in Central Europe). There are smallish localities in the Caucasus wherefrom we got P. megasefolia in 1901, P. Juliae in 1910, and Primula amoena in 1934, but the Caucasus seems to be an area of individuals and in any case is not really Central Asian. One cannot help wondering how the red Greek primrose that we have known for two hundred and fifty years or more (P. vulgaris subsp. Subthorpius) wandered along the mountains to reach north Persia. Our cowslip too, in the form of P. veris subsp. macrocalyx, has managed to cross the Urals mountains into the Amur as well as traveling from the Crimea along the Caucasus through Persia to Turkestan. Even a form of the oxslip (P. elatior subsp. Pallasii) has reached the Altai and Persia. How? and Why?

P. veris is the most widespread species of the section and was at one time known as P. officinalis. All other species called this have been known to our pharmacists for a very long time because they had been used long before them as medicine of some kind by our faraway ancestors until modern research found something better. Country folk have long made a fermentation without heat of cowslip flowers into a home made wine; always taken, and maybe still, to ease "twinges". Gypsies and traders, even soldiers, among those whose life took them along the highways to the markets of Europe across the Urals to Nigni-novgorod and over the Pamirs to Constantinople and Buda-Pesth, would like a plant which eased headaches and pains in the shoulders. They might take some pains to bring the plant to their various stations along the line so that their women-folk could make a brew of it. Long before the great battles between the Greeks and the Persians o of which Herodotus wrote, there are little caravans of a simple people with a few cattle wan-

SOME EUROPEAN PRIMULAS OF MERIT
Here are some of T. C. Clare's superb pictures including the natural hybrid P. x Berninae which is pictured for the first time in the Quarterly.

T. C. CLARE

Since the introduction of so many beautiful, and tricky-to-grow Asiatic Primulas, the interest in the better Europeans (and some of the finest hybrids) has somewhat diminished. Perhaps one of the reasons is that, in the south of England at any rate, they are not always too easy to grow since they are very susceptible to damage by slugs and a most annoying root aphid. They are, however, wonderful subjects for the Alpine house where both pests are controlled. They do best in a fairly rich but gritty well drained compost and, after flowering, when they are put outside they should be kept fairly moist and out of the full sun. They will need re-potting once a year. I think the best time is just after flowering in order to provide fresh compost for the plant during its growing season. If root aphids are suspected, all the soil should be washed off the roots and the plants dipped in an insecticide, making sure first that it will not damage the roots.

Possibly the showiest of the plants is the dwarf but large flowered natural hybrid between Primula viscosa and P. hirsuta (P. rubra). The result, P. x Berninae, is a dwarf plant of about three inches which completely covers itself in spring with big deep rose white eyed blossoms. As it does not

Primula viscosa (Edinburgh 1958)
(Photograph courtesy T. C. Clare)
always come true from seed, better forms have been selected, of which P. x Berninae Windridge variety is outstanding. (Illustration). The flowers are a little darker than the type and a little larger. It certainly could not be freer flowering.

Another first class hybrid—an old one and quite easy outdoors—is Primula x pubescens Mrs. J. H. Wilson, which has white eyed violet coloured flowers. It is best grown as a crevice plant, again with a fairly rich compost behind, into which it can get its roots. It also makes a superb alpine house specimen.

The third hybrid, and probably in England the most popular of all, is Primula x marginata Linda Pope. The second parent has never been proved; and having seen a collected plant of P. marginata in Mr. Jack Drake's possession which is almost identical with Linda, I think it possible that she was also an exceptionally beautiful form of the species. The plant has lovely pale lavender flowers, each with the characteristic white eye and beautiful pale jade green toothed leaves which are conspicuously edged with a primrose yellow meal.

Finally, I want to put in a good word for a true species, Primula viscosa which, as the photograph shows, is very flowering, is a somewhat variable plant having in its best forms clear rose pink white-eyed flowers but, in the worst, a dirty pinky mauve. The leaves are dark green and somewhat sticky; hence the name.
Levy-Bellis Wedding

In a lovely ceremony on October 24th last, Florence Levy became Mrs. Robert M. Bellis. The ceremony took place in the Chapel of the Hills situated in the beautiful foothills of Mt. Hood. Mrs. A. C. U. Berry, Mrs. S. G. Henricke, and Mr. Dale Worthington were among the friends attending. The couple left immediately for a month's stay in Mexico and are now at Barnhaven.

(continued from page 14)
Climatic Similarity Of Two Widely Separated Areas

Our former Seed Exchange Editor quotes from long time member, Mrs. Dorothy Stanley of Bar Harbor, Maine, in one of the most interesting articles the Quarterly has had the pleasure to print.

By Chester K. Strong

If there is helpful information for gardeners set forth here, credit should be given Mrs. Dorothy Stanley of Bar Harbor—an unusually pleasant site situated on Mount Desert Island, slightly off the coast of Maine. The island is set in interesting coastal waters where compact mountain masses, such as Cadillac Mountain with an altitude of 1532 feet, with numerous lesser uplifts, form its solid spine. These elevated areas in conjunction with lakes and the surrounding ocean contribute to a situation which is definitely enhanced by patterned atmospheric currents to create an environment which should be of general interest to growers of primroses as well as other introduced plants.

Many gardeners are dedicated to the conviction, often with substantiating evidence, that conditions under which they attempt to grow flowering plants are the most trying and unfriendly conditions imaginable. When an attempt is made to gather in from many areas of the earth selected plants coming from diverse habitats and attempt to make them live harmoniously in a relatively small garden plat, multitudinous difficulties lift their ugly little heads. It is not a gift of a "green thumb", a silly term at best, that makes the creation of a garden possible, but another acquired gift, that of gardening skill. Gardening skill is no more than the ability to supply proper and ample nutrients, drainage,—in other words to create conditions fitted to needs of plants, all species and forms considered as individuals, each with certain prime needs. Experience and observation are certainly the best teachers.

Here an attempt is made to follow the similarities and the diversities in climatic conditions on Mount Desert Island, near sea level, and conditions prevailing in Colorado at approximately a mile above the sea. Conditions are certainly more similar than dissimilar. This brief investigation began when Mrs. Stanley wrote: "Here on Mount Desert Island, on which Bar Harbor is located, we have a little personal climate all our own, in which as a gardener you may be interested". Certainly to know of a restricted area with a climate peculiarly fitted to it is of interest. It may be noted that the State of Maine as a whole is placed in Zones III and IV in the hardiness zones for plants in the United States. Colorado rests partly in Zone II, in the mountains, the plains being placed in Zone IV, as in southern Maine. The Zonal Map was published in 1936 and is based on annual minimum winter temperatures for the years extending from 1895 to 1935, soil and rainfall not being considered and in my opinion are too general to always be of great aid. Unless given some study the map can be misleading.

In her letter Mrs. Stanley continued, "For many years Beatrix Farrand, for whom the new Forsythia is named, maintained a summer home and more or less an experimental garden here where she tried out plants from California and areas south... she grew many azaleas and rhododendrons which are listed for Zone V and sometimes Zone VI in Rehder's text, Manual of Cultivated Trees and Shrubs. She grew many California wild flowers, and a large collection of heathers and of brooms, as well as Jasmine nudiflorum, box, etc."

This being a discussion of similarities and contrasts of the two areas, hardness must be eliminated so far as the growing of azaleas, rhododendrons, heathers and brooms, and similar plants are concerned, for here another factor enters, that of soil components. The above plants are impossible in Colorado for our soils, almost without exception, are alkaline to a greater or less degree. The basis of the alkali is mainly salts of soda, potash, lime, magnesia, etc., in varying concentrations, but always giving a lime reaction in pH tests. Where chemicals are introduced to create acidity or a neutral soil, shortly the physical properties of the soil are completely changed to the degree that, if acidity was created, other conditions resulting would inhibit the growth of acid demanding plants.

"Our climate is very much like the Northwest except for about two months of the year", Mrs. Stanley noted. "We seldom have temperatures below zero. We sometimes have snowless winters... as this past winter (1957-58). We had no snow at all until the middle of February. Most had gone off when we had a bad storm a week ago, and now, today, (March 2, 1958), we are having another one. And when the week ago storm came I had in bloom species Crocus, Iris danfordiae, Eranthis, Hyacinthus azureus, and other things. Snowdrops, of course, we take for granted. Also, Arabis, which had bloomed well into January, just stood still in the bud, and was getting ready to bloom again when the snow came."

If the eastern slope of the Rocky Mountains at an altitude of a long or short mile, had a snow pack extending from November to the first of April, acting as a mulch for plants, and if spring came in with some mellow, lamb-like qualities, rather than as an angry snarling feline, gardening would be much simplified. Many winters little snow or rain falls, often dry winds sweep down from the northwest and the effect is as searing as are such winds during the heat of summer. The week in which this is written, in November, humidity has been running five or six per cent of atmospheric content, with temperatures well under freezing, and as a consequence plants have the appearance of possessing little vitality, not enough to live through to the coming of the pleasant month of May. Drought or near-drought conditions, both on the plains and at high elevations, persist in cycles of a number of years, and such conditions are more devastating to high alpine growth on the mountains at 11,500 to 14,000 feet, than to cultivated gardens at lower altitudes which depend wholly on irrigation for life. The effect that these periods have at both elevations is to lower the humidity in the atmosphere and bring on a dangerous condition of dehydration. In extreme times we use fogging nozzles, not so much to wet the soil as to introduce fine vapor into the air.
At high elevations a subnormal fall of winter snow goes off with a rush beneath a June sun and if a few summer rains do not come at intervals to succor the struggling vegetation, dehydration develops rapidly. Fortunately alpine growth conforms to such seasons as an amazing degree and damage is seldom permanent, the greatest loss being a seed crop. Investigation of alpine plants under drought conditions would be interesting research and might well be rewarding.

Surprising results often come from the work of adventurous gardeners, as is Mrs. Stanley, for in her garden on Mount Desert Island she has plants growing prosperously which one would not expect to find along the Maine coast. "I have pink and ordinary white-flowering dogwood" she thus describes them. "I have had Crape Myrtle for three years, and this year I planted some Camellias, just for fun and they have come through this past winter with green leaves and, if my judgement is any good, with flower buds intact. Last year, when January was so cold that it killed the flower buds on the Forsythia, my Magnolia stellata bloomed profusely. I have M. stellata, M. soulangeana and the Swamp magnolia. And I have known that there are "cucumber" magnolias fifty years old growing here on the "island."

Possibly somewhere in Colorado, outside my limited knowledge, there may be Magnolias, Camellias, and numerous eastern dogwoods living and offering their flowers each year. It is not unusual to discover interesting and unexpected shrubs growing in the public parks in Denver. Occasionally one is pleasantly surprised to find a thriving planting of shrubs or herbaceous plants where an individual, not knowing that such plants would not grow under Colorado conditions, has set them to please himself.

To me the most interesting point which Mrs. Stanley discovered in checking the U. S. Department of Agriculture yearbook, "Climate and Man", and using the material referred to below, is the matter which she discusses in this paragraph: "We have a peculiar situation. Our mountains, as we call them, are merely little hills in your country. Yet they are very impressive, rising out of the ocean. And the Brooklyn Botanic Garden did a survey some years ago, showing that the air between the "mountains" is as dry as the Arizona deserts. Members of the survey could not believe their own figures, and did it for three years. The only explanation that they could come to was that the prevailing southwesterly wind in the summer flows over hot granite, which takes a lot of its moisture. This is, truly, the only place except Arizona where I have seen such "burning" blue skies. I do think you must have them in Colorado, but I have never been there. The sky becomes almost electric blue, which accompanies very dry air. It seems strange that we should have this on an island surrounded by water but we do."

Of skies Colorado has variety, but usually they are termed cerulean or azure, of great clearness; more often than not with globular, exaggeratedly puffed clouds afloat, rarely is a touch of argentine missing. Skies are often of an angry cast, turbulent, the blue fogged out by moisture. Rarely do they display burning blue but during the days that we spent in the mountains this year, skies were arid, sunlight was of unfiltered brightness. In photographing under Colorado skies we have a few times met extremely strong lights, sufficient to send the needle of a light meter to its extreme registering capacity.

Mrs. Stanley continued, "Every year I get angry because Dahlias, for instance, will not frost and die down when they should. I have planted sweet peas the last day of December. And a friend of mine has planted Narcissus in January. It seems our seasons are all confused, and when it should be spring, it is winter! I have picked blossoms from my garden every month of the year! Right now, the 21st day of March, we look more wintry than we have looked all during the real winter season. There is only one consolation, it cannot last long with days over twelve hours long and the sun so high." Mrs. Stanley added a postscript that Primulas rosea and cashmeriana were ready to bloom when the March storm came.

It must be said that in Colorado we have frosts that end the growth of herbaceous plants not later than the forepart of October and this ends all growth. After killing frosts, Indian summer begins and often extends as late as the beginning of the new year. Storms of short duration do come, and temperatures drop, but snow melts rapidly and the sun always returns after short absences.

So far as this investigation has gone there is evidence that conditions in this area of Colorado and on Mount Desert Island are very similar except for the components of the soil of the two localities.

(continued from page 8)

had a hard climb and there were the ferns I wished. I raised my voice in a tone of authority as I had heard my Dad do when we were in the wilds of Wisconsin, "You old Ursa, get out of here." My stern voice echoed back. I was told it was worse than meeting the bear! We lost no time in digging the ferns and my scanty number now indicate how very few we collected.

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AMERICAN PRIMROSE SOCIETY
A Letter from British Columbia, in the Pacific Northwest

This is evergreen country and the land of lush green lawns

GRACE M. CONBOY

It is December 1st and a mild 50° today. The trees and lawns of British Columbia are a verdant green. Evergreen shrubs, taking over where summer left off, carry on the interesting effects they can, with various leaf textures in the garden. During the winter months, after the garden has been tidied and put to bed, good selected shrubs can retain a restful attractiveness enhanced by the occasional sprinkling of fluffy snow.

A few Polyanthas and Primroses are brightening the green landscape with shy bloom. On a trip down to Victoria over the past weekend, it was a delight to see bloom on Primula Capitata in Mrs. Hibberson's Garden. She is an old-time member of the American Primrose Society. She proudly showed me her frame of plump Show and Alpine Auriculas, a stock she has built up in the past few years after having to destroy her former collection because of disease infestation. It was a joy also to see frosted leaves clasping hidden buds of the lovely Petelaroid Sessilis. In her alpine troughs nestled many tiny bud crowns of Primula Minima. Always a shy bloomer, hope it rewards this charming little lady with plenteous bloom come spring. Her joy in growing so many of the primulas and delightful woodlanders with her Rhododendrons has gone far in restoring my interest in primulas.

These are temperamental fairy creatures full of charm and grace. If you have once had and lost them, they persist in the mind's eye until they are re-

A Portion of my Rock garden on Marine Drive
(Photograph courtesy the author)
An Early Pioneer

"A primrose by a river's brim
A yellow primrose was to him,
And it was nothing more."
— Wordsworth

BY NANCY FORD

"If it had been one of the new hybrids it might have been different. I find the hardy primulas are not only beautiful but extremely useful. Many of them flourish in a cold northern exposure, where so many other plants fail."

The above was written for her garden club in 1928 by Mrs. Nels Bolduc. For at least thirty years she has been growing primroses at South Colby, Washington. This was long before they became popular in our gardens in the Pacific Northwest and I feel that Georgia Bolduc should be honored as a pioneer in the field. It was in her garden that I saw my first primrose, and she has been the inspiration for many primrose growers. One cannot leave her charming company without a cup of tea, a division of several choice plants, and a good bit of Scotch burl.

When Georgia Bolduc was twelve years old she remembers visiting an old relative in a community near her home at Kerri-dale, Scotland, who had grown some beautiful gold lace polyanthus. Her mother had always grown primroses but they were just the old reds, purples, and yellows. When Georgia came to this country to make her home she was determined to have some of the flowers that she had grown in the old garden in Kerri-dale, a suburb of Glasgow. She sent to Glasgow for seed of new varieties and to Sutton's in England. From these seed, by natural selection and careful breeding she has grown some lovely primula. Since she got better germination from her own seed she stopped buying seed and began the far more interesting hobby of hand pollination.

She has raised lovely hose-in-hose, gold lace, and double "flower-in-flower" as she called it. Could it be that she had a double hose-in-hose? This was before I knew anything about primroses and it has long since disappeared. At one time a pale chartruese polyanthus with a fringed edge appeared in her garden. It proved to be sterile, but she increased it by root division. She was able to develop a really good blue at a time when blues were muddy and often streaked with red. One of my first memories of primroses was of Georgia and my mother bent over a lovely clear blue (continued on page 28)
Seasonal Notes From Barnhaven

BY FLORENCE BELLIS

Just as the patch of Cowslips at the wood's edge is a relaxation after a spring filled with high-fashion beauties of the Polyanthus world, so an occasional return to the old essayists is refreshment for the mind. And with this return to the less complicated forms, we seem closer to the heart of things, with minds freer to wander and browse and ask the whys of nature as we did when we were children. So it happened that upon reading Sir Francis Bacon's essay "Of Gardens" our thoughts turned to the scent of flowers—why some are perfumed and why some are not and the why beneath these whys.

Bacon opens his essay with "God Almighty first planted a garden. And indeed it is the purest of human pleasures. It is the greatest refreshment to the spirits of man; without which, buildings and palaces are but gross handworks: and a man shall ever see that when ages grow to civility and elegance, men come to build stately sooner than to garden finely; as if gardening were the greater perfection. I do hold it, in the royal ordering of gardens, there ought to be gardens for all the months in the year; in which, severally, things of beauty may be then in season."

In the dead of winter he relies upon things that are green and varied in shape, listing no flowers. Although he writes for the climate of London, there were no Polyanthus in existence four hundred years ago to bloom as they do in Oregon's comparable winters. Among the plants for late winter and early spring he lists the "mezeren-tree, crocus—both yellow and the gray — primroses, hyacinthus, anemones, violets, daffodils, the daisy and the almond, peach and "cornelian-tree in blossom". In April, May and June, among others, are the "double white violet, wallflower, stock-gillyflower, cowslip, flower-de-luces, tulippa, lilies of all natures, double peony, damson and plum-trees in blossom, lilac trees, pinks, roses, straw-berrries, rasps and apple-trees in blos-

His list revives a strong personal conviction that our gardens today could, as well, profit by the use of fruit trees and berries not only for the beauty in blossom but for the beauty in fruit. Such fruits and berries could still be purchased at the supermarket if the habit could not be broken. Continuing with his cataloging, in part, for summer and fall are "plums, apricots, filberts, grapes, peaches along with musk-roses, monkshoods and gillyflowers."

At last we come to the sentence responsible for renewing our curiosity about scent, the foregoing having been an irresistible digression. "And because the breath of flowers is far sweeter in the air (where it comes and goes, like the warbling of music) than in the hand, therefore nothing is more fit for that delight, than to know what the flowers and plants that do best perfume the air." For Sir Francis "that which above all others yields the sweetest small in the air, is the violet . . .", and "next to that is the musk-rose. Then the strawberry-leaves dying, which yield a most excellent cordial smell. Then wall-flowers, which are very delightful to be set under a parlour or lower chamber window. Then pinks and gilly-flowers . . ." Here we regretfully leave Bacon and turn to "The Living Garden" and find our regret is short lived. Written with the same charming simplicity, but with the advantages of four centuries of science, Salisbury opens his chapter on Scent and Color with "Form, colour and scent—these are the chief qualities upon which we depend to make a garden of delight". He goes on to state that the organic chemist will tell you that the scents of flowers are caused by substances of varying chemical constitution, most commonly belonging to a group of compounds known as "terpenes", containing hydrogen atoms and carbon atoms, the latter being joined in a ring. He feels that it is quite likely these substances which stimulate our sense of smell are by-products of the plant's manufacturing processes, and although the constituent elements are few (carbon, hydrogen and oxygen) their arrangements may offer astounding diversity, like a combination lock in which, though the letters are always the same, the number of possible arrangements is stupendous. In view of this, he points out that most of the species of Eucalyptus have each their characteristic scent, and that whereas one species of Thyme has sent poeits into ecstasies another smells of Caraway.

A most interesting observation can be made by walking around your garden and noting which flowers are scented and which are not and then realizing that those which are markedly perfumed are usually pale-colored and tubular-shaped and must depend upon long-tongued insect agents for the transfer of their pollen from one flower to another as a means of perpetuation. And that some, such as the Night-scented Stock, the Tobacco and Honeysuckle, are either much more strongly scented after dusk, or even quite scentless during the daytime because these are all visited by moths and night-flying insects. Furthermore, that since a particular kind of flower is only visited by one or few kinds of moths, and that these fly about at definite hours of the night or evening, it is significant that night-scented flowers attain their maximum fragrance at different hours.

And at this point, space and the tradition of breaking the thread of a story at one of the most interesting parts, dictates the continuation of these Notes on Scent and Its Relation to Color in the Spring issue.
and Georgia proudly announcing, "Look, Jessie, one of the new blue seedlings". At that time I did not appreciate the vision and patience that had gone into producing that tiny plant. Today we can order seeds that will give us lovely blues, but twenty or thirty years ago they were indeed rare.

Georgia Bolduc has one of the loveliest collections of double acaulis I have ever seen. They are artfully naturalized with maidenhair ferns, rocks, moss and accompanying plants which does so much to make them beautiful. Her rustic cottage fits well into the "Old World" garden that she has created. Her garden, like her own personality, is natural and friendly and one feels a deep sense of gratitude at being privileged to visit it.

Only this year she discovered a plant of creamy pink in a jungle of weeds and grass, whose progenitors, no doubt, came from Scotland thirty years ago. Such pleasant surprises can be expected every Spring in this garden where hybridizing has been going on for so many years.

For her seed flats she has always used just garden soil, sterilized by baking. Her seeds are planted in January or early Spring and left outside to freeze and thaw naturally. The only fertilizer she has ever used is chicken droppings in weak solution. She is a confirmed organic gardener, never using commercial products.

Although not able to keep up the large garden she used to do, Georgia Bolduc still cares for her primrose bed. At the age of nearly eighty-four she manages to maintain and continue to improve by hybridizing one of the most charming primrose gardens I have ever seen. I am sincerely grateful to her for starting me on the way to primrose appreciation.
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<td>overseas Membership</td>
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<table>
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<th>Size</th>
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<td>Gallon</td>
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