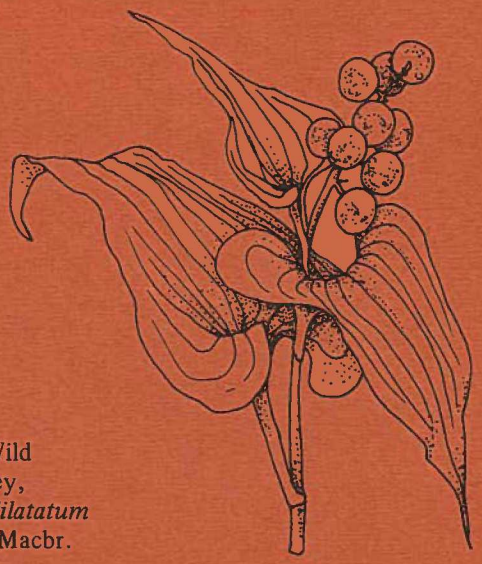
# DAVIDSONIA

*VOLUME 2 NUMBER 3* *Fall 1971*

*Cover*

Fruiting panicles of the 'Scarlet Elderberry', *Sambucus racemosa* ssp. *pubens* var. *arborescens*



Red berries of Wild Lily-of-the-Valley, *Maianthemum dilatatum* (Wood) Nels. & Macbr.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# Rhododendron Species Collection Has New Home

ROY L. TAYLOR, *Director*

On September 27th, the new Botanical Garden nursery was officially opened in the south campus of the University of British Columbia. The development marks the first major achievement of the new Botanical Garden program initiated in 1969. The nursery will be devoted to the propagation of new material for other garden components soon to be developed. In addition, the nursery will house the foundation collection of *Rhododendron* species.

To commemorate the opening of the nursery, Dr. Douglas M. Henderson, Regius Keeper of the Royal Botanic Garden of Edinburgh, planted the first *Rhododendron* of the species collection in the new site. The species was *Rhododendron taliense*, a plant obtained from the Younger Botanic Garden of Scotland in 1965. This species will be joined by nearly 300 additional species of the Rhododendron Species Collection at U.B.C.

The University Botanical Garden Rhododendron Species Collection was initiated in 1952 by Dr. T.M.C. Taylor and Dr. J.W. Neill when plans were made to bring a major collection of plants from the Royston Nursery on Vancouver Island. During 1952 and 1953, the owners of Royston Nursery, Ted and Mary Greig, donated 1,000 rhododendrons to the University of British Columbia. The collection was placed in a nursery sited in what is now Parking Lot A. The rhododendrons were used for both research and landscaping purposes on the campus.

In 1964, the University entered into an active program with the Rhododendron Species Foundation of Eugene, Oregon, which resulted in the establishment of many new species in the collection. In 1969, a co-operative program was initiated with the Pacific Rhododendron Society of Tacoma, Washington to add further new species. Most recently, a new program has

*Dr. Douglas Henderson, Regius Keeper of the Royal Botanic Garden of Edinburgh, planting Rhododendron taliense to mark the opening of the new rhododendron nursery. He is watched by, from left, Chancellor Allan McGavin, President Walter H. Gage, Dean of Agricultural Sciences Dr. Michael Shaw and Director of the U.B.C. Botanical Garden, Dr. Roy L. Taylor*

been initiated between the Botanical Garden and Vancouver Chapter of the American Rhododendron Society for the purpose of stimulating interest in rhododendron species and to enable the acquisition of species lacking in the collection. It is hoped that with the aid of these co-operative programs, the U.B.C. Botanical Garden can develop one of the most important collections of species suitable for cultivation in north temperate regions.

1967-68, the Rhododendron Species Collection was moved to the Department of Physical Plant nursery in the south campus. Plants were maintained in the nursery until the development of the Botanical Garden nursery was complete. All rhododendron species will be transferred to the Botanical Garden nursery for foundation stock. Hybrids will be maintained and propagated by the Department of Physical Plant for use in landscape plantings on campus. The Botanic Garden species collection will be used for research, teaching, breeding and propagation of new plant material. A special display garden will be established in the 30-acre Marine Drive Garden in the new garden development on the main campus. Rhododendrons will continue to form an important landscape element on the Point Grey campus.

The new major garden development will be the initiation of the Alpine Garden in the spring of 1972.

*Rhododendron taliense, the first rhododendron to set roots in the new nursery, is given thorough and expert treatment by Dr. Henderson (left) and President Gage*

*Early stages of development of the nursery area. Mr. Max Foster, the contractor responsible for selective clearing of the bush, operating a rock picking machine. Sizeable timber trees of Douglas Fir, Spruce and Cedar have been left at intervals, anchored by mounds of soil, to provide shade for the rhododendron collection*

# Unusual Annuals at International House

CHRISTOPHER J. MARCHANT

The beds of annual species at U.B.C.'s International House this year have again been very successful. An entirely different range of annuals than those of the previous year were used creating a very varied and colourful display. Selected from sixteen different countries, many of them are rarely grown as ornamentals yet have unusual and attractive features.

Perhaps the most striking plants involved were some of the taller species dominated by the showy Corn Cockle, *Agrostemma (Lychnis) githago* from Britain whose magenta five-petalled flowers some two to three inches across were carried on four foot slender stems and set off by delicate grey-green slender foliage. Another spectacular plant is *Ammobium alatum* from Australia whose white double flowers with raised yellow centre are borne to a height of three and a half feet on deep green, glossy, leafless but broad-winged stems. The latter take over the function of true leaves. The plants tended to lean and become more straggly as they elongated but this is small disadvantage for the very long flowering season (until first frosts) and the everlasting qualities of the plants when hung upside down to dry.

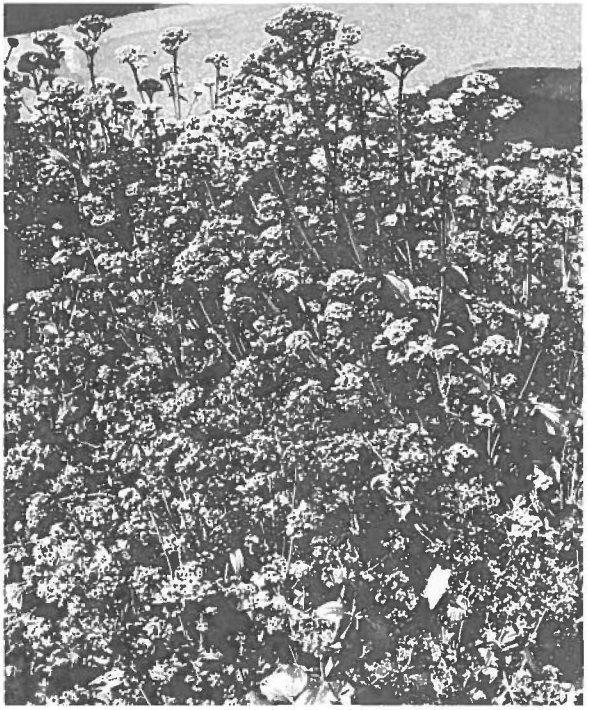
*Agrostemma githago, the Corn Cockle, a tall graceful annual with large magenta flowers*

A southern European everlasting species which also has the advantage of strong upright growth, whose light green leaves are silvery below is *Xeranthemum annum*. It formed dense, very floriferous clumps with one inch diameter incurving deep mauve flowers and again has a long season. Plants normally grow to two feet but with us only attained 18 inches.

For a contrast between glossy bright green foliage and rich yellow daisy-like flowers the two foot (normally four foot) high *Verbesina enceloides* "Milas", or Butter daisy from the

*Australian Ammobium alatum, an 'everlasting' flower whose white and yellow blossoms are carried on dark green leafless winged stems*

western U.S. provided a strong-growing example although the proportion of flowers to leaves is rather low. Somewhat shorter but more showy were the bright pink heads of *Centranthus macrosiphon* from Spain. They were massed close together for maximum effect.



*Centranthus macrosiphon from Spain has dense masses of small bright pink flowers and is effective grown in a massed planting*

Annual Poinsettias, *Euphorbia heterophylla* from southern North America are easy to grow and bright in midsummer with their top leaves of brilliant red contrasting nicely with the dark green lower ones. This year they were slow to grow after planting out.

Of the smaller annuals used in the display eighteen inch high *Alonsoa warscewiczii*, the Mask flower of Peru, produced a continuous display of graceful spikes of small light scarlet flowers throughout the season and late into the fall, while fragrant Californian *Mentzelia lindleyi* gave a bright splash of colour with large golden yellow flowers like those of *Hypericum* on one foot high stems. The flowers open in the evening lasting until the following midday. Being low growing these are good flowers for windy spots.

Argentinian *Blumenbachia hieronymi* forms a dense mat covered in nodding, incurving, white and orange flowers, each having an intricate structure. Later on the seed capsules like miniature footballs one to two inches in diameter cover the plant. One word of caution; the whole plant is covered with bristly stinging hairs which inflict a nettle-like rash at the lightest touch!



Six inches high *Nolana acuminata*, the Chilean Bell flower, with Convolvulus-like flowers did well but needs more space to trail. *Eucharidium* "Pink Ribbons" from California is an attractive relative of *Clarkia* with small two-lipped orchid-like pink flowers. The reddish stems and leaf veins enhance the appearance.

Finally several very neat compact species were grown. *Lopezia coronata* from Mexico grew to twelve inches high with spikes of small unusual salmon-pink and white, two-lipped flowers. At the time of writing (October) the plants were still flowering along with bright green berries. The stamens of this plant release their pollen explosively when a bee alights on the flower. South African *Amellus annus* was very attractive forming compact six inch high clumps liberally topped with soft deep blue flowers, some with a bright yellow eye, others with blue. However, a number of the plants sickened and died prematurely and the species does not seem to have a particularly long flowering season. Its colour contrasted sharply with the dense clusters of yellow button heads of another South African *Cotula (Cenia) barbata*, the Pincushion plant.

Two further dwarf annuals are worth mentioning. These are scarlet flowered twelve inch high *Collomia biflora* from Chile and white flowered four inch high *Ionopsidium acaule* from Portugal. The latter formed a particularly compact, many flowered cushion.

Despite the long spell of cool wet weather which extended into July this year all these annuals responded well to the later heat wave and mostly thrived, helped no doubt, by the sheltered aspect at International House. However, some shade there from surrounding hedges may be a problem since most annuals do need plenty of sunshine.

In 1972 the program will be continued with a further selection of annual species from all corners of the world, continuing the international flavour of the landscaping at International House.

# Sambucus racemosa L. ssp. pubens (Michx.) House var. arborescens (T. & G.) Gray

'SCARLET ELDERBERRY' *or* 'COAST RED ELDERBERRY'
Member of the Family Caprifoliaceae

*Natural Distribution*

*Sambucus racemosa* ssp. *pubens* var. *arborescens* occurs in the coastal and subcoastal regions from Alaska and the Aleutian Islands south through western British Columbia to western Washington and Oregon and extending in the Californian Coast Ranges to the vicinity of San Francisco Bay. In B.C. it is typically found west of the Coast Mountains in the Coastal Forest and Gulf Island Zone, and also in the Interior Wet Belt Zone, in North Central B.C. and near Mount Robson.

*Habitat*

The habitat is characterised as the Humid Transition and Canadian zones. Within these zones *Sambucus racemosa* ssp. *pubens* var. *arborescens* is found in wooded, rather moist places (especially stream banks on mountain slopes), at moderate or low elevations – below 2000′ in the Coastal Forest of B.C. and below 3500′ in the Interior.

*Description*

Hardy, deciduous, large spreading, sometimes arborescent shrub, (1-)2 - 6(-8) m high.

Root system is widespread, fleshy and shallow.

The bark is warty, smooth, greenish when young, becoming dark reddish brown with age.



Twigs are more or less 6- 10- sided or angled, stout, finely pubescent and green when young becoming somewhat glaucous or even glabrous and brown with maturity and have minute thickened glandulous stipules. The pith is very large, soft and brown in both stem and branchlets.

Buds are large (10mm), with 3 - 5 pairs of large reddish brown sharp pointed scales, solitary, ovoid. End bud mostly absent.

Leaf scars opposite, broadly crescent shaped, large.

Leaves are pinnately compound, 5 - 7 (-9) foliate, opposite. The leaflets are 4.5 - 17 cm long, 2 - 6 cm broad, narrowly ovate to narrowly elliptic, strongly acuminate at the tip, the sharply serrate margins with teeth usually incurved, often strongly unequal at the base, more or less pubescent beneath but the hairs sometimes confined chiefly to the midrib and main veins, and paler in colour beneath.

Flowers are produced from March to July depending on the elevation. The inflorescence is paniculiform, pyramidal with a definite central axis extending beyond the lowermost pair of branches, branches opposite or subopposite, 4 - 10 cm long. Flowers are 3 - 6 mm across, white or creamy, illscented, calyx lobes minute or absent, corolla open-urceolate with 5 broadly spreading lobes longer than the tube, 5 stamens. Style very short, 3 - 5 lobed. Ovary inferior, 3 - 5 celled, 1 pendulous ovule in each cell.

Fruit a berrylike juicy drupe, globose, bright red, occasionally yellow, chestnut or rarely white, 4 - 6 mm diameter, without bloom. Contains 3 - 5 one-seeded smooth nutlets. Unpleasant taste, though considered to be harmless by Szczawinski (1969).

*Propagation*

Seed propagation is somewhat difficult due to complex dormancy conditions involving both the seed coat and the embryo. The best treatment is probably a warm moist stratification period for two months followed by a cold stratification period for 3 - 5 months. These conditions could be met by planting the seed in late summer, after which germination should occur in the spring.

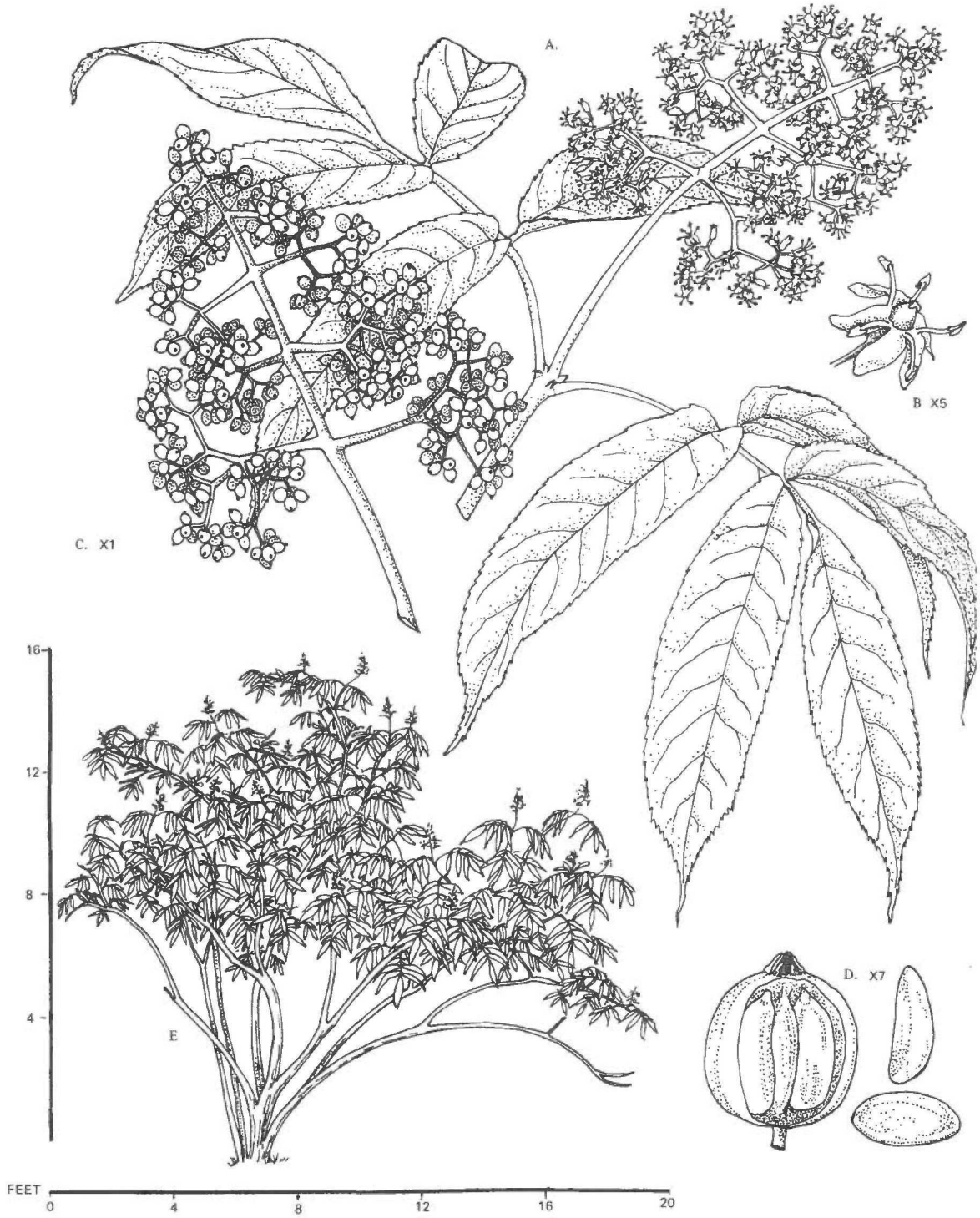



Figure 1. *Sambucus racemosa* ssp. *pubens* var. *arborescens* A. floral panicle, B. single flower, C. cluster of fruits, D. longitudinal cut-away view of the fruit showing seeds, E. typical habit of shrub.

Most propagation is by semi-ripe cuttings taken in July to early August with or without a heel. The cuttings are best rooted in a 3 to 1 mixture of sharp sand and peat in a closed frame or under an intermittent mist system. Rooting usually takes place within 15 to 20 days and hormone treatment is not necessary. Foliage may be lost under mist but this seems to have no effect on the rooting. Care is needed in transferring the rooted cuttings from mist to the 'growing on' media, although the risk can be reduced by a gradual reduction of mist once rooting has taken place.

Hardwood cuttings about 8″ long taken in late winter and planted outside to 2/3 their depth will give about 50% success.

*Transplantation*

Nursery grown shrubs are easy to transplant when in the dormant state between October through March.

*Conditions for cultivation*

Shrubs are relatively fast growing 4′ to 7′ per year when young and established, the rate slowing with maturity. The recommended hardiness zone for *Sambucus racemosa* ssp. *pubens* var. *arborescens* in Canada is Zone 3 (Sherk & Buckley, 1968). The shrub will grow well in moist to dry ordinary garden soil, but too much moisture in summer will prevent the shrub from fruiting freely under garden conditions. The shrub will grow well in sun or partial shade and will tolerate deep shade. Growth may become rank and untidy, in which case prune in early spring.

*Landscape Value*

*Sambucus racemosa* ssp. *pubens* var. *arborescens* is a member of a group which is much neglected as ornamentals. It is scarcely a plant for the small garden but provides useful attractive background material in an open shrubbery or as a hedge in a large area because of its bright red berries and attractive leaves. The fruits attract birds, especially robins and bandtailed pigeons, and therefore it is worth cultivating for this purpose.

*Availability*



Readily available from nurseries in other provinces but not from B.C. suppliers because of lack of demand.

*Ornamental Cultivars*

*Sambucus racemosa plumosa aurea* or 'golden plum elder' with golden yellow deeply toothed leaves is available locally. A yellow berried variant has recently been discovered at U.B.C. It is now being propagated in the Botanical Garden and is potentially a successful new cultivar.

*Other Uses*

In Europe the leaves and flowers of *Sambucus racemosa* have been used for dyeing leather yellow, and the bark or wood with added alum and iron salts for dyeing green or brown. The Haida and Kwakiutl Indians of B.C. both eat the berries of *S. racemosa* ssp. *pubens* var. *arborescens* – the former consider fresh, dried or cooked berries as a delicacy while the latter usually mix the elder berries with other berries such as salmonberries or salal berries to make them more palatable. In addition the Haida Indians consider the bark to have medicinal properties (Mrs. N. Turner, personal communication) – for instance the inner bark of the European *S. racemosa* has long been considered to be a hydragogue cathartic and, in large doses, emetic.

*Diseases and Problems of Cultivation*

The following insects and diseases have been reported for *Sambucus racemosa* ssp. *pubens* var. *arborescens*:–

1. *Desmocerus palliatus* – Elder Borer or Cloaked Knotty Horn. A dark blue beetle with a yellow 'cloak' over the upper portions of the elytra which produces a creamy white 1″ borer which burrows in the base and stems of wild and cultivated elder. Causes dieback of branches and sometimes of entire shrubs. Prune and burn all infested parts as soon as noticed.

2. *Achatodes zeae* – Elder Shoot Borer. Occasionally infests young shoots. Prune and burn all infected parts.
3. *Aspidiotus perniciosus* – San Jose Scale. The female is yellowish covered with a grey circular waxy scale, 1/16" diameter, elevated in the centre to form a nipple surrounded by a yellow ring; male oblong, oval, develops two wings. Young scales small and nearly black, spending the winter on the bark and growing when the sap begins to flow in the spring. The shrub may be sprayed while dormant, parasites and some lady beetles help to control the scale.
4. Several species of aphids are known to infest *Sambucus.*
5. *Cytospora sambucicola, Cytospora chrysosperma, Diplodia* sp., *Nectria cinnabarina, Nectria coccinea* and *Sphaeropsis sambucina* are six fungi known to cause cankers on twigs and branches. When the canker girdles the affected member the distal portion dies. Prune and burn stems and twigs showing cankers. Keep shrubs healthy.
6. Leaf spots may be caused by any one of many fungi but are rarely important enough to warrant control measures.
7. Powdery mildew on *Sambucus* is caused by one of 4 different fungi but again is rarely serious.
8. Root rots and wilts caused by fungi occur but are not common.

*Origin of the name*

The generic name *Sambucus* is believed to be from the Greek 'sambuke', an ancient musical instrument made of elder wood, although some authorities believe it to be the classical Latin name for the plant now called *Sambucus nigra.*

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## CLIMATOLOGICAL SUMMARY *

| *Data* *1971* | *July* | *August* | *September* |
|---|---|---|---|
| Mean temperature | 63.15°F | 64°F | 55.65°F |
| Highest temperature | 84°F | 80°F | 69°F |
| Lowest temperature | 47°F | 51°F | 40°F |
| Grass minimum temperature | 37°F | 40°F | 30°F |
| Total rainfall/No. days with rainfall | .66"/5 | .78"/8 | 4.19"/15 |
| Total snowfall/No. days with snowfall | nil | nil | nil |
| Total hours bright sunshine/possible | 335.4/482.51 | 242.5/439.03 | 162.8/372.22 |
| Mean mileage wind at 3' | 75.5 | 66.1 | 73.3 |
| Mean mileage wind at 40' | 110.0 | 111.0 | 107.4 |

* *Site: The University of British Columbia, Vancouver, B.C., Canada.*
*Position: lat. 49°15'29"N; long. 123°14'58"W. Elevation: 342.6'*

*Bursting capsules of 'Fireweed', Epilobium angustifolium L., abundant in old burns and clearings of the B.C. forest*

## *Botanical Garden Staff*

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*Research Scientist (Horticulture)*
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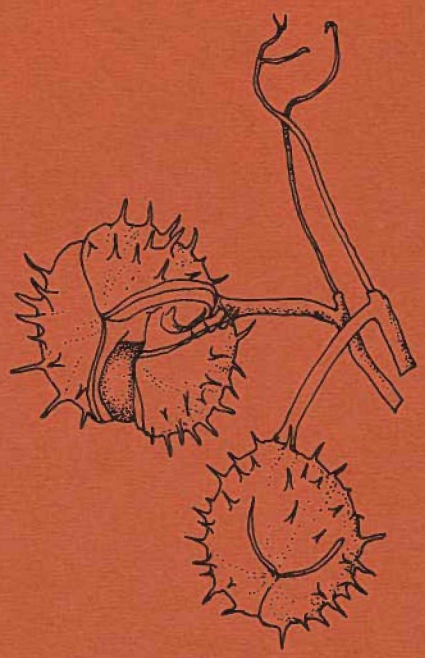
Mr. James O'Friel

*Gardeners*
Mr. Harold Duffill
Mr. Leonard Gibbs
Mr. Sam Oyama
Mr. Tomomichi Sumi
Mr. David Tarrant
Mr. Isao Watanabe

### *First Extension Program Initiated*

The introductory course in home gardening entitled "Gardening through the Seasons" offered by the Botanical Garden through the U.B.C. Center for Continuing Education this fall has been very popular and attended by nearly fifty members of the public. The informal lectures and practical demonstrations were run by members of the garden's staff. The course will be offered again in the coming year.

Splitting seed cases of *Aesculus hippocastanum* L., the 'European Horse Chestnut', revealing the glossy brown nuts. This is a large, fast growing and attractive shade tree



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