

Lilac Newsletter

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INTERNATIONAL LILAC SOCIETY

INTERNATIONAL LILAC SOCIETY is a non-profit corporation comprised of individuals who share a particular interest, appreciation and fondness for lilacs. Through exchange of knowledge, experience and facts gained by members it is helping to promote, educate and broaden public understanding and awareness.

This publication, *LILAC NEWSLETTER* (formerly *THE PIPELINE*) is issued monthly. Back copies are available by writing to the International Lilac Society, c/o Mr. Charles Holetich, Royal Botanical Gardens, Box 399, Hamilton, Ontario, Canada, L8N 3H8. Please send 50 cents for each copy requested.

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STUDIES ON SOME FACTORS CONCERNING THE ROOTING OF
GREEN CUTTINGS OF COMMON LILAC (SYRINGA VULGARIS)

- Dr. G. Schmidt, Faiskolai Tanszek,
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Abstract

1. Effect of the time of propagation upon rooting. In experiments with the cultivars 'Andenken an Ludwig Späth' and 'Mme. Florent Stepman' rooting ability of the shoots reached its first maximum immediately before finishing the shoot growth. In case of unpruned mother plants this coincided with the blooming. At the time of transition of the terminal buds from vegetative to generative state (generally after the end of blooming) rooting ability dropped to a minimum. If the majority of shoots ended with vegetative buds, this decrease did not occur. Cuttings taken 1-2 weeks after this and any time before the beginning of July rooted again in high percentages. From the first decade of July, the shoot tips finally lost their ability to root regardless of the age of plants, pruning or the percentage of generative terminal buds. Bud differentiation accelerated in July: terminal buds of unpruned plants and those from heavily pruned ones (whose shoot growth ended 1.5 month later) reached stage 7 of differentiation almost at the same time, by the beginning of August. It is supposed that this acceleration, as well as the final decrease of rooting ability, have photoperiodical causes.

2. In experiments with cuttings from different parts of the shoot (cv. 'Andenken an Ludwig Späth') apical cuttings rooted in the highest and basal cuttings in the lowest percentages.

3. NAA, given in talc proved to be the best in 0.8% concentration for the rooting of cuttings from cultivars 'Mme. Florent Stepman', 'Mme. Lemoine', 'Maximowicz', 'Vauban', 'La Mauve' and 'President Fallieres', while cv. 'Andenken an Ludwig Späth' did not respond to the treatment.

Materials and methods

1. Effect of the time of propagation upon rooting

Apical cuttings were taken at 3-4 day intervals from the end of April until the end of May and once a week during June and July from the upper part of the mother shrubs, 20 cuttings each time.

Mother plants used: in 1974 and 1975 12-13 years old unpruned shrubs of cv. 'Andenken an Ludwig Späth'; in 1976 4 years old unpruned shrubs of cv. 'Andenken an Ludwig Späth' and 'Mme. Florent Stepmann', and as a separate treatment 14 years old, but severely pruned shrubs of the same two cultivars. Since shoot growth of the latter ended only towards the end of June, the first cuttings were taken from them only after 20 May.

The cuttings were inserted in pure sand in a shaded plastic greenhouse and rooted under a polythene sheeting. 3-3.5 months after insertion, they were lifted and evaluated for rooting.

In the experimental years, the dates of characteristic phenological phases of the mother plants were recorded. Beside this, in 1975 and 1976, differentiation of the terminal buds was also studied on samples of 5 pairs of buds taken every week from each group of test plants. The buds were sectioned longitudinally with a razor and inspected under stereo-microscope. Similarly to Pikuleva (1970) the following stages of differentiation were distinguished.

stage 1. Apical meristem is in vegetative state initiating bud scales.

stage 1/E. End of stage 1. Bud scales elongate to their almost final length, but they are thin, paper-like.

- stage 2. Beginning of reproductive state. Bud scales thicken and the flat apical meristem becomes convex.
- stage 3. The apical meristem elongates and becomes lobed initiating the primordia of inflorescence branches.
- stage 4. Initiation of flower primordia.
- stages 5-6-7-8. On the differentiating flower primordia appear the primordia of sepals, petals, stamens and pistil, respectively.

2. Rooting ability of different parts of the shoot

3 experiments were carried out in 1975, with cv. 'Andenken an Ludwig Spath':

- 1st. experiment: Cuttings taken from unpruned mother plants on 8 May (full bloom), and rooted in a shaded plastic greenhouse in sand, with polythene sheeting.
- 2nd. experiment: Cuttings taken from severely pruned mother plants on the 13th of June (before the end of their shoot growth) and rooted as in the 1st. experiment.
- 3rd. experiment: Cuttings taken as in the 2nd. experiment and rooted under intermittent mist.

Treatments: 10-14 cm. long cuttings were made from the: 1. tip; 2. middle; 3. base of the shoots, with 1-2 internodes.

The experiments were laid out in a randomized block system in 6 replicates with 15 cuttings per plot.

3. Effect of alfa-naftilacetic acid (NAA)

The experiments were carried out in 1973, 1974 and 1975 with apical cuttings of cultivars 'Mme. Florent Stepman', 'Andenken an Ludwig Späth', 'Mme. Lemoine', 'La Mauve', 'Maximowicz', 'President Fallieres' and 'Vauban'.

Treatments: 1. Control (without treatment); 2. 0.2% NAA;
3. 0.5% NAA; 4. 0.8% NAA; 5. 1.6% NAA,
given in talc.

The experiments were laid out in a randomized block system, 4 replicates in 1974 and 1975, with 15 cuttings per plot. In all the three years, the cuttings were taken from plants in full bloom, in the time of finishing of shoot growth - 1973: 3-4 May; 1974: 16-18 April; 1975: 26-28 April. They were inserted in pure sand in a shaded plastic greenhouse and rooted with polythene sheeting. 2-3 months after insertion, the cuttings were lifted and evaluated.

Results, discussion

1. Effect of the time of propagation upon rooting

Variations of rooting capacity during the growth season (figure 1-3) show the following common features:

- a. Unpruned mother plants. Rooting percentage rapidly increased with maturation of the shoots and reached its first maximum during the time of slowing down and finishing of the shoot growth. This generally coincided with the flowering period of the test plants. After the end of blooming, at stage 1.E of the terminal bud differentiation, (which is practically the beginning of the transition from vegetative to generative state), rooting ability of shoot tips considerably decreased.

This decrease was not observed only in 1976 with cv. 'Andenken an Ludwig Späth'. In that year, however, only 18% of the shoots ended with generative buds. In the former years old mother plants were used with

60-70% of generative terminal buds. (cv. 'Mme. Florent Stepman' in spite that its mother plants were also young in 1976, had 60% of flower buds).

After the post-blooming depression rooting ability rapidly increased again and remained high from end of May until the beginning of July. In this period bud differentiation proceeded slowly and reached stage 2 and 3.

In the first decade of July rooting ability shows a steady decrease, and the cuttings taken any time after this, until the end of experiments, rooted in low percentages. In the same period, an acceleration of bud differentiation was observed.

- b. Severely pruned mother plants. Although their shoots continued intensively to grow until the end of June, rooting of the cuttings taken from them between the end of May and the beginning of July was satisfactory but irregular. After that, rooting ability of both cultivars strongly decreased and remained low until the end of the experiment. This decrease was accompanied by an extraordinary rapid bud differentiation: terminal buds reached stage 3 in one week after the end of shoot growth. (Percentage of generative terminal buds was 40% at cv. 'Andenken an Ludwig Späth' and 62% at cv. 'Mme. Florent Stepman').

These results contradict to the statement of Komarov (1955), according to whom the post-blooming depression of rooting ability is caused by the changing enzyme-activity of plant during and after flowering and during the development of seed pods.

It is more likely, that blooming is only a symptom, which usually accompanies the maturing process of shoots and which can, therefore, be used as an indicator for determining the safest time for propagation by cuttings. Sonnenfeld

(1961) and Bojarczuk - Jankiewicz (1975) obtained the best results (also in blooming period).

In our experiments, the first rooting maximum usually coincided with the flowering, but not in the case of severely pruned mother plants (that did not flower in the experimental year) and also not in the 1976 experiment with young plants of cv. 'Andenken an Ludwig Späth', the majority of whose terminal buds were vegetative.

It is supposed that the depression of rooting ability after blooming (and the end of shoot growth) is in connection with the transition of differentiating terminal buds from vegetative to generative state. Later, when the transition is over, and if the bud differentiation proceeds slowly, the shoot tips recover their capacity to root.

At the beginning of July, rooting ability definitely decreased, regardless of age, pruning or cultivar of the mother plants. This suggests a photoperiodic reaction, which probably affects the bud differentiation as well. It is supported by the fact, that terminal buds of unpruned plants and those from heavily pruned ones (whose shoot growth ended 1.5 months later) reached stage 7 at almost the same time, by the beginning of August.

2. Rooting ability of different parts of the shoot

There was a decreasing tendency from the tip towards the base of the shoot in all experiments (table 1.). Similar results were obtained by Coggeshall (1962) and Bojarczuk - Jankiewicz (1975) who consider apical cuttings the best for propagation of lilac. In the case of cv. 'Andenken an Ludwig Späth', the parts of shoot below the tip can also be rooted with satisfactory results.

3. Effect of NAA treatment

Given in talc, NAA proved to be the most efficient in 0.8% concentration for all the cultivars tested, with the exception of cv. 'Andenken an Ludwig Spáth'. (The latter did not respond to the treatments, presumably owing to its high native auxin content.)

This concentration is much higher than the 0.2% of NAA given also in talc in the experiments of Bojarczuk - Jankiewicz (1975).

It is interesting to note, that Coggeshall (1962) obtained the best results rooting lilac cuttings with the same concentration of IBA in talc (0.8%).

References

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- Figures 1-3. Effect of the time of propagation upon the rooting of apical cuttings.

fig.1.

ANDENKEN an LUDWIG SPÄTH

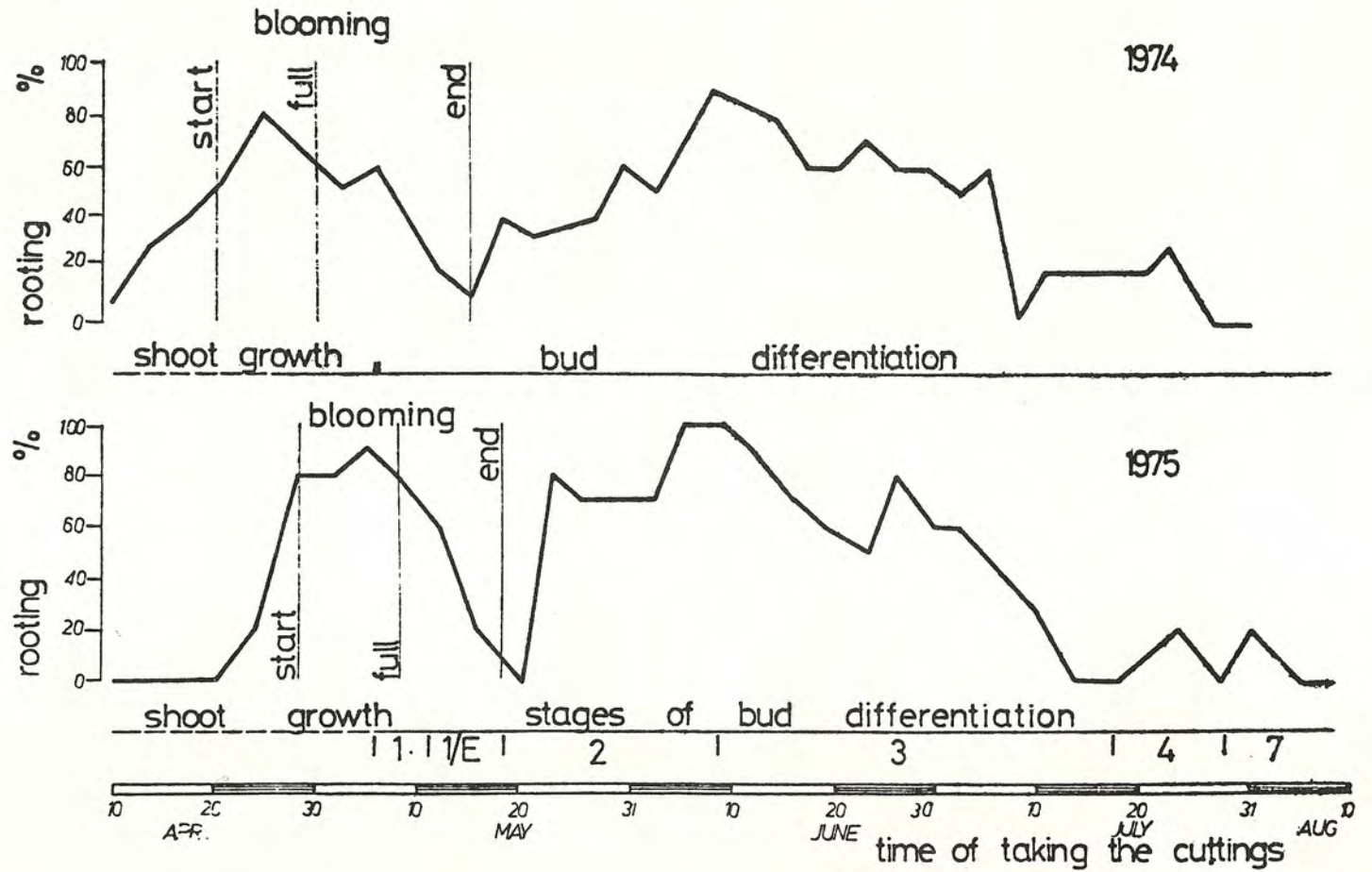


fig.2.

ANDENKEN an LUDWIG SPÄTH 1976

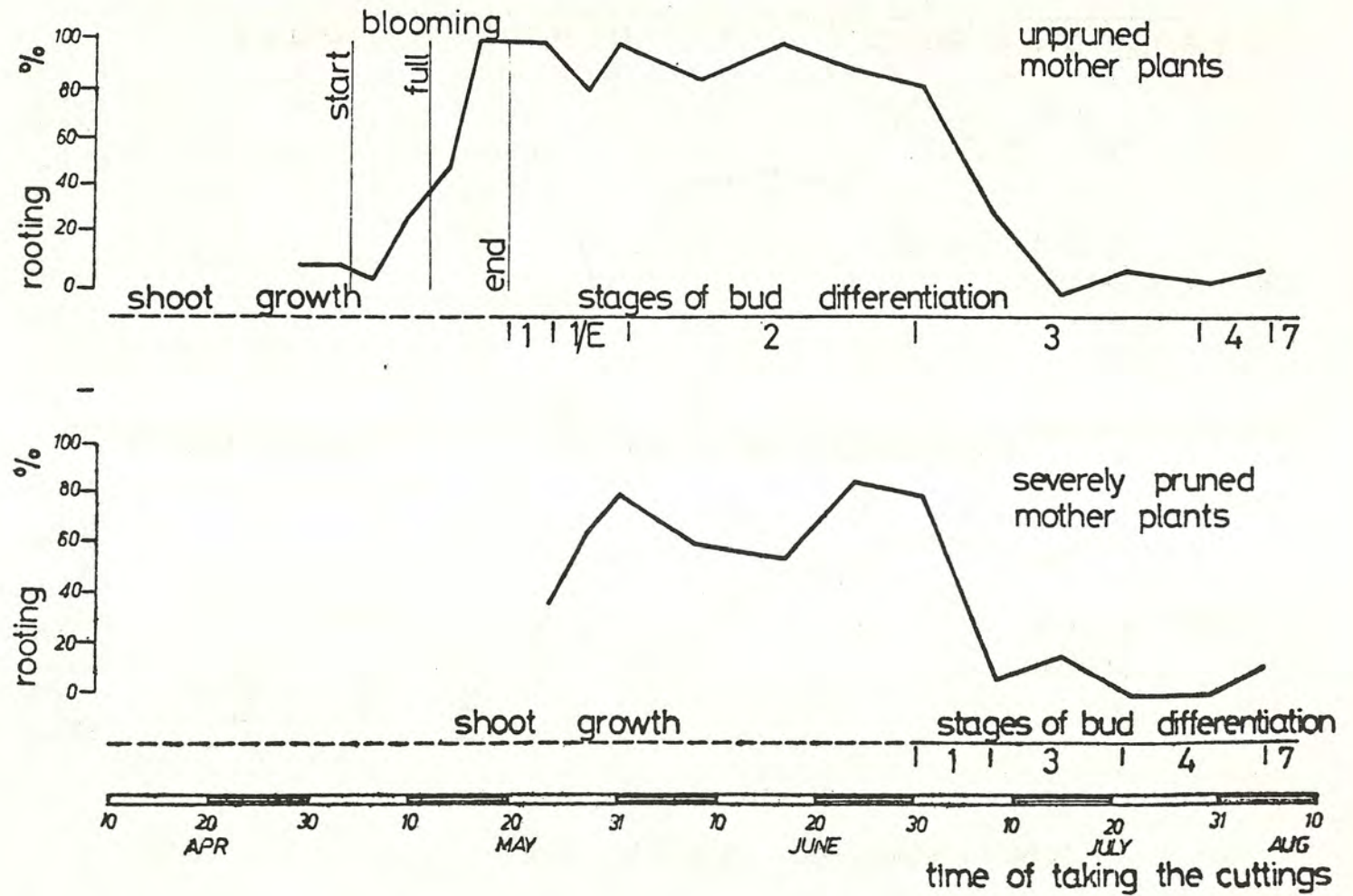


fig.3.

MME. FLORENT STEPMAN 1976

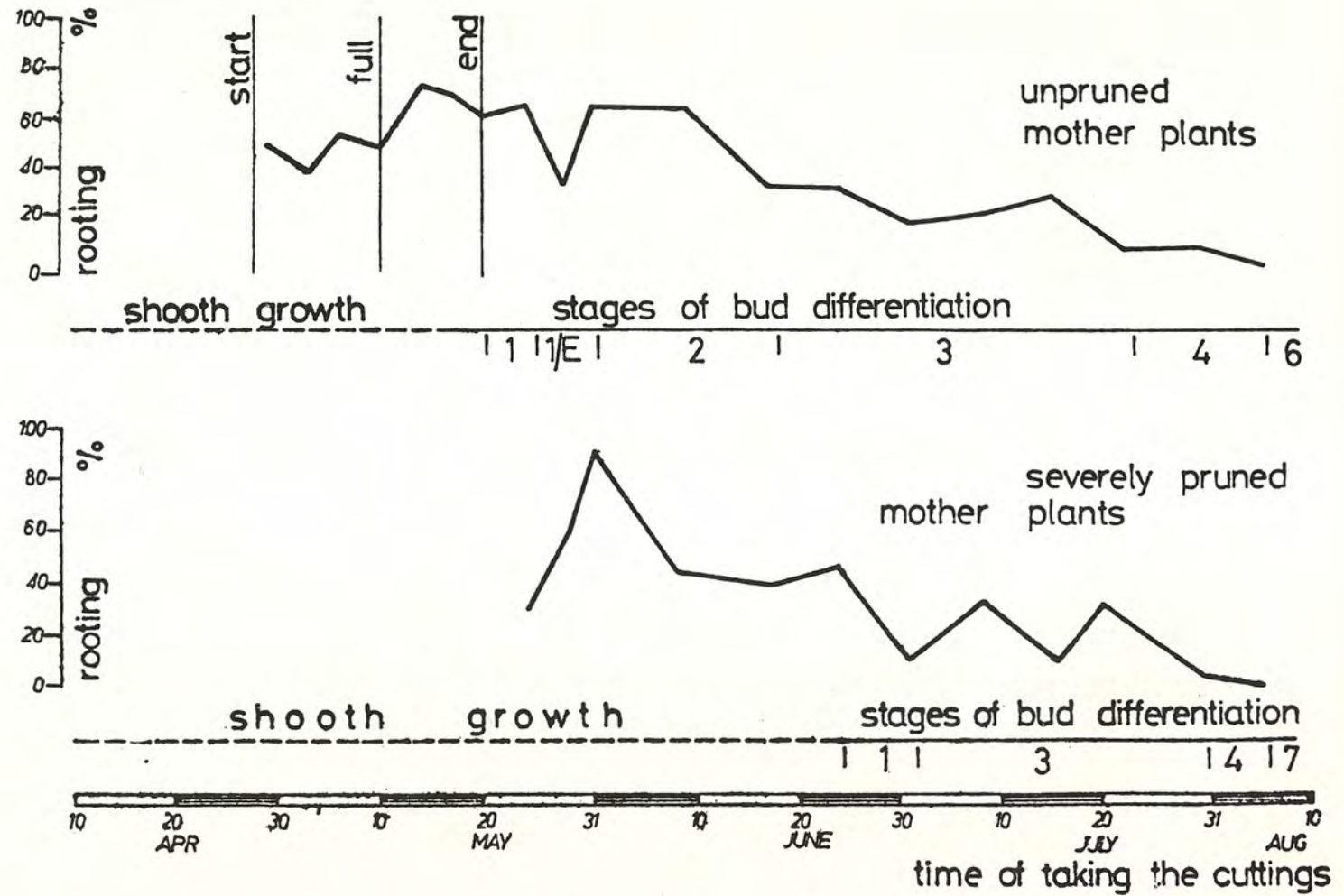


Table 1. - Rooting (%) of green cuttings made from different parts of the shoots (cv. 'Andenken an Ludwig Späth')

Type of cutting	I. Exp.	II. Exp.	III. Exp.
apical	76	72	49
middle	59	67	48
basal	33	18	17
$SD_p = 5\%$	13	15	NS
$SD_p = 1\%$	17	21	NS

NS: = not significant

Table 2. - Rooting (%) of lilac green cuttings as affected by NAA treatment

cultivar	year	NAA treatment					SD	SD
		0%	0.2%	0.4%	0.8%	1.6%	p=5%	p=1%
'Mme. Florent Stepman'	1973	37	77	85	95	86	15	22
	1974	1	31	24	63	36	18	24
	1975	42	62	56	63	60	NS	-
'Andenken an Ludwig Späth'	1973	79	81	77	74	77	NS	-
	1974	86	78	83	82	86	NS	-
	1975	79	72	68	72	74	NS	-
'Mme. Lemoine'	1974	20	19	36	72	40	19	27
	1975	71	78	76	84	84	NS	-
'La Mauve'	1974	24	62	73	89	81	13	18
	1975	39	42	39	43	39	NS	-
'Maximowicz'	1974	1	17	29	38	34	25	-
'Pres. Fallieres'	1974	0	19	13	47	38	13	18
'Vauban'	1974	16	39	37	56	48	21	28

NS: = not significant.

Editor's note: The foregoing paper was presented at the I.S.H.S. Symposium which was held in Dublin, Sept. 12-16, 1977, and is herein reprinted with the permission of the author (G. Schmidt), and ACTA HORTICULTURAE (Ir.H.H.van der Borg, Editor).

RENEWAL PRUNING OF SHRUBS

- Robert B. Clark

Of all the operations connected with horticulture, pruning, shaping and training bring the person into closest contact and sympathy with the plant. These are L.H. Bailey's thoughts on the subject I wish to discuss. Becoming sentimental over plants is not your concern nor mine.

The gardener prunes in order to improve his plant in some way. We are all familiar with the practices of removing dead and injured branches and in hedges with shearing to a preconceived form. But we also restrain, by pruning, a branch that encroaches on a walk. We are aware too that new shoots can be stimulated into growth by removing spent canes. And an important step in planting is the pruning of shoots to compensate for the reduced root system as a consequence of digging. Still another objective in pruning is to stimulate the development of flower buds by manipulating the nitrogen-carbohydrate balance within the plant. These are the principal reasons for pruning.

Pruning occurs in nature. Under certain conditions of age and environment plants possess the power of rejuvenation. This phenomenon is localized in the bud, a latent branch posed to receive the stimulus which causes it to unfold and elongate into the leaf-bearing axis we recognize in summer. If the oak or willow, for instance, have produced more branches than the site or season can sustain, a corky layer forms in the region of its insertion, and the branch falls just as leaves of deciduous trees react to oncoming winter.

I mention this phenomenon because nature herself uses pruning to compensate for over-extended growth. But notice that she does her pruning in an efficient and esthetic way. She will have none of this topiary trimming - I refer to the shearing of forsythia and needled evergreens. If a hedge will answer the purpose, you might better plant privet.

Our problem is how to restore overgrown shrubs to natural attractiveness without interfering with their blooming habit. Let us assume that such factors as temperature, sunlight, soil moisture and fertility are optimum or at least adequate. To be sure they seldom are when we are called in to correct years of neglect. Oftentimes it would be better to remove and replant rather than to attempt restoration. But our assignment is to rejuvenate, or to restrain vegetation that has lost its landscape appeal or usefulness.

Shrubs differ from trees in that they send up new shoots from the ground. When the canes become overcrowded they shade out the young ones on which the flowers of best quality are borne. Ideally a few of the older canes should be removed each year. This practice allows the new shoots to branch freely. The best quality blooms are borne on young wood. If the shrub is renewed completely every few years, a goodly proportion of the flower clusters will be large and well placed.

Examine the branching pattern of the common lilac. Notice that the tipmost buds are in pairs. These buds are larger than the others because they bear the flowers. Compare the shoots of young vigorous canes with the network of branchlets from thick old canes. In this instance the buds are smaller and flower buds are relatively few for the amount of wood present. Such a contrast in quality of buds indicates that continuous renewal pruning is beneficial.

Lilac and forsythia are spring blooming shrubs. Their flower buds are formed during the previous summer, remaining posed for the right conditions in spring before they expand into bloom. Most authors recommend that such plants be pruned after they flower - the reason given being that pruning before flowering deprives the owner of some of the bloom. But, in the light of what I have just brought to your attention regarding quality of bloom, I am persuaded that pruning be done during the dormant season when the leaves are absent, the better to study the branching structure of the shrub.

Summer blooming deciduous shrubs is another class according to pruning requirements. The flowers of these shrubs arise at the tips of wood that grew in the current season. The butterfly bush is a familiar example. Unless the winter is mild, the tips of branches die back each year. Bloom is better when such shrubs are pruned to within six or eight inches of the ground each spring. Hybrid tea roses belong in the dieback category. They are usually grown in a garden apart and receive tender loving care of the owner himself.

Certain summer flowering shrubs make better or extended displays if the spent blooms are removed. Panicle hydrangea and Anthony Waterer spirea are notable examples. Even certain spring blooming shrubs will respond to annual removal of shoot tips. The objective in pruning this type of shrub is to have vigorous wood at the periphery. For species that bloom on wood of the previous year a good practice is to cut back the canes heavily to force new shoots on which the flower buds develop for the following growing season.

Many shrubs - both deciduous and evergreen - need very little pruning. Magnolias, rhododendrons, mountain laurel, andromedas and cotoneasters perform regularly without wood removal. Only when plants of this category outgrow the site and require restraint is it wise to use the saw. Except for magnolias (which do not form the healing callus) I would, without hesitation, cut into the heavy wood in order to allow the plant to renew itself. This practice upsets the blooming habit for a couple of years by forcing soft shoots to develop. If bloom is desired, carry the program over a several year period until the entire plantation is rejuvenated.

Those shrubs which bloom in spring from wood of the previous season constitute the typical class of flowering shrubs. Forsythia, honeysuckle, lilac, mock-orange, spirea and viburnum are prominent members of that group. Old dark-colored canes should be removed each year until the plant is completely rejuvenated. The cycle usually covers a three-year period, but

it can be extended in some cases to five years. The season for pruning shrubs, irrespective of category, is late winter or very early spring in New Jersey and the Northeast. Only with spent blooms of lilac, rhododendrons and Anthony Waterer spirea is disbudding worthwhile. And I would shy away from autumn pruning at least until all leaves have fallen.

Pruning accomplishes essentially the same effects as applying nitrogen fertilizer, since it promotes the development of new shoots. The watchword in pruning is *moderation*. When a shrub has attained the flowering stage it no longer needs relatively large quantities of nitrogen. Study the individual plant. Observe its branching pattern. Notice its condition. Exercise restraint and Happy Pruning!

BITS OF WITS

Many of us would be better off if we used our library cards as frequently as our credit cards.

Minds are like parachutes - they function only when open

Records show that no savage people ever invented an atom bomb.

When you don't have time to rest, that's the very time when you should.

Keep smiling; it makes people wonder what in the world you are up to.

Plan Now To Be There - May 5 & 6, 1978

The John J. Tyler Arboretum, 515 Painter Rd., Lima, Penn. 19037 will be the site of the Seventh Annual International Lilac Society Conference - Plan Now To Be There.

A rare opportunity to visit this 700 acre tract of woodlands, meadows and exotic plant collections. The land (almost in it's entirety) has been only in the possession of four families since it was originally granted by Wm. Penn in 1681. The oldest structure still standing on the Arboretum property is a stone house "Round Top" thought to have been built in 1710. There is Lachford Hall which was erected in 1738. Standing near the latter is a small, ivy-covered stone building "The Manor House" which served the tenants as a museum, print shop and library during those early days.

And there's more; one may choose to strike out on a trail to explore the seemingly endless fine old specimens of trees and shrubs, many planted around or soon after 1800. To enumerate but a few which you will be privileged to see are Ginkgo, English Yew, Cedar of Lebanon (a giant for the species), Oriental Spruce, American Holly, Tree Boxwood, Pond Cypress (more at home in Virginia and Florida), Southern Bald Cypress (with "Knees") (again more at home in Fla.), Mossy Cup Oak and Japanese Cryptomeria. Then you will have the rare treat (not in bloom at this season) of seeing the rare Franklin Tree (*Franklinia alatamaha*), a plant that was discovered in Georgia in 1765 and has not been found growing in the wild again since 1790 - (this simply had to be an endangered species long before our present day environmentalists ever hatched the thought of saving anything - in fact if a few of these early plantsmen had neglected to bring this individual into their gardens it would be gone now almost two-hundred years).

You'll also see many Flowering Crabapples, the Umbrella Magnolia with it's nearly 10 inch flowers and gigantic foliage, and, to top off the wide range of woody plants you'll have an opportunity to see the rarest of the Painter trees in the Giant Sequoia or California Big Tree, rare in that it is doing so well so far removed from the mountains of California. This tree was planted along about 1856-60 and presently towers to 65 ft., not exactly a giant yet, but it's only a seedling at 120 years of age.

Then of course we'll see Lilacs, Azaleas, Rhododendrons, Peonies, Dogwood and much much more, not to mention the planned tours of Swarthmore where we'll see one of the outstanding Lilac displays in the area and the beautiful Swarthmore College campus and the wide assortment of woody plant materials located there. Then we'll journey only a short distance to bask in the beauty of the world renowned Longwood Gardens, truly a wonderland of flowers and foliage that you will long remember. In fact our Conference will be right in the midst of probably the wealthiest rare plant community of N. America, one could spend several days in this immediate area and still not see all that is here to behold.

More specific information will be forthcoming along with the Feb. & March issues of LILAC NEWSLETTER, but Plan Now To Be There.

Dvorak Lilac Drawings Published

The International Lilac Society has recently published a special edition of "A Study of Lilacs in the Morton Arboretum and Lilacia Park". The "Study" consists of about one hundred exquisite line drawings of authentic named cultivar lilacs growing in the two notable public gardens near Chicago by Joseph Dvorak, Jr., employed for many years by the Chicago Park District and a long time resident of the suburban community embracing both the Lombard and Lisle, Illinois collections. Dvorak made the drawings from living material over a period of years during the 1950's. The drawings on 8 1/2" x 11" sheets, reposed in the Arboretum Library until May 1975 at which time the International Lilac Society held its Fourth Annual Meeting in Lisle and these beautiful illustrations were on exhibit. The entire collection, except for a half-dozen unfinished sketches, is clearly reproduced by xerographic photocopy and bound in an attractive soft cover. Single copies are available at the price of \$5.50 (including postage and handling). Send remittance to Fr. John L. Fiala, 7359 Branch Road, Medina, OH 44256 - (make checks payable to INTERNATIONAL LILAC SOCIETY, INC.).

Editors Note:

We solicit your individual cooperation; referring to the January NEWSLETTER which included the membership list we would ask that you check your listing accordingly - if we are in anyway using an incorrect address please advise accordingly, Walter W. Oakes, Box 315, Rumford, ME 04276 or Charles Holetich, ROYAL BOTANICAL GARDENS, Box 399, Hamilton, Ontario, Canada L8N 3H8. We wish to be as efficient as possible - undelivered mail costs the Society in time, effort and MONEY.

Also, as a reminder, if you have not already done so, please renew your 1978 Membership NOW, and again save the Society in time, effort and MONEY. Mailing of reminder notices are time consuming and cost everyone concerned. Your consideration is greatly appreciated.

Familiar Lilacs that have been named for famous persons:

- 'Capitaine Baltet' (Lucien) - Son of Charles Baltet, famous nurseryman of Troyes. Killed in the World War, 1918.
- 'Comtesse Horace de Choiseul' - Wife of Comte Eugene Antoine Horace de Choiseul-Praslin, an eminent French statesman and noted amateur of horticulture.
- 'Edith Cavell' (1865-1915) Heroic nurse with the British army in the World War. Accused and shot as a spy by the Germans at Brussels.
- 'Edouard Andre' - Born at Bourges in 1840. Famous French landscape architect, pupil of Decaisne, and author of an important book, "Parcs et Jardens", published in Paris in 1879. Andre furnished plans for several fine gardens in Newport, R.I..
- 'Decaisne' (Joseph) (1807-1882) - Belgian botanist and horticulturist. Author, in conjunction with Le Maout, of the well-known treatise of botany.
- 'Mons. Leon Mathieu' - An amateur horticulturist of Louvain, Belgium, now dead.
- 'Gilbert' (Nicolas Joseph Laurent) (1751-1780) Poet.
- 'Henry Clay' (1777-1852) Celebrated American orator and statesman.
- 'Jeanne d'Arc' (1412-1431) - The Maid of Orleans. The national heroine of France.
- 'Rene Jarry-Desloges' - Astronomer and most especially a great amateur of horticulture. Now living at Menton-Garavan, France.

'Marechal Foch' (Ferdinand) (1851-1929) - Marechal de Drance et de Grande-Bretagne. Commander of the Allied Forces in the World War.

'Olivier de Serres' (1539-1619) - A French agronomist, often called the father of French agriculture.

'Pascal' (Blaise) (1623-1662) - Writer, philosopher, and geometrician.

'Victor Lemoine' (Pierre Louis) (1823-1911) - Famous horticulturist, pupil of Van Houtte and of Miellez. To this man's brilliant art and patience in hybridizing, fine gardens throughout the world are forever indebted.