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The

Boxwood Bulletin

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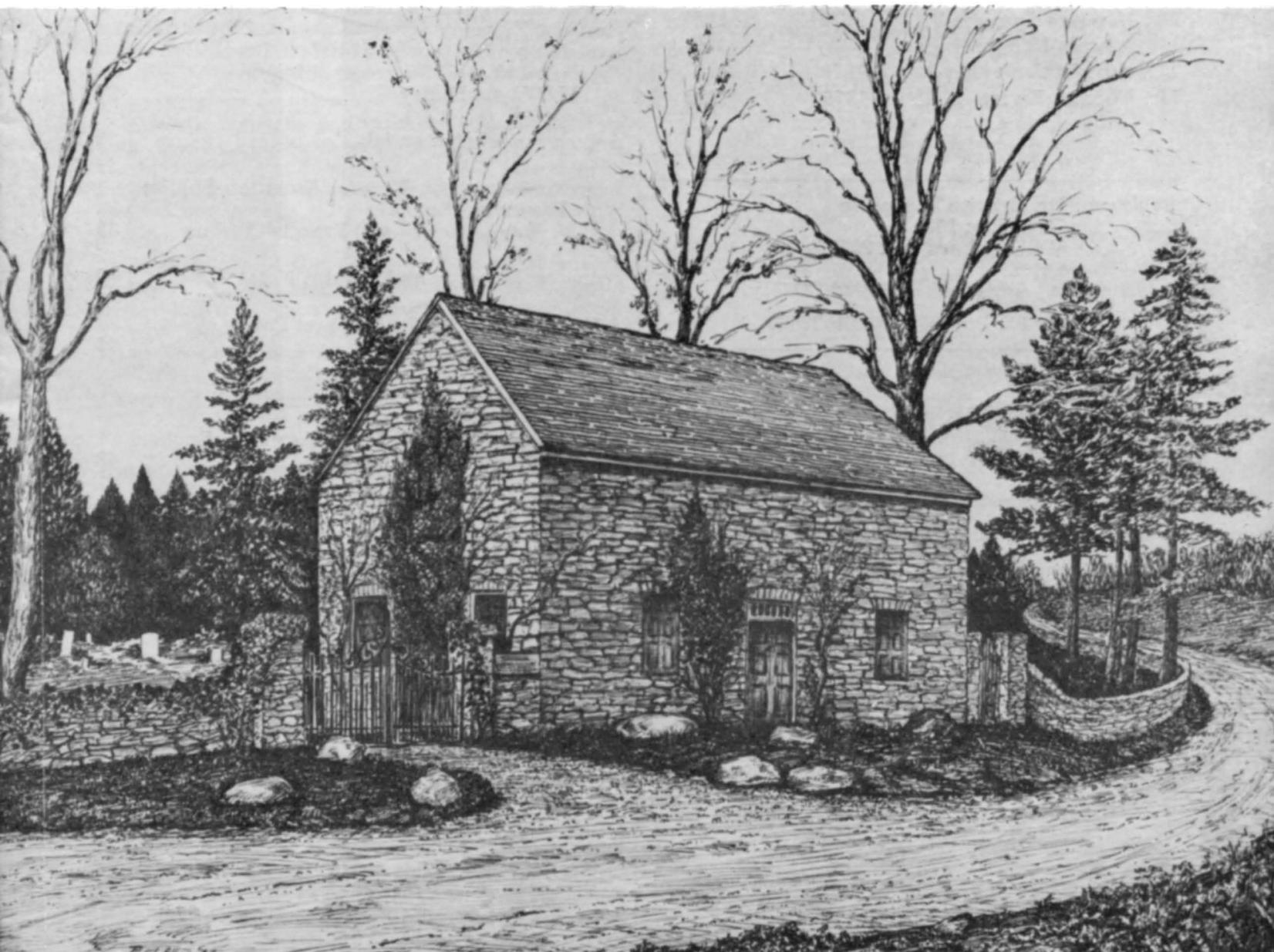


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Old Chapel, Millwood, Virginia

Boyce, Va.

Vol. 19 No. 3

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The Boxwood Bulletin

January, 1980

Vol. 19 No. 3

EDITOR — MRS. CHARLES H. DICK

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Growth and Foliar Accumulation of Mineral Nutrient Elements by *Buxus sempervirens* L. as Affected by Hydroponic Nutrient Level, Soil Type, Soil pH and Source of Nitrogen.

M. Wayne Hefley

ABSTRACT

Hydroponic and soil studies were utilized to determine the growth response, accumulation patterns and foliar accumulation of nutrient elements associated with maximal growth of *Buxus sempervirens* L. cultivar 'Suffruticosa' (English boxwood) and cultivar 'Angustifolia' (American boxwood).

Growth response and nutrient accumulation in both the hydroponic and soil studies varied between the two cultivars. A growth response to higher levels of K and N by cultivar 'Suffruticosa' was not observed in cultivar 'Angustifolia'.

Both cultivars were supplied with equal concentrations of Ca, Mg and P, yet foliar accumulation of these nutrient elements was less for cultivar 'Angustifolia'. The level supplied K (3 and 6 meq/liter) was excessive and depressed Ca and Mg to deficient levels, resulting in poor growth of cultivar 'Angustifolia'.

Reduced growth of cultivar 'Angustifolia' in hydroponic culture was associated with nutrient supply of 3.0 or 5.0 meq/liter K, 5.0 or 7.5 meq/liter Ca, 2.0, 4.0 or 6.0 meq/liter Mg, and 5.0 meq/liter N.

Cultivar 'Suffruticosa' in hydroponic culture was tolerant to high concns of K (5 and 8 meq/liter), required high concns of N, and responded to the higher concns of Ca and Mg. Vigorous growth occurred when 5, 8, 4 and 12 meq/liter K, Ca, Mg and N respectively were supplied.

The growth ratios of both soil-grown cultivars indicated that during the growth period, the amount of available N was sufficient.

K was available at a level sufficient to cause reduction of calcium accumulation to deficient levels in cultivar 'Angustifolia' on loam soil. Reduced accumulation of N may have resulted from reduced root growth and subsequent reduced penetration of the loam soil mass.

Growth of cultivar 'Suffruticosa' was less in the loam soil and was associated with decreased N and P accumulation, resulting from decreased root penetration of the loam.

Foliar accumulation of 23, 65, 18, 362 and 58 meq/100 g tissue (ODB) K, Ca, Mg, N and P respectively was associated with maximal growth of cultivar 'Angustifolia'.

Foliar accumulation of 22, 53, 25, 497 and 28 meq/100 g tissue (ODB) K, Ca, Mg, N and P respectively was associated with maximal growth of cultivar 'Suffruticosa'.

Maximal growth of both cultivars was in the sandy soil.

Ammoniacal nitrogen was detrimental to the growth of soil-grown boxwood.

CONCLUSIONS

1. Boxwood requires high foliar accumulation of calcium (53 to 65 meq/100 g tissue ODB) for maximal plant growth. Five factors affected the foliar accumulation of calcium in boxwood. *First* is the actual amount of calcium available to the plant. *Second*, perhaps of greater importance, is the relative amount of available calcium compared to the amounts of available potassium and magnesium. *Third*, influenced by the type of soil, is the degree of calcium saturation of the clay portion of the soil. Increasing influence is expected as the proportion of clay in the soil increases. *Fourth* is the rate at which the plant roots grow through the soil and contact new sources of mineral nutrients. This is affected by the denseness of the soil in which the plant is grown and the cumulative effect of all climatic, nutritional, pathologic and genetic factors which limit plant growth. *Fifth*, which appears to vary among cultivars of boxwood is the characteristic mineral nutrient accumulation pattern. This factor is illustrated by the observation that cv. 'Angustifolia' appeared to be more active in the accumulation of potassium than cv. 'Suffruticosa'.

Information on factors one and two can be obtained from soil analyses. Information on the influence of factors three, four and five can be obtained by comparing the amounts of nutrients accumulated (plant tissue analysis) and the amount of nutrients available to the plant as shown by the soil analysis.

Having established, as a result of these studies, a foliar accumulation of nutrients associated with vigorous healthy growth with soil-grown plants, it is possible to use analyses of foliar tissue combined with soil analyses as a basis for making recommendations to insure sufficient accumulation of calcium as well as the other nutrient elements studied.

2. Nitrogen accumulation in foliar tissue of boxwood can vary considerably and is influenced by both the amount of available nitrogen and the growth rate of the plant. The foliar accumulation of nitrogen observed with cv. 'Suffruticosa' (497 meq/100 g tissue ODB) probably represents a near-optimal level; that observed for cv. 'Angustifolia' (362 meq/100 g tissue ODB) a near-minimal amount and over 600 meq/100 g tissue ODB would indicate an excess nitrogen supply and/or depressed plant growth due to excess or deficiency of some other growth factor. In these studies, high nitrogen accumulation was most often observed with depressed plant growth associated with insufficient calcium accumulation.

When ammoniacal nitrogen was supplied, growth of cv. 'Angustifolia' was significantly reduced. Even though the difference in growth of cv. 'Suffruticosa' associated with different types of nitrogen was not large enough to be statistically different, the data indicate that ammoniacal nitrogen was the less desirable type.

3. Potassium supply/accumulation played a significant role in the growth of boxwood. When potassium supply/accumulation was too great, calcium accumulation declined and plant growth was reduced. Correcting a situation of excess potassium accumulation proved to be difficult when plants were growing in the loam soil since moderate increases in soil calcium did not result in increased calcium accumulation.

Since calcium is not readily absorbed through the leaves of other plants it is doubtful if foliar sprays of calcium containing compounds would alleviate calcium deficiency in boxwood. Thus, correcting a situation of excess potassium in heavy soils would probably require heavy applications of lime over a period of years.

4. A medium level of available soil magnesium (61 kg/ha) seemed to be sufficient for maximal growth of boxwood. The accumulation of magnesium did not appear to be affected by associated levels of available potassium. In cases where magnesium deficiency needs to be corrected, the use of dolomitic limestone is recommended in lieu of magnesium sulfate.

5. Phosphorus accumulation was considerably less in plants grown in soil than in plants grown in hydroponic culture. This difference was especially evident with cv. 'Suffruticosa', which also decreased in growth ratio when grown in soil culture. In soil culture, cv. 'Suffruticosa' appeared to accumulate less phosphorus than cv. 'Angustifolia'.

APPROVAL AND CREDENTIALS

Name of Candidate: Murray W. Hefley
Doctor of Philosophy, 1979

Dissertation and Abstract Approved:
Francis C. Stark
Professor
Department of Horticulture

Date Approved: 30 October 1979

Degree and date to be conferred: Ph.D., 1979

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Collegiate institutions attended:

	Dates	Degree	Date of Degree
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University of Maryland	1970-73	M.S.	1973
University of Maryland	1973-79	Ph.D.	1979
		Major: Horticulture	

Publications: Growth of *Buxus Sempervirens* L. in solution culture with factorial combinations of potassium, calcium, magnesium and nitrogen.
(Master's Thesis)

Growth and foliar accumulation of mineral nutrient elements by *Buxus sempervirens* L. as affected by hydroponic nutrient level, soil type, soil pH, and source of nitrogen.
(Ph.D. Dissertation)

Positions held: Research Assistant, Department of Horticulture, University of Maryland, 1970-1973.

Team Leader, Agricultural Development Project, Republic of South Korea, 1975-1979.

Dr. Hefley has now accepted a position with the Department of Horticulture at Iowa State University, Ames, Iowa.

Progress Report on Mineral Nutrition Studies with Boxwood (*Buxus*)

M. Wayne Hefley and Francis C. Stark
Department of Horticulture,
University of Maryland

Research at the University of Maryland to determine the mineral nutrient requirements of boxwood was begun in October of 1970. The research program consisted of two major experiments. The first was to study the growth of response of boxwood with all possible combinations of three levels of K, Ca, Mg, and N when half of the N was supplied as ammonium (NH₄) and half as nitrate (NO₃) nitrogen.* The second experiment was to determine if the type of nitrogen supplied (NH₄ or NO₃) influenced the growth of boxwood. Three cultivars of *Buxus sempervirens* L. (cv. 'Angustifolia,' cv. 'Pyramidalis' and cv. 'Vardar Valley') and one selection of cv. 'Suffruticosa' were grown in each of the 81 nutrient solutions using the hydroponic "slop culture" technique.

The response of cv. 'Suffruticosa' differed from the other three forms by requiring more N and Mg. All plants require similar amounts of K and Ca for optimal growth. 'Vardar Valley' grew too poorly with the amounts and combinations of nutrients supplied to obtain information on this cultivar. Evidently some nutrient element or elements were excessive and/or deficient for growth of 'Vardar Valley.'

In general, boxwood requires and can tolerate much lower levels of N than many other ornamental plants. The optimal levels of N in nutrient solution culture for *Pinus Strobus*, *Gleditsia* and *Taxus* are 6 to 8 times greater than that required for optimal growth of the boxwood studied here. The amounts of N needed for optimal growth of the other species mentioned were detrimental to the growth of boxwood. The type of N supplied (NH₄ or NO₃) also influenced the growth of boxwood. The ammonium form (NH₄) commonly found in many lawn and garden fertilizers as ammonium sulfate or ammonium nitrate was detrimental to growth even at the lowest level supplied. The nitrate form (NO₃) produced satisfactory growth if it was combined with the proper amounts of K, Ca, and Mg. This suggests that mulching, the use of organic fertilizers, or other practices that increase soil organic matter would decrease the incidence of NH₄ toxicity in boxwood. The use of organic fertilizers which release nitrogen slowly and assurance against accidental fertilization from adjacent lawn areas may be desirable.

A few words of caution are needed when mulches are applied. Don't allow the mulch to contact the trunk of the plant since this could favor infec-

tion of the trunk by pathogens; keep the mulch 3-4 inches away from the trunk. Application of undecomposed mulch material other than manures may induce N deficiency because the organisms that decompose the mulch to humus require N to grow. These organisms may utilize all of the available nitrogen, creating a deficiency if the soil N level is low. Use only mulch material which has been composted for at least one year.

Boxwood requires relatively large amounts of Ca and Mg. In many cases the detrimental effects of too much N were partially if not totally offset by supply large amounts of Ca and Mg. In most mineral soils the amount of available Ca can be roughly estimated by determining the soil pH. Generally as the pH decreases, the amount of available Ca decreases, and vice versa. A pH of 6.5-7.0 should provide sufficient Ca and Mg if maintained by the addition of ground dolomitic (agricultural) limestone. Correction of pH by addition of high calcium lime does not provide sufficient Mg for optimal growth.

Information on foliar symptoms and terminal death of the plants are described below:

Interveinal chlorosis of leaves of cv. 'Angustifolia.' This symptom appeared only on new growth. The symptom severity ranged from a slight yellowing of the area between veins, to yellowing over most of the leaf accompanied by stunting of the new leaves, followed by death of the terminal.

This symptom was associated with high levels of N in combination with low levels of Ca and Mg. Increasing the supply of Ca and Mg while decreasing the amount of N reduced or eliminated the occurrence of this symptom.

Bronze leaf of cv. 'Angustifolia.' This symptom appeared primarily on recently matured leaves, but was observed occasionally on new growth. The

*(so you needn't look them up)

K — Potassium	N — Nitrogen
Ca — Calcium	NO ₃ — Nitrate
Mg — Magnesium	NH ₄ — Ammonium

symptom severity began as a reddening of the leaf margin, followed by merging of the red margin at the leaf tip, and subsequent death of the leaf tip or the entire leaf. This symptom was associated with high N, high Ca and low Mg. It did not appear or was reduced in severity when the amount of N was decreased and the amount of Mg increased with Ca at the high level.

Speckling and red vein on leaves of cv. 'Pyramidalis.' This symptom appeared on recently matured leaves. Symptoms first appeared as small red specks on otherwise healthy leaves. Subsequently the center veins became red with a chlorosis of interveinal tissue (many times the margins of the leaves remained a deep green color). In advanced symptoms, the entire leaf became chlorotic with red to purple specks and the leaf abscised. As a result the plant had a tuft of leaves at the terminal, a leafless stem with old leaves at the base of the plant. This symptom was associated with high N combined with low Ca. With adequate Ca levels and a limited supply of N, the symptoms were less severe or did not occur.

Red vein of cv. 'Suffruticosa' leaves. This symptom appeared on new growth. The symptom severity ranged from a slight chlorosis of tissue with light red vein coloration to severe interveinal chlorosis and dark red or brown veins, followed by death of the leaves. This symptom was associated with the high level of N combined with low Ca availability. When N was decreased or Ca increased, the severity of the symptoms decreased.

Linear lesion on leaves of cv. 'Suffruticosa.' Symptoms appeared on recently matured leaves. Symptom severity ranged from light yellow linear lesions on or parallel to leaf veins to chlorosis of interveinal tissue accompanied by bronzing of the mid-rib with linear lesions. This symptom was associated with low Ca and medium or high nitrogen levels. With adequate levels of Ca, the symptom was eliminated.

Orange leaf of cv. 'Suffruticosa.' This symptom occurred on terminal leaves. Growth rate was slow when this symptom was present. The symptoms ranged from orange leaf edges with no distinct line of delineation between the green and orange portions of the leaf, to a merging of the coloration at the leaf tip, followed by death of the leaf tip. This symptom was associated with low availability of all nutrients. Plants grown with a medium or high level of N, high levels of Ca and Mg, and a medium level of K did not exhibit this symptom.

Terminal death. This symptom was common to all forms and ranged in severity from death of a single terminal to death of the entire plant. Terminal death of cv. 'Angustifolia' was most severe at high N and low Ca and Mg availability, and was least severe with low N, medium Ca and high Mg. Terminal death of 'Vardar Valley' was most severe with high N, high Ca and low Mg supply, and was least severe with low or medium N, low Ca and high Mg. Terminal death of cv. 'Suffruticosa' was most severe with low levels of Ca and Mg.

BOXWOOD RESEARCH

Editor's Note

Recently the American Boxwood Society received a copy of the Ph.D. Dissertation prepared by M. Wayne Hefley of the University of Maryland entitled, "Growth and foliar accumulation of mineral elements by *Buxus sempervirens* L. as affected by hydroponic nutrient level, soil type, soil pH and source of nitrogen."

His Ph.D. Dissertation was approved October 30, 1979. He has now accepted a position with the Department of Horticulture at Iowa State University, Ames, Iowa.

The American Boxwood Society has partially supported this *Boxwood Research on Mineral Nutrition* at the University of Maryland through a financial contribution. See *Boxwood Bulletin* Vol. 11, No. 1, July 1971, page 14, for original memorandum of understanding between the University of Maryland and the American Boxwood Society.

Above is printed the *Abstract* and the *Conclusions* from the Ph.D. Dissertation. A copy of the

complete dissertation is available on a loan basis from the headquarters of the American Boxwood Society, Box 85, Boyce, Virginia 22620. Members desiring to borrow this publication are asked to reimburse the Society for mailing costs.

Note:

The above "Progress Report on Mineral Nutrition Studies with Boxwood (*Buxus*)" by M. Wayne Hefley and Francis C. Tark is reprinted from *The Boxwood Bulletin*, Vol. 13, No. 1 (July 1973), pgs. 10-11. The ABS Board decided the article of timely interest and relationship to Wayne M. Hefley's Thesis and Ph.D. Dissertation.

A Boxwood Garden in A Bonsai Pot

Mary A. Gamble



Photo by Debbie M. Schmitt

Kay Strassner studies her first boxwood bonsai. The plant is *B. semp.* 'Ste. Genevieve'. The scene is the terrace of the Strassner's home in St. Louis County, Missouri. The plant's destination, a porch which overlooks the bay in Naples, Florida.

Kay (Mrs. Eli M.) Strassner has gardened seriously and joyously for most of her adult life. For the past 29 years she has planned, worked in, and directed the maintenance of spacious suburban grounds which include plantings of fine trees and shrubbery as well as an herb garden, a formal perennial garden, and a small boxwood garden often described by visitors as "darling". This last is her delight. Now, when for reasons of health, she and her husband are leaving Missouri for the milder climate of Florida, this charming small boxwood garden is the one she finds hardest to leave.

But she has found a solution. She will take her boxwood with her. Not, of course, the whole garden, but several plants which she will treat as bonsai as she has the one in the photo. And in subscribing to the Japanese gardening principle

that "less is more", she will, with her few carefully chosen plants, create a boxwood garden anew.

"I can satisfy my inner need for plants with bonsai," she says. "Instead of digging in a garden, I can sit at a table with soil, pots, tools and, using my imagination, I can feel creative as, in my mind's eye, I see in each plant my lovely little boxwood garden as I left it."

When Kay Strassner decided figuratively to take her boxwood garden with her, she selected two cultivars of *Buxus sempervirens*: 'Ste. Genevieve' and 'Hermann von Schrenk'. She likes the rich shade of green of the refined elliptic leaves, and their density of growth. She has worked with both for many years as a member of the Boxwood

Society of the Midwest as it has carried on its boxwood test program at the Missouri Botanical Garden in St. Louis, and in members' gardens.

She started her first boxwood bonsai before she left St. Louis. "First, I looked at the plant to try to see in it the single entity I want to achieve. When that picture is clear in my mind, I start to prune. As I prune I try hard for the symmetry, balance and proportion which I have learned are the heart of the art of bonsai from courses I have taken at the Missouri Botanical Garden. In fact, before I cut a sprig from this plant, I took it to the Garden to consult with Kenneth Peck, who heads the Garden's educational department where the courses are given. She turned the plant around, studied it, and said, "Of course, no two people ever see exactly the same picture." She seeks naturalness in form, but does not hesitate to wire branches to force their growth into her mind's eye view.

Before she starts she has laid out her tools: Chopsticks to (first) remove soil from roots, and (second) to repack it around the roots; clippers, choosing a pair with curved blades which makes a cut which heals faster; cultivating fork (house plant size), pruning scissors, tweezers, wire of varying thicknesses; a spray for watering. She prepares her own soil mixture: 1/3 each of sand, brown peatmoss, and potting soil.

She is now ready to take the plant from the regular clay pot. She removes surplus soil from roots, using chopsticks. She prunes away excess roots so that the plant can be fitted into its permanent container, a traditional bonsai pot of unglazed pottery in a neutral color, preferably reddish brown. The boxwood in the picture is 12 inches high. Kay Strassner placed it in a container which measures 8 3/4 in. long by 6 in. wide, and 1 3/4 in. in depth. It has three drainage holes (through which the plant can be wired in place for security), and it stands on four 1/4 in. feet.

When the soil has been tamped around the roots and the plant stands secure in its container, moss is spread carefully over the soil surface and tucked in around the edges. The moss helps greatly to conserve moisture so that watering - - one of the chores of bonsai gardening - - can be held to a minimum. Even at that, the plant will require watering at least once a day, plus a thorough soaking from the bottom about once a week. Also, at least once a week, the leaves should be sprayed. This boxwood will be fed twice a year with a weak liquid feeding solution.

Every step is meticulous, exacting work; but that is the kind of gardener Kay Strassnes has always been. Her boxwood garden was weeded, watered, mulched; her plants were fed and pruned, all at the right times and intervals.

"My boxwood will be my link to the past. As I work with them I hope to reach the Japanese garden ideal of stillness, quiet and tranquility. They call it "Sujaku", and I experienced it every time I walked down from the terrace to work or just sit in my little boxwood garden," said Kay Strassner.

Note: Mrs. Eli M. Strassner's Lilliputian boxwood garden was described in the October 1975 issue of the Boxwood Bulletin, Vol. 15, No. 2.



20TH ANNUAL MEETING

The 20th Annual Meeting of the American Boxwood Society is scheduled for May 7, 1980 at the Blandy Experimental Farm, Boyce, Virginia.

The morning session will include a tour of the Memorial Boxwood Garden and the Annual Meeting of the Society. After lunch, an educational program is being arranged by Directors Richard Mahone and Dr. Bernice Speese. This will be followed by a visit to a local boxwood garden.

For early arrivals and for those who plan to spend the night in the Winchester area prior to the Annual Meeting, there will be a special program on Tuesday evening where members will have an opportunity for a Get-Acquainted Hour and the opportunity to see a slide presentation that will feature the 1979 Boxwood Tour to gardens in Northern Virginia and Maryland.

Members not familiar with motel accommodations in the area near the Blandy Experimental Farm can receive help by writing the American Boxwood Society Office, Box 85, Boyce, Virginia 22620.

Lanhydrock House Bodmin, Cornwall, England

Grayson M. Kirtland



Grayson M. Kirtland in Lanhydrock House Garden,
Bodmin, Cornwall, England

Last fall my wife and I had the pleasure of making an extensive motor tour of the British Isles. We visited many beautiful homes and gardens; however, the most interesting one in our opinion was Lanhydrock House, located in the Southwestern part of England, a little west of Plymouth and near the town of Bodmin, Cornwall.

Here we found a magnificent 400 acre estate, surrounding a beautiful house, some portions of which were built between 1630 and 1642. The property remained in the Robartes family from 1620 until 1953 when it was given to the National Trust by the 7th Viscount Clifden. The family's exquisite furnishings are still in the house, and because nothing seems to be disturbed, it gives you a feeling that the family is away on a trip and will return.

Through correspondence with personnel of The National Trust, I understand boxwood is one of their few native evergreens and is highly prized in older gardens, along with holly and yew. Further, there is an unverified tradition in England that dwarf box was first used around flower beds to deter rabbits from the contents.

Much could be written about the architecture and furnishings of the house, however this article is intended to describe the surrounding gardens and effective use of boxwood. The entire garden area is enclosed by a low battlement wall that was built around 1852. The elaborate parterre gardens one sees today were created in the early 1930s by the 7th Viscount Clifden, who designed them around the splendid set of bronze urns which he had acquired from the Chateau de Bagatelle. The huge urns are the focal point or center of the two flower gardens that are adjacent to each other and are situated on raised pedestals. Each garden is enclosed by a clipped English boxwood hedge approximately two feet in height. Inside one finds the parterre flower beds, each beautifully surrounded by carefully clipped English boxwood about 8" high. Each little cluster had flowers of a single color in full bloom. Some were planted with white begonias, some with pink and some with red. In addition there were beds of nasturtiums and roses. The urns contained beautiful displays of geraniums. Topping all of this color was the carefully trimmed boxwood which made each little cluster of plants look as if there were many beautiful bouquets of flowers.

It is of course true that the boxwood in the gardens at Lanhydrock House are not ancient, but age is not that important when one has the opportunity to see such effective planting of our favorite

shrub. If anyone plans a trip to England, I would highly recommend that they visit this beautiful estate. One's time would be well spent.



Design in Lanhydrock House Garden, Bodmin, Cornwall, England

Boxwood Fertilization At Colonial Williamsburg

Alden R. Eaton

The first boxwood plants, it is reasonable to assume, were brought to this country from England as early as 300 years ago. Not until 1726, however, is boxwood specifically mentioned in the writings of Williamsburg gardeners. This mention is by John Custis of Williamsburg in a letter to his friend Peter Collinson in England.

Today about three miles of boxwood hedges and numerous informal plantings of this hardy and attractive plant are used throughout the restored gardens of Colonial Williamsburg. The restoration organization's boxwood fertilization program contributes to the health and long life of these plants.

The aim of any fertilization program is to maintain a healthy plant with normal yearly growth and a good, deep root system. We have tried just about all the materials and methods we know

of with varying results. Some of our boxwood plantings are fertilized two or three times a year; others receive fertilization once in a two or three year period, and some at possibly five-year intervals. Detailed records listing all pertinent data, are kept for each feeding.

Fertilization during the first year is most important. At planting time a generous coat of bone-meal is placed in the planting hole and worked into the bottom of the hole. When the planting hole is about half filled with good soil, a light sprinkling of 6-10-4 broad leaved evergreen commercial fertilizer is applied. New plants are mulched with compost, ground bark or a similar material to keep the soil moist and cool.

When plant growth begins, a liquid feeding program with a soluble fertilizer (23-21-17 or

17-17-17) is started. This feeding is applied as a soil drench and on the foliage as a sort of starter solution. The application is repeated during the first year in late May and early July.

Liquid feeding with soluble fertilizers has been a big help to us. We find we can make these applications here at Williamsburg up into July and still have no winter injury.

And if we do not get results from liquid feeding, we know, at least, that lack of fertilization is not our problem.

We do believe that one or two favorable growing seasons and a good fertilization program will overcome nematodes as quickly as anything.

And we have found that Wilt-Pruf, applied to plants which are subject to winter burn, is of great help. We make one application in November and another in February.

A light application of 6-10-4 mixed with an equal part of rotted sawdust or peat moss is used for the second year's fertilization program. This mixture is put into holes drilled or barred in the back fill at a depth of 8" to 15", the depth depending upon the size of the plant. *This type of fertilization encourages a deeper root system.*

Our program for fertilizing established plantings of boxwood varies greatly according to the individual plant's use. In formal plantings where the boxwood is competing with trees, shrubs, perennials or ground covers, fertilizer (6-10-4) is usually applied once a year. This application is made in February or March and is put into drilled holes at the outer foliage line. If certain plants put on little new growth or if the foliage color is not uniform, a soluble fertilizer is applied as a foliar spray and some is jetted into the root area. A mulch of chicken manure is used on these formal plantings once in every three years. Ground pine bark or compost mulches are applied at least once a year to conserve moisture and to keep the roots cool.

Established informal plantings of boxwood are fertilized much less frequently. The same fertilizers and mulches are used. These plantings are usually mulched periodically, once in two or three years, but are only fertilized as conditions indicate.

GENERAL SUMMARY

1. Apply bonemeal at planting time.

2. Use a good (6-10-4) broad leaved evergreen fertilizer as needed. Apply below ground level to encourage deeper rooting.

3. Advantages of water soluble fertilizers to supplement regular feeding.

(a) Helps new plants get started.

(b) Quick response.

(c) Foliar feeding spray helps in control of spider mites.

4. Mulches

(a) Helps new plants get started.

(b) Graded ground bark is good mulch

1. Neat and easy to apply.

2. Conserves moisture but lets rain through quickly.

3. Discourages surface roots and weed seedlings.

4. Economical — breaks down slower, so longer lasting.

W&L STUDENTS ORDERED

TO PAY FOR VANDALISM

LEXINGTON (AP) — Ten Washington & Lee University students will be required to repay the school for damage to 38 boxwood trees here, a university spokesman said Tuesday.

The W&L Student Control Committee met about six hours Monday night before deciding the students must pay for the loss and "undertake a rigorous work program through the end of the academic year," said spokesman Gary Coleman.

"Each student will be required to devote eight hours a week to the program" of work on campus and in community activities, Coleman said.

Once the dollar value of the boxwood is determined, a payment program also will be worked out for the students, he added.

FALL MEETING OF THE BOARD OF DIRECTORS

October 29, 1979

The meeting of the Board of Directors of the American Boxwood Society was held at the Blandy Experimental Farm on October 29, 1979. Officers and Directors attending were Professor Beecher, Mr. Mahone, Dr. Speese, Mrs. Dick, Mr. Symmes, Mr. Butler and Mr. Ewert. Mrs. Beecher and Mrs. Butler were guests.

The meeting was called to order at 10:30 a.m. by President Beecher who welcomed two new Directors, Scot Butler and Thomas Ewert. Dr. Singleton had written that poor health prevented his coming and that perhaps he should resign to allow another Director to be chosen. In Mrs. Ewert's absence Mr. Ewert read the Treasurer's Report. A supplemental report of receipts and expenditures related to the Fall Garden Tour was also presented. Both reports were accepted. Mr. Ewert announced that 68 new members had joined the Society since May.

President Beecher reported on three letters received. A letter from the University of Maryland Provost stated that Wayne Hefley's dissertation on boxwood nutrition would be completed in October and that the required number of copies as well as a brief review of the findings would be sent to the Society. Mrs. Ewert had received a letter from Sandra Sardinelli, a nematology technician at the University of Maryland, asking for information about boxwood and inquiring about membership in the Society. President Beecher and Mr. Ewert had responded to her requests and Ms. Sardinelli had joined the Society. Mr. Mahone moved that her membership dues be refunded with a note that the Society was extending a complimentary membership to her. The motion passed unanimously and the hope was expressed that the Society might benefit from the results of her studies. At the Annual Meeting Mr. and Mrs. James Anderson had indicated an interest in preparing a pamphlet on the care of boxwood; in a letter of September 4, however, Mrs. Anderson informed Professor Beecher that they had concluded that the Society was already fulfilling the need for cultural information in the *Bulletin* so that there was no real need for such a pamphlet.

The Directors unanimously approved the minutes of the Board Meeting of March 21, 1979, as published in the April issue of the *Bulletin*. Discussion followed on the minutes of the Annual Meeting as published in the July issue of the *Bulletin*. Mr. Butler, concerned about the length of the minutes and several confusing statements, asked if material was reviewed before appearing in print. He was told that contributors do not see their articles in galley proof and that it is left up

to the Editor to review the material and give final approval. The position was taken that where technical terms or cultural instructions relating to boxwood are involved the material should be reviewed to prevent scientific errors from creeping into print. It was recommended that henceforth minutes be reviewed by an attending Board member or group of members before they are submitted to the Editor. It was agreed that in the future minutes of the Annual Meeting should be prepared in two parts, business session and educational program, with separate review of each part before publication. So that the latter might be expanded into articles for the *Bulletin*, if appropriate, speakers could be asked to provide a brief written summary of their talks or the proceedings could be recorded on tape. The minutes of the Annual Meeting were approved upon the motion of Mr. Butler although it was observed that final approval awaits the action of the next Annual Meeting in May 1980.

President Beecher asked Mr. Butler to chair a *Boxwood Bulletin* Committee that would exercise several functions: (1) review minutes; (2) solicit educational material; (3) see and review the complete dummy of articles before final approval for publication. He said that other people may be selected to serve on the committee. Mr. Butler agreed and Mr. Symmes volunteered to help.

The President then appointed a *Boxwood Handbook* Committee composed of Mr. Hallowell (Chairman), Mr. Mahone, Mr. Ewert and himself. Discussion of a handbook brought forth the suggestion that a single issue of the *Bulletin* could serve as such a vehicle by featuring articles on the history of boxwood, its uses, care, pruning, planting and propagation. Mr. Mahone, however, felt that it would be preferable to have a true handbook that could be sold by the Society as a source of income. He thought it might be wise, however, to print some material from the handbook in the *Bulletin* just before publication to stimulate interest. It was agreed that it would be appropriate to issue some sort of handbook in 1981, the 20th anniversary of the founding of the ABS, but the consensus was that a handbook could not be ready by then. The date and format for publishing a handbook were left open but President Beecher promised that the Committee would make a progress report at the next Board Meeting.

The President asked Mr. Ewert to serve as chairman of the Memorial Garden Committee. A decision must be made, he said, on a suitable permanent plaque to honor Dr. Baldwin, Mr. Hohman, Admiral Phillips, and Mrs. Whiting as

well as on the type of labels to be used for identifying the plants in the Garden. Following a discussion Mr. Ewert was authorized and directed to proceed with a plaque containing the names of the four persons being memorialized in the hope that the plaque would be ready in time for a ceremony at the 1980 Annual Meeting. It was agreed that biographical sketches of the four honorees would be printed in a leaflet to be given to visitors to the Memorial Garden. Mr. Ewert was also authorized to select appropriate plant labels for the Garden and instructed to have them in place by the 1980 Annual Meeting if possible. Mr. Mahone promised to send Mr. Ewert information that he had gathered on label types and sources of supply.

The President noted that the three 1979 boxwood workshops held in cooperation with the Extension Service had been successful and produced some new members. A request has been received for a workshop at Scotstown (Hanover County) in 1980. Professor Faiszt has agreed to help organize it and has suggested that the subject of boxwood varieties be on the program. The consensus of the meeting was that the ABS should participate in this, and possibly another, workshop next year. Mr. Ewert expressed concern that the ABS may be relinquishing too many of its responsibilities to VPI in the running of the workshops but it was generally agreed that the workshops remain an important public activity of the Society.

President Beecher turned to the matter of planning for the 1980 Annual Meeting by asking whether any Directors had heard adverse comments regarding the \$2 registration fee charged for this year's meeting. No one had. Dr. Speese and Mr. Mahone were asked to make preliminary plans for the educational part of the program so that an announcement might be included in the January *Bulletin*, and the complete program printed in the April issue. The Blandy Committee was asked to prepare a get-together, similar to the one this year, for those who will arrive the evening before the Annual Meeting. Mrs. Dick, who had just arrived at the Board Meeting, agreed to try to arrange a house tour following the afternoon program.

After a delicious lunch provided by Mr. Ewert, Mrs. Dick began her report as Editor of *The Boxwood Bulletin* by acknowledging the great cooperation and support that she has received. She noted, however, that the decision to have additional review of the dummy copy might delay printing of the *Bulletin* somewhat. She explained that she has been following Mrs. Whiting's policy of printing articles just as they are submitted by the contributors with no alterations, even though she sometimes feels that some material would benefit from revision. She reported that she has ample material on hand, including pictures, for the next issue. The cost of color pictures was discussed as well as other aspects of the publishing process. The need for a new index was recognized and it was suggested that perhaps a graduate student could be found to take on the task. The President and Board thanked Mrs. Dick for her fine work in producing the *Bulletin*. Mr. Symmes remarked that the renewed regularity in publication of the *Bulletin* should attract new members.

The President thanked Mr. and Mrs. Butler for their hospitality during the Garden Tour. Mr.

Symmes complimented Mr. Ewert on the appearance of the Blandy Farm, noting how well-kept everything looked and how much Blandy meant to the Society. Other directors echoed these feelings; Mr. Ewert thanked everyone for the kind comments.

Board members were asked about the value of ABS participation in the Washington Flower Show. It was felt that the same money spent on other types of advertising would be more effective in publicizing the Society. A recent article in *House and Garden* that gave the address of ABS, for example, produced a number of new memberships. It was voted unanimously to spend up to \$100 for ads in two or three horticultural magazines.

March 20, 1980 (third Thursday) was set as the date of the next Board Meeting to be held in Fredericksburg. Mr. Mahone agreed to make arrangements for a meeting place, hopefully at Kenmore. The Annual Meeting was set for May 7, 1980. The meeting was adjourned at 2:05 p.m.

Respectfully submitted,
Anna C. Kirby
Recorder

TREASURER'S REPORT

Fall Board Meeting — October 29, 1979	
Checking Account Balance	
May 16, 1979	\$2,166.55
Receipts	
Membership	\$3,327.00
Bulletin Sales	35.75
Gifts and Donations	478.50
Stratford Hall Workshop	
June 14, 1979	140.00
Oatland Workshop	
June 15, 1979	238.00
A.B.S. Trip	
Sept. 29 & 30, 1979	2,525.00
	\$6,744.25
Total Funds Accountable	\$8,910.80
Disbursements	
Boxwood Bulletin	\$2,174.72
Newsletter	135.00
Annual Meeting	229.08
Stratford Hall Workshop	168.00
Oatlands Workshop	181.52
A.B.S. Trip	2,641.82
Stamps	69.00
Xerox Copies	3.60
Telephone	13.16
Office Supplies	23.91
Clerical Expenses	181.39
President's Expenses	48.86
Misc. Expenses	3.00
Total Expenditures	\$5,873.06
Balance in Checking Account	\$3,037.74
Savings Account	2,297.84
Certificate of Deposit	4,455.20
Total Assets	\$9,790.78

All accounts are deposited in Farmers and Merchants National Bank, Berryville, Virginia.

Respectfully submitted,
Kathryn M. Ewert
Treasurer
American Boxwood Society

Martinsville Boxwood Workshop

October 11, 1979

Collinsville, Virginia

The Dutch Inn in Collinsville, Virginia was the location of the Martinsville Boxwood Workshop on October 11th. The workshop was sponsored by the American Boxwood Society, and the Cooperative Extension Service, Virginia Polytechnic Institute. Prof. James Faiszt, Extension Specialist at Virginia Tech served as coordinator in lining up the program and the publicity. Harry M. Little, Extension Agent for Henry County, handled the local arrangements.

A total of 39 were in attendance. The majority of the participants were from the Roanoke, Bassett, Martinsville, Chatham and Danville areas of Virginia. Four were in attendance from Asheville, N.C., and Fairview, N.C.

The program format was similar to the workshops held earlier in the year at Oatlands and Stratford Hall.

Boxwood Culture was discussed by Professor Albert S. Beecher, *Boxwood in the Landscape* was illustrated by a slide presentation by Prof. James A. Faiszt. *Diseases of Boxwood* and *Insect Problems of Boxwoods* were handled by Dr. Wirt Wills and Lawrence W. Boitnott. Tom Ewert concluded the formal portion of the program with his demonstration on *Propagation of Boxwood*.

Harry Little, Extension Agent for Henry County, and Richard W. Clark, Extension Agent, City of Danville, served as moderators for the morning and afternoon sessions.

The final activity of the program was a tour of the Stanley Boxwood Gardens in Bassett. These gardens were developed by Mrs. Thomas Stanley and the late Governor Stanley. Head gardener Calvin Nester led the group on a tour of the grounds and outlined the various cultural practices that are followed. The group was especially impressed by the excellent condition of the boxwood. It was an excellent example to illustrate the fact that when intelligent and sound cultural practices are followed, it is possible to grow healthy boxwood.

Boxwood Workshops are being planned for the Summer and Fall of 1980. Emphasis is going to be placed on the different types of boxwood varieties. If you're interested in having a workshop in your area, let a board member know.

1. John Arbogast, P.O. Box 518, Pembroke, Va.
2. Shid Bassica, Roanoke Valley Garden Club
3. Edward S. Allen, Suite 230, Peters Creek Plaza, 1314 Peters Creek Road, Roanoke, Va. 24017
4. Albert S. Beecher, President, American Boxwood Society, Blacksburg, Va. 24060

5. Lawrence Boitnott, Roanoke County, Extension Agent, Salem, Va.
6. Mrs. William Butler, Roanoke Valley Garden Club
7. Eleanor Case, Big Otter Farm, Lowry, Va.
8. Paul Case, Big Otter Farm, Lowry, Va.
9. Richard Clark, City of Danville, Extension Agent, Danville, Va.
10. T. D. DeShazo, Rt. 1, Spencer, Va.
11. Mrs. T. D. DeShazo, Rt. 1, Spencer, Va.
12. Mrs. A. B. Ellett, Roanoke Valley Garden Club
13. Josephine Evans, Box 865, Chatham, Va.
14. Kerr Evans, Box 865, Chatham, Va.
15. Tom Ewert, Director, Blandy Experimental Farm, Boyce, Va.
16. James A. Faiszt, VPI & SU, Department of Horticulture, Blacksburg, Va.
17. Mrs. Charles Fox, Roanoke Valley Garden Club
18. Mrs. Fred Hamlin, Roanoke Valley Garden Club, 2423 Stanley Avenue, Roanoke, Va. 24014
19. Pete Harlon, Rt. 6, Box 277, Fairview, NC
20. Betty Harlon, Rt. 6, Box 277, Fairview, NC
21. Mrs. Ralph (Pat) Hooker, Martinsville, Va. 24122
22. Mollie Latimer, Rocky Mt., Va.
23. P. B. Latimer, Jr., Rocky Mt., Va.
24. Edna Lenderking, 1118 Corn Tassel Trail, Martinsville, Va.
25. Harry M. Little, Henry County, Extension Agent, Collinsville, Va.
26. Mrs. E. L. Merriman, Fieldale, Va.
27. C. Leslie McCombs, Head, Department of Horticulture, VPI & SU, Blacksburg, Va. 24061
28. O. E. Pilson, Rt. 2, Box A, Ridgeway, Va.
29. Deonna Pilson, Rt. 2, Box A, Ridgeway, Va.
30. Mrs. Gilbert Rea, Spencer, Va. 24165
31. Elizabeth Renfroe, 1015 Cherokee Trail, Martinsville, Va.
32. Mrs. R. P. Scoqt, P.O. Box 341, Bassett, Va.
33. Mrs. J. L. Shropshire, P.O. Box 93, Ridgeway, Va.
34. Robert Sims, Rt. 1, Box 19, Cascade, Va.
35. Nancy Stone, Spencer, Va.
36. Mrs. John B. Veach, 390 Vanderbilt Road, Asheville, NC
37. Mr. John B. Veach, 390 Vanderbilt Road, Asheville, NC
38. Dr. Wirt Wills, VPI & SU, Department of Plant Pathology and Physiology, Blacksburg, Va. 24061

THE AMERICAN BOXWOOD SOCIETY

INFORMATION

Address: Box 85, Boyce, Virginia 22620

DUES AND SUBSCRIPTIONS

Regular membership dues of The American Boxwood Society are now \$5.00. This includes a subscription to *The Boxwood Bulletin*.

Non-member subscriptions are for groups and institutions such as botanic gardens, libraries, etc. These are \$6.00 a year, and run by the calendar year.

The Boxwood Society year runs from one Annual Meeting to the next; from May of one year to May of the next year. Those joining the Society at other times are sent all the *Boxwood Bulletin* issues for the current Society year, beginning with the July number. Their dues are then again due and payable in the following May. This was voted by the Society in order to lighten as far as possible the heavy work load of our busy Treasurer.

At the present time any or all *Bulletins* are available, back to Vol. 1, No. 1 (Vol. 1 consists of three issues only, there was no Vol. 1, No. 4.) Price per single copy is \$1.50.

Besides regular membership dues at \$5.00 per year, there are other classes of membership available: Contributing, \$10.00; Sustaining, \$25.00; Life, \$100.00; and Patron, \$500.00.

Gift memberships are announced to the recipients by boxwood-decorated cards which carry the information that *The Boxwood Bulletin* will come as your gift four times a year.

Members of The American Boxwood Society are reminded of the 1968 IRS decision that contributions to and for the use of the Society, are deductible by donors as provided in Section 170 of the Code.

FOR YOUR ADDRESS BOOK

If your letter is concerned with

- Membership, new or renewal
- Payment of dues
- Donations to research programs
- Change of address
- Gift Membership
- Ordering back issues of the *Bulletin*
- Ordering Dr. Wagenknecht's List

Write to:

Mrs. Thomas E. Ewert
American Boxwood Society
Box 85
Boyce, Virginia 22620

If your letter is concerned with:

General information about the Society

Advice concerning boxwood problems or cultural information

Boxwood selection

Albert S. Beecher, President

In some cases depending upon the nature of your request, your letter may be forwarded to a member of the Board or another appropriate member who can provide the help you have requested.

You are also welcome to write direct to the President of the American Boxwood Society:

Professor Albert S. Beecher
807 Sunrise Drive, S.E.
Blacksburg, Virginia 24061

If you have contributions for the *Boxwood Bulletin* - articles, news notes, photographs, suggestions of anything of probable interest to boxwood people, it saves time to direct them to the Editor:

Mrs. Charles H. Dick, Editor
The *Boxwood Bulletin*
514 Amherst Street
Winchester, Virginia 22601



BOXWOOD—

A heritage from Yesterday

A privilege for Today

A bequest for Tomorrow

