

*The*

OCTOBER 1973

# Boxwood Bulletin

A QUARTERLY DEVOTED TO MAN'S OLDEST GARDEN ORNAMENTAL



*A Christmas wreath of boxwood, high-lighted with glossy magnolia leaves, aucuba berries and satin ribbon. Made for Battle Abbey in Richmond, by Mrs. Arthur Dugdale. Photograph by Mrs. Dugdale*

Edited Under The Direction Of  
**THE AMERICAN BOXWOOD SOCIETY**

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 Va.

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# The Boxwood Bulletin

October 1973

Vol. 13 No. 2

EDITOR — MRS. EDGAR M. WHITING

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# THE MAIL BOX

VIRGINIA POLYTECHNIC INSTITUTE  
AND STATE UNIVERSITY

Blacksburg, Virginia 24061

September 5, 1973

Mr. George McGhee

*Farmers Delight*

Middleburg, Virginia 22117

Dear Mr. McGhee:

Dr. Robert Lambe, Extension Plant Pathologist at VPI & SU, was discussing with me recently your concern with our apparent lack of progress in the control of the boxwood decline so much in evidence at your place and others in northern Virginia. What I have to say here will, I hope, help to clarify your understanding of this problem. There are two distinct aspects which are perhaps not clear. One is our immediate aim and obligation to the American Boxwood Society, and the other our ultimate aim in this research.

In reverse order, our ultimate goal is, of course, control of the disease, and Dr. Lambe, with the help of Mr. George Montgomery, the graduate student on this project, is working on this. However, he is working empirically from a base of ignorance as to the cause of the decline. This means that all chemical control trials are used blindly, both as concerns efficacy and method of application. We do not know which of the many organisms in the soil and roots that we need to control. Also, as I am sure you appreciate, the soil environment is very complex, chemically, physically and biologically. Application of chemicals by drenching, injection or other means does not insure effective contact between fungicide and the plant pathogen.

This brings us to the object of the investigation being supported by the American Boxwood Society. The stated objective is that of "determining the primary and secondary etiologic agents of boxwood root rot and decline so that control measures specific for the problem can be selected." Control will depend upon this basic study in etiology. Whenever information is forthcoming from this study or other sources, vigorous exploitation of such will be followed under Dr. Lambe's program.

As for the problem itself: we now understand that the decline we observe in the plants is *the result of a drastic root rot which occurs prior to the observation of any top symptoms*. Therefore, by the

time we see even the slightest suggestion of discolored foliage, at least 75% of the root system has been destroyed, we think. This means that a plant with earliest stage of yellowing has probably been losing its roots over a long period of time. Control or revitalization of the plant at this stage would be very difficult, even if we knew the exact cause, unless we could find a systemic material which could be applied in such a way as to eliminate the pathogen(s) from the plant itself and allow regeneration of roots. Since a root rot is likely to be caused by soil borne fungi, some method of controlling the organisms in the soil will probably be necessary also as a preventive as well as a therapeutic measure. Again, we must know what is causing the root rot and we are making some progress in that respect.

As Mr. Montgomery is a half-time student and I can put only part of my own time into this project, there has been less than one full time equivalent in manpower going to this study for only one year. Dutch elm disease was introduced into this country in 1930 and not until the present has there been any hope for control of it. Its etiology has been well known for many years and many pathologists have spent many years in its study. To mention only two diseases involving root rot, little leaf of pine and peach decline were both studied by numerous investigators for many years before defining the etiology of those diseases. I think we are making progress but I honestly cannot promise quick results, especially in the area of chemical control. Such may even have to await the development of some presently unknown fungicide.

I can assure you that we appreciate your concern for the loss of many fine and irreplaceable plants which you and others are suffering. Within the limits of our time, means and abilities, we are doing our best. I am optimistic that we will find some answers — I can only hope that it will be in time to help you. Finally let, me add that we appreciate greatly the support of the American Boxwood Society and its members who are cooperating with and helping us to solve this problem.

Sincerely,

Wirt H. Wills

Professor of  
Plant Pathology

HERBARIUM MUSEI BRITANNICI  
HORTUS SICCUS  
CLIFFORTIANUS



*Buxus  
sempervirens.  
Semper  
virens*

5

b. 471. Buxus 1



# Type Specimens of *Buxus Sempervirens* Linnaeus

F. R. Fosberg

To the average grower of boxwood, or any other group of ornamental plants, the term "type specimen" possibly has no meaning. To the botanist who works on the classification and identification of plants, this term carries a very special significance. To him type specimens are what enables him to be sure of what names go with what plants.

The principal basis of the classification of any group of plants is an accumulation of carefully prepared, pressed, dried, and labelled plants or fragments of plants, called *herbarium specimens*. A collection of such specimens is called a herbarium, as also is the institution in which such a collection is kept. This is the most important tool of the plant taxonomist or systematic botanist, the person who studies the classification of plants. In the herbarium is kept, available for all time, the material which has been used as the basis for earlier botanical studies and which will continue to be so used for future studies.

The most irreplaceable and carefully guarded of all the specimens in the herbarium are those called "type specimens." These are the particular plants or pieces of plants that have been described as new species, and which serve as the permanent reference material for determining or verifying the application of the names given to these species. They are the court of last resort in any disagreement about the application of any plant name. We are talking now, of course, of Latin "botanical" names. Vernacular names are part of the language to which they belong; horticultural names are those applied to registered lines, clones, or hybrid progenies of cultivated plants. Botanical names, Latin in form, make up an international language by which botanists, be they American, German, Hindu, Chinese, or what have you, communicate even in spite of differences in language and even in alphabet.

Because of this function of communication, it is essential that there be a standard, against which a plant of doubtful identity may be checked, just as there is a standard "meter bar" at the International Bureau of Weights and Measures in Paris as a final reference for the length of the basic unit of the metric system. In the case of a plant name, this

standard is the type specimen. Since it is the specimen used by the originator of the name, it may be safely assumed that this specimen truly represents the plant to which he gave the name and to which it is thenceforth applied.

This assumption is a central principle in the code of rules adopted by botanists for the determination of the correct names of plants, called the International Code of Botanical Nomenclature. Another principle is that the first name given to a plant is the proper one to use, unless when it was given it was already in use for another plant.

Of course, if botanists had always been infallible, and if plants were not variable and deceptive, there would be no disagreement about the names of plants, and no need for a code of rules for botanical nomenclature nor any need for type specimens. Alas, this is not, and is not likely to be, the case. Botanists are human beings, and plants assume a multitude of disguises. Witness the number of species of *Buxus* and the multitude of variations of *Buxus sempervirens*!

When Carl von Linne (Carolus Linnaeus) described the common boxwood, *Buxus sempervirens*, he provided a diagnosis or description drawn up from a specimen. His description was first published in the *Hortus Cliffortianus*, a fine illustrated book describing the plants growing in the garden of Mr. George Clifford, Linnaeus' Dutch patron. The specimens used in the preparation of this work are now preserved in the British Museum (Natural History), in London, in a separate collection called the Clifford Herbarium. This is kept locked up and may only be examined by special permission when a doubtful point must be settled concerning one of Linnaeus' names. Such permission was obtained and the *Hortus Cliffortianus* boxwood specimens were examined for the preparation of this paper.

Of the four specimens seen, one was labelled simply *Buxus sempervirens* by Linnaeus. Two others were labelled "*Buxus foliis minoribus angustis longioribus Boerh.*" that is, *Buxus* with leaves smaller, narrow, and longer, and "*Buxus foliis angustis longissimus Boerh.*" that is, *Buxus* with very long narrow leaves, both apparently so named by the Dutch botanist, Boerhaave, advisor to Linnaeus. These are among the 6 varieties described by Linnaeus in *Hortus Cliffortianus*. It seems clear that we should accept the specimen actually labelled *Buxus sempervirens* by Linnaeus as representing his concept of the species proper, and it corresponds very well with the plant found wild in western

---

Figure 1. Type specimen of *Buxus sempervirens* L. in the *Hortus Cliffortianus*, British Museum (Natural History). Photo courtesy of the Keeper of Botany, British Museum (Natural History).



Figure 2. Type specimen of *Buxus sempervirens* [var] *alpha arborescens* L., in the Linnaean Herbarium. Photo enlarged from IDC (International Documentation Center) Extended Micro-Edition, Linnaean Herbarium 661.

Europe and also widely planted in gardens. The specimen has small buds and one fruit. The Keeper of Botany at the British Museum kindly had a photograph made of this specimen for me, reproduced herewith, and I wish to express my appreciation to him, as well as to Dr. William Stearn of the British Museum staff, erudite scholar and authority on Linnaeus and his works, for his help in locating this specimen and establishing that it was without doubt the specimen Linnaeus had in hand when describing *Buxus sempervirens*.

At the time of the publication of the *Hortus Cliffortianus* (1737), Linnaeus had not yet evolved the *binomial* system for naming plants. This provides for a generic name plus a trivial name (now called a specific epithet) for each plant. This is his most lasting achievement and the true basis for his claim to fame. His very real and remarkable botanical ability, and his ingenious sexual system would, in all likelihood, have been largely forgotten if, in 1753, he had not published a compendium of all known plant species, with a binomial name provided for each one. This work, called the *Species Plantarum*, formed a practical starting point for modern botanical nomenclature, and has been accepted as such by international agreement, adhered to by botanists everywhere. On page 983 of this great work the name *Buxus sempervirens* Linnaeus was first validly published.

In order to be considered validly published, a botanical name must be provided with a description of the plant to which it applies, or there must be a clear reference to an already published description. Linnaeus, in the *Species Plantarum* did not always provide his new names with descriptions. *Buxus sempervirens* was one that had no description, merely a series of abbreviated references to earlier publications. He, whenever possible, economized on space by merely referring to already published descriptions that he considered to apply to the species under consideration. In this case he cited his own earlier description in the *Hortus Cliffortianus*, as well as some other references. Thus we may accept the specimen preserved in the Clifford herbarium, in the British Museum, as the "type specimen" of *Buxus sempervirens*. Examination of the accompanying photo of it will show that the species is quite recognizable from this fragment.

This is not the whole story of Linnaeus' concern with *Buxus*, however. Even in those days gardeners had begun to recognize the variability in this remarkable species. Linnaeus, in the *Species Plantarum*, in addition to the plant described in the *Hortus Cliffortianus*, recognized and gave names to two varieties, *arborescens* and *suffruticosa*. These were not described, but merely supported by phrase names and references to earlier writers, who had so named them. It might seem logical to go back and hunt for specimens left by these early botanists,

Bauhin and Dodonaeus, to serve as types. However, since the names we must use are those published in 1753 by Linnaeus, it is his concepts of these plants that we are interested in, if these can be determined, rather than those of the earlier writers. Fortunately, Linnaeus' specimens of these two varieties have been preserved, and are still available for study.

The first of these varieties, *Buxus sempervirens* alpha *arborescens*, probably represents Linnaeus' concept of the species proper, the wild European plant which had been planted in gardens for a long time and which grows to small tree size is left untrimmed, hence the name *arborescens*, which means tree-like.

The other variety, *Buxus sempervirens* beta *suffruticosa* (shrub-like), is in all likelihood a plant of garden origin, rather than a wild variety brought into cultivation. If this could be proven it would bear a horticultural or "cultivar" name, rather than a botanical varietal name. However, it is difficult if not impossible ever to be sure of the origin of plants in cultivation 200 and more years ago. So, for botanical purposes, at least, we are likely to continue to use the botanical name for this variety, based on the specimen in the Linnaean Herbarium, illustrated here.

Linnaeus' personal herbarium was sold by his family after his death to the English botanist James Edward Smith, who brought it to England. The Linnaean Society of London was formed for the purpose of caring for this collection and it is now housed in their rooms in Burlington House, the "scientific capitol" of Great Britain. Photographs of the type specimens of *Buxus sempervirens* var. *arborescens* Linnaeus and *Buxus sempervirens* var. *suffruticosa* Linnaeus are reproduced here as figs. 2 and 3 respectively.

So long as these type specimens are preserved in good condition, they will always serve to settle any question that may arise as to the identity of the plants referred to by these names. Such questions may arise because of the inadequacy of verbal descriptions to convey precise ideas, different meanings of words, and especially because of refinements in classification resulting from more careful and detailed study. It should be remembered that, not only *Buxus sempervirens*, but all the other *Buxus* names, are permanently attached to the specimens their authors had in hand when preparing the original descriptions of their species. In case an author had more than one specimen of the same new species, he should have designated one of them as type. If he did not (and few early authors did), it falls to later students to select the specimen that best fits the author's description, or that for any other reason, he must have had principally in mind. This would be called a "lectotype" (that is, a *selected type*). If several fragments gathered at the same time from the same plant were used by the author, these are called "isotypes" (that is, *equal types*). If several

specimens, not collected at the same time, were used by the author they are called "syntypes" (that is, *combined types*). The particular specimen designated by an author, himself, as type of a name, or the only specimen he cited, is called the "holotype." All of these are collectively called type specimens. When any type specimen is lost or destroyed, as in the bombing of certain European herbaria during World War II, or, as when herbarium curators neglect their responsibilities and allow insects to damage specimens, uncertainty is introduced into botanical nomenclature. Every effort should be made to house such material in air-conditioned, fireproof, moisture-proof buildings, and to give it the care and attention that irreplaceable specimens deserve. Dried plants will last indefinitely if properly cared for. Specimens well over 400 years old may be seen in certain Italian universities, still in very good condition.



Fig 3. Type specimen of *Buxus sempervirens* [var.] beta *suffruticosa* L., in the Linnaean Herbarium. Photo enlarged from IDC (International Documentation Center) Extended Micro-Edition, Linnaean Herbarium 661.

# The American Boxwood Society

OCTOBER MEETING

## OF OFFICERS AND DIRECTORS

A meeting of the officers and directors of the American Boxwood Society was convened at 10:45 on Tuesday, October 30, 1973 at Blandy Farm, Boyce, Virginia. Mrs. Whiting, Mrs. Kirby, Mr. Eaton,, Mr. Ewert and Admiral Phillips were present. The President presided and announced a quorum was present.

A discussion and inspection was then made of the physical facilities at Blandy now available to ABS and to Mrs. Kirby. Some matters of rearrangement of furniture and tentative plans for improving the heating system in the ABS spaces were discussed and will be taken up with Dr. Runk.

A tour was made of the ABS collection of boxwood at Blandy. Plants in general seem in excellent condition and we are gratified at the good care Mr. Ewert and Blandy are giving them particularly in view of their other heavy work load. A few instances of possible infestation and disease were noted and will be discussed with the V.P.I. people.

The meeting reconvened at Heronwood, where we were joined by the V.P.I. representatives — Dr. Wills, Dr. Lambe and Mr. Montgomery.

The minutes of the 1973 Annual Meeting were discussed and approved as printed in the July issue of the BULLETIN.

Mrs. Whiting reported that Dr. Wagenknecht, the ABS official Registrar, has not yet completed the Revised Registration List.

Dr. Lambe was requested to provide for publication in the BULLETIN a list of V.P.I. publications that will be of use to ABS members.

Dr. Wills provided a copy of 1973 *Virginia Insect Control Guide* published by V.P.I. This pamphlet (published yearly) gives a concise, tabulated directive for insect control together with an objective, scientific toxicity rating of chemicals used. There are many other *invaluable* tables of specific and general information. Published by Cooperative Extension Service, Control Series 141, VPI, Blacksburg, Va. 24061.

Due to a change in organization, the Directors feel strongly that Mrs. Kirby should henceforth receive reimbursement for her work for ABS. By unanimous vote the officers and directors during the summer of 1973 agreed to pay Mrs. Kirby a salary

for her dedicated and efficient work for ABS. As we all know, heretofore Mrs. Kirby has not received any remuneration from ABS. Mrs. Kirby wishes this payment to be made on an hourly basis. It is estimated that such reimbursements to her will total about \$1,000 a year.

Mrs. Kirby made her report stating that 36 new members had been added since May 1, 1973, and 10 names removed from the list.

The Treasurer's report, October 30, 1973 is as follows:

Balance in checking account  
May 1, 1973 ----- \$1,668.86

### RECEIPTS (May 1 - October 15):

Memberships	\$2,808.00	
Bulletin sales	29.70	
Contributions to		
Research Fund	1,662.50	4,500.20
		<hr/>
		6,169.06

### DISBURSEMENTS:

#### The Bulletin (2 issues)

Printing	640.00	
Copyrights	6.00	
Mailing	26.15	
Cuts/Plates	92.32	\$764.47
Secretarial services		197.54
Office supplies		41.77
		<hr/>
		1,003.78

October 30, 1973, balance in  
checking acct. ----- \$5,165.28

A discussion followed and a motion was passed authorizing and directing the Secretary-Treasurer at her early convenience to pay V.P.I. the sum of \$2,000, to be applied to the ABS obligation of \$5,000 for the second year of the V.P.I. Research Program.

The following analysis then was made of the ABS current financial status:

**ASSETS**

October 30, 1973 Cash on hand	5,165
Estimated dues for balance of fiscal year	300
	\$5,465
Less current payment to VPI, on account	2,000
Current assets -----	\$3,465

**LIABILITIES**

Estimated operating expenses to May 1, 1974	\$2,000
Remainder of VPI obligation	3,000
	\$5,000
Current liabilities -----	\$5,000
Current deficit (\$5,000 less 3,465) -----	\$1,535

The deficit of \$1,535 will have to be raised by a continuing drive for new memberships and for additional contributions to the *essential* VPI research Program.

A motion was made by Mr. Ewert and approved that efforts be made to enlist volunteer help for clerical and editorial work. This subject will be covered in a column in the BULLETIN.

A discussion followed of the possibility of including advertisements in the Bulletin to provide additional income. The meeting authorized the President and Mrs. Whiting to have an exploratory discussion of this proposal with Carr Publishing Co. and to make recommendations to the Executive Committee.

After lunch at Heronwood, the representatives from VPI took over the meeting and showed slides and made an oral report on the progress of the Research Program being conducted at VPI by Mr. George Montgomery, assisted by Dr. Wills and Dr. Lambe. A written condensed report on this subject will be published in this issue of the BULLETIN.

Mrs. Kirby reported that the Editor of Southern Living Magazine has asked permission to list the time and place of our Annual Meeting in the magazine. It was agreed to permit this. Definite plans for the Annual Meeting will be made at the March, 1974 Directors' Meeting.

The meeting adjourned at 3:30 P.M.

Respectfully submitted,  
Ruby P. Dove  
Recording Secretary

**THE AMERICAN BOXWOOD SOCIETY  
NEW MEMBERS**

October 1973

- Bains, Mrs. W. T. III, 613 E. Main St., Albertville, Alabama
- Cook, Mr. Kenneth H., 119 Third St., South Boston, Virginia
- Ewert, Mrs. Thomas E., P. O. Box 175, Boyce, Virginia
- Gill, Ms. Virginia H., 1862 Coggin St., Petersburg, Virginia
- Havemeyer, Mrs. Horace, Jr., The Reward, Chestertown, Maryland
- Hogg, Dr. Paul, "Arbroath," Box 431, Gloucester Point, Virginia
- Johnson, Mrs. S. Cletus, 235 Shoe Lane, Newport News, Virginia
- Kleen, Mrs. Delwyn C., 2545 SW 187th Avenue, Aloha, Oregon
- Lewis, Mrs. Warner, 2522 S. Birmingham Place, Tulsa, Oklahoma
- McGourty, Mr. Frederick. Jr., Brooklyn Botanic Garden, 1000 Washington Ave., Brooklyn, New York
- Montgomery, Mr. J. W. Jr., 8112 River Road, Richmond, Virginia
- Whiting, Mr. F. B., 121 West 21st St., Norfolk, Virginia
- Young, Rev. M. O., Four Mile Tree Plantation, Surry, Virginia

**Additional Contributors To Boxwood  
Research Fund**

October 1973

The following members made contributions to the Research Fund in May, but their names were inadvertently left off the list published in the July Bulletin:

- Mrs. Arthur Dugdale, Ashland Va.
  - Dr. and Mrs. Ira Miller, Bethesda, Md.
  - Mr. and Mrs. Richard Plater, Boyce, Va.
- (My apologies for this oversight. A.C.K.)

We acknowledge with thanks donations from the following members, covering the period from August 1 to October 15, 1973:

- Mr. W. J. Billerbeck, Waynesboro, Pa.
- Mr. George B. Rice, Burlington, N.C.
- Mr. James J. O. Anderson (2nd contribution), Baltimore, Md.
- Mrs. C. M. E. Hoffman, Annapolis, Md.

# “Instead of Holly, Now Upraise The Greener Box, For Show”

*Elizabeth Cabell Dugdale*

As the Christmas season approaches, remember that actually no foliage will last longer than boxwood and it does not shatter as much as the conifers.

For your Christmas wreaths or garlands, clip your boxwood here and there, place these cuttings in water overnight or longer.

Clip your hemlock spruce and also put it in water over night.

As a form for our wreaths we cut a form from corrugated cardboard. This could be painted green with dime store water color paint but we do not usually go to this trouble.

You can also purchase “wreath forms” from your florist but we do not like these as well.



Purchase *green florist's thread*, most nurseries have this at their garden centers. The green string you buy at the ten cent store is not strong enough.

Then hold your wreath in one hand begin by tying on the first branch of hemlock spruce, continue around the wreath, wrapping with the green thread until the wreath is entirely covered with hemlock spruce.

Begin then with the boxwood. If you have wrapped the hemlock spruce on securely you can usually stick the boxwood in with only a small amount of wrapping.

When the wreath is covered with boxwood then add your decorations.

We sometimes use pieces of magnolia. Or holly with berries, or bunches of nandina berries, Aucuba with aucuba berries.

If you feel especially energetic make a Della Robbia wreath. “Lady Apples” are usually available at the local stores. China berries are nice, nuts, grapes, cones, kumquats, but be careful! One year the mocking bird ate the grapes and apples as soon as the wreaths were hung.

A nut wreath may be used from year to year with a boxwood background. We have a larger wreath with boxwood and this is fastened to the back of the nut wreath.

In the “olden days” when we made yards and yards of garlands for our small church, boxwood was used for this purpose.

We dyed clothesline cord green — tied one end to something firm and began wrapping; A bunch of boxwood, then hemlock, holly, round and round. Usually one person held the cord and wrapped while another handed her a bunch of greens.

Nothing takes the place of these lovely fresh greens and you will find that boxwood is one of the best.

---

*Della Robbia wreath at Virginia House. Photographed on a door in the garden wall, as the light on the front door was not good enough.*



Christmas wreath with boxwood, nuts, and hemlock spruce — (*T. canadensis* — it is not really a spruce). Nut circles can be used year after year with fresh boxwood — if you can keep the nut wreath safe from squirrels.

All photographs by Mrs. Dugdale.

## CANDLEMAS EVE

*R. Herrick, 1591-1674*

Down with the rosemary and bays,  
Down with the mistletoe;  
Instead of holly, now upraise  
The greener box, for show.

The holly hitherto did sway:  
Let box now domineer  
Until the dancing Easter day  
Or Easter's eve appear.

Then youthful box, which now hath grace  
Your houses to renew  
Grown old, surrender must his place  
Unto the crisped yew.

When yew is out, then birch comes in,  
And many flowers beside,  
Both of a fresh and fragrant kin,  
To honour Whitsuntide.

Green rushes then, and sweetest bents,  
With cooler oaken boughs,  
Come in for comely ornaments,  
To readorn the house.

Thus times do shift; each thing his turn  
does hold;  
New things succeed, as former things  
grow old.

*From The Oxford Book of Carols — 1st Ed 1928)*  
*The tune is from an old church-gallery book, discovered by the Rev. L. J. T. Darwall*

## PROPAGATION OF BOXWOOD FOR THE AMATEUR

*Elizabeth Cabell Dugdale*

In recent issues of the *Boxwood Bulletin* we have had so many fine articles by professional horticulturists who have given us splendid information on many subjects, sometimes in technical terms which are not always understood by all of us. This article is intended for those — shall we say, those “inexperienced gardeners” like the writer.

The writer's early years were spent in her mother's old home, “Rose Hall” in Waynesboro, where her great grandmother had planted *B. sempervirens* also var. *arborescens*. When she began to take an interest in gardening she took small cuttings and stuck them in the ground where they had partial shade under a maple tree and near a hose connection where they could be watered frequently. With no special effort these cuttings rooted and one of these cuttings is today a large *B. sempervirens* at her front porch in Ashland which helps to welcome the guests.

At the old Cabell home, “Union Hill” in Nelson County there were huge trees of *B. arborescens* which had originally been part of a formal 18th century garden. In these latter days the garden had had little care and with much shade, the lower branches ran on the ground and rooted themselves, one might say, “accidental” layering. These “self rooted” cuttings were pulled up, planted, and trimmed and watered and eventually developed into nice plants.

Therefore, all you “non-technical horticulturists” who love boxwood - get busy!

Stick some in the ground in the shade, keep it watered. In other places, fasten down a few branches with something like a large “hair pin” made of wire, and soon these pieces will root and you will have more plants.

While the “professionals” tell us that August is the best rooting period, we had no contact with professionals in those days.



# THE STORY OF 351-35

## *BUXUS sempervirens* 'Edgar Anderson' (Balkan strain)

Mary A. Gamble

The *Buxus* which the Boxwood Study Group of the St. Louis Herb Society chose to name the 'Edgar Anderson' is one of the late Dr. Anderson's own. He brought it, as a cutting, from Bucharest, Rumania, when he returned from his Balkan boxwood exploratory trip carried out in the autumn of 1934 under the auspices of the Arnold Arboretum of Harvard University. *BUXUS sempervirens* 'Edgar Anderson' (Balkan strain) is a plant of vitality and a somewhat casual charm. The first view any study group member had of it was in May 1969 and it was a case of love at first sight.

The study group, then numbering only a few members, was just getting underway. Following the advice of Dr. J. T. Baldwin, Jr., I had written Mr. Henry J. Hohman of the Kingsville Nurseries asking that he ship us a small selection of what he considered choice Anderson boxwoods. He sent us five. Although we didn't know it at the time, they were the boxwoods that Dr. Anderson had collected on his Balkan trip in search of *Buxus* that would be hardy in the Midwest. Reaction was unanimous that the unnamed plant bearing the number 351-35 was exquisite. "It is the daintiest, prettiest boxwood I've ever seen," was one study group member's comment.

At that time there was no boxwood nursery at the Missouri Botanical Garden. Our study was personal, our testing done in home gardens. Jane (Mrs. George E.) Penhale drew 351-35. It has thrived in her garden. Earlier, following the advice of Dr. Anderson, given me before his sudden death in June 1969, I had written a number of his fellow boxwood enthusiasts, asking for cuttings of *Buxus* each considered superior and tough enough to withstand Midwestern vagaries of climate. In October 1969, after Dr. Anderson's death, we received from Mr. Lewis F. Lipp of the Holden Arboretum, Men-

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opposite page:

Photo by J. C. Horner

This life-size sprig of *BUXUS sempervirens* 'Edgar Anderson' (Balkan strain) is from the plant growing in the National Arboretum. It was made for us by Douglas P. Andberg, Curator of the Boxwood Collection there. The leaves are a strong, medium green (Green Group No. 139A on the Royal Horticultural Society Colour Chart). They are medium size, uniformly elliptical and acute. They measure from 1.3 to 2 cm. in length and from 5 to 9 mm. at widest point.

tor, Ohio, a generous bag of cuttings labeled 351-35. We were sure he had made this choice with care. These cuttings rooted well and in the next year were placed in the nursery area the Garden had then made available to us for the purpose of testing the plants we were propagating in the Garden greenhouses.

In 1971 we received cuttings of 351-35 from the National Arboretum. Mr. Douglas P. Andberg, Curator of the Boxwood Collection at the Arboretum, wrote us as follows: "I believe this selection has the greatest merit of all the Anderson boxwoods we have had in our collection. Besides having a handsome compact form, it also displays attractive color and texture."

While we were propagating plants we were also seeking to trace their histories. With the kind assistance of Dr. Gordon P. De Wolfe, Jr., of the Arnold Arboretum we obtained records of the first five Balkan boxwoods, including all Mr. Hohman had sent us. We learned that Dr. Anderson had brought back 58 cuttings from Rumania of the plant listed in the Arnold Accession book as 351-35, under date of April 1, 1935. Later, when we wrote Dr. De Wolfe that we would like to name this plant the 'Edgar Anderson' he replied: "If, under your conditions, you find it to be outstanding, I can see no reason why you should not name 351-35 if you so desire."

In May 1972 my husband and I had the privilege of a tour of the National Arboretum conducted with his unfailing courtesy by Dr. Henry T. Skinner. He showed us Anderson 351-35 which then measured 1 m. in height and which in color, density and grace fulfilled the promise of the small plants with which we had worked for four years, although with the mature plant one's first impression was one of vigor and vitality rather than daintiness.

After reviewing and considering other of Dr. Anderson's Balkan boxwoods we decided in the summer of 1973 that our first choice stood. It was the proper one. We thus requested registration in the name of the Missouri Botanical Garden. There, in the boxwood garden now being developed as a memorial to Edgar Anderson, the plant bearing his name will be given a place of honor. We hope that ultimately the developing clone of *B. semp.* 'Edgar Anderson' (Balkan strain) will be represented in countless Midwest (and other area) gardens.



### 'Edgar Anderson' Cultivar Registered

Dear Mrs. Whiting:

Please include the following note in the next issue of the Boxwood Bulletin.

*Buxus sempervirens* 'Edgar Anderson'

Registered by the Missouri Botanical Garden,  
St. Louis, Mo.

#### Description of plant:

*BUXUS sempervirens* 'Edgar Anderson' (Balkan strain). Registered by the Missouri Botanical Garden, St. Louis, Mo. The mature plant is pyramidal in form with a broad base and graceful, billowing and somewhat irregular outline. Foliage is dense, with an upward thrust of growth. The leaves are a strong, medium green (Green Group No. 139A on the RHS Color Chart). They are elliptic and acute in shape and medium in size, measuring from 1.3 to 2 cm. in length and from 5 to 9 mm. in width, with widest point occurring generally slightly below middle. The largest plant of which we have record measures slightly in excess of 1 m. in height at an estimated 2-25 years; however, it is believed this plant has not achieved maximum growth.

Photo by Mary A. Gamble

*BUXUS sempervirens* 'Edgar Anderson' (Balkan strain) growing in the area devoted to Anderson boxwoods at the National Arboretum, Washington, D. C. This is the oldest plant of what was originally 351-35 of which we have been able to obtain a record. It is a broad-based, pyramidal shape, graceful and billowy in outline. Foliage is dense, with an upward thrust of growth. The plant measured 1 m. in height in February 1972.

Dedication of the EDGAR ANDERSON BOXWOOD MEMORIAL GARDEN is planned for fall of 1975.

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This cultivar is based upon a selection made by Dr. Edgar Anderson in 1934 under the auspices of The Arnold Arboretum. It was entered in the Arnold Accession book as 351-35 on April 1, 1935.

It is a pleasure to be able to accept for registration a boxwood named for Dr. Anderson. This cultivar should not be confused with other selections bearing the name Anderson plus a number. These have not been interpreted as intentionally named cultivars.

Sincerely,  
B. L. Wagenknecht  
Dr. B. L. Wagenknecht

# Dr. John Creech

## New Head Of

### U. S. National Arboretum

"It's like coming home," Dr. John L. Creech said last January, when he became the third Director of the United States National Arboretum in Washington, D.C. Dr. Creech first came to work at the Arboretum in 1947 under the first Director, B. Y. Morrison. He has maintained a close and friendly relation with the second Director, Dr. Henry T. Skinner, who for the past twenty years has guided the growth and enhancement of this treasury of plants.

Since 1947, Dr. Creech has been on seven of the thirteen plant explorations conducted by the Department of Agriculture in cooperation with Longwood Gardens. His searches for new and varied types of ornamental plants for American gardens has taken him to such widely-distributed countries as Nepal and Yugoslavia; twice to the Soviet Union, including a recent trip to Siberia; and three times to Japan, a country he regards with special fondness. The Japanese apparently reciprocate his feeling; they have a travel poster there that commemorates his exploration to Yakushima, a remote spot on the island chain. When Dr. Creech walks every day around the Arboretum grounds, he can see many of the ornamentals that he brought from the Far East.

Dr. Creech took his undergraduate degree from the University of Rhode Island; a master's degree, also in horticulture, from the University of Massachusetts; and a doctorate in botany from the University of Maryland. His schooling was interrupted by World War II, which led him to a German prisoner-of-war camp in Poland. Even there, opportunity knocked; he persuaded prison officials to let him run a greenhouse, growing fresh vegetables to supplement the meager prison rations. After the War, the U. S. Army awarded him a decoration for his life-saving work.

Asked about future plans for the Arboretum, Dr. Creech saw no basic changes in direction. Dr. Skinner, he said, has developed a master plan, and



*Dr. John L. Creech collecting plants on the slopes of Mt. Kosho, Kyushu, Japan, in 1961.*

his own ambition is to expand on this already-developed base. Dr. Creech would like to see a garden and promenade for the elderly, like those in Japan. He would welcome a vista planned to display trees and plants with vivid autumn colorings. The "Braille trail" for the blind has been such a success that he would like to add gardens and walks to accommodate the physically handicapped.

The new Director feels that the Arboretum's location in the "inner city" places special responsibilities on it, to work with the young people of the area. He cites as a good beginning the youth vegetable gardens on the grounds of the Arboretum. Finally, he believes that research and educational activities need to be expanded and strengthened, with particular attention to the newer needs of city gardeners for plants resistant to pollution and otherwise adaptable to the city environment of today and tomorrow.

# Further Progress On Boxwood Decline Investigations

G. B. Montgomery and W. H. Wills

Since the annual meeting in Charlottesville, much progress has been made in the study of boxwood decline in Virginia. A summary of the work conducted to the present follows.

The number of declining boxwood in the northern Virginia nursery has increased by 10% during the ten months that this nursery has been under observation. Examination of the root systems reveals that plants just beginning to show light chlorosis have already lost 75-90% of their fibrous roots. An analysis of 24 soil samples was conducted to determine the soil factors associated with disease. The pH was near optimum for boxwood growth. There was no deficiency of the elements calcium, magnesium, potassium or phosphorous and no excess of soluble salts was found. Except for pH, there was very little difference in the soil factors associated with declining boxwood in Rockbridge and Clark Counties.

Several possible pathogenic organisms isolated included *Phoma* sp, *Paecilomyces buxi* and *Fusarium* species. In August 1973, soil samples from the northern Virginia nursery were used to determine the soil populations of possible pathogenic fungi. The populations of *P. buxi* were sufficiently high to warrant suspicion while the populations of *Fusarium* species were lower than one would suspect from "normal" soil. Plant parasitic nematode populations were determined. An in-depth study of nematode populations will begin in mid-November in order to determine if a correlation can be made between nematode population levels and boxwood decline.

Several inoculation tests have been conducted since the annual meetings. A field experiment conducted for four months demonstrated that *Fusarium* and *Paecilomyces* were able to cause a root rot of English boxwood. There was a higher than usual incidence of disease in the uninoculated plants indicating that the disease organisms were either carried into the field or were already present in the soil.

A combination of *Fusarium* and *Paecilomyces* were found to produce a higher degree of infection than either organism alone in a greenhouse test initiated on 27 March 1973. After a period of two months, the treatments were subdivided into additional treatments consisting of plants subjected to excess water, low water and normal watering. The plants were harvested and the root system rated in

July. Of the three moisture regimes, a higher disease incidence was noted in the excess moisture treatment. Another test was also initiated on 27 March. Plants used in this test were six week old rooted cuttings subject to normal watering conditions. Plants inoculated with *P. buxi* and *Fusarium solani* had a higher percentage root rot than did the uninoculated plants. A repeat of this test is currently underway.

Isolates of *Phoma* species have been obtained from declining boxwood in Loudoun, Rockbridge and Roanoke counties. English boxwood were inoculated with these isolates and placed in a growth chamber to control the environmental conditions. Plants were harvested at three months and rated for disease. There was a close correlation between the percent of roots rotted and the number of fruiting bodies per root.

One other inoculation test has just recently been completed. Soil from a northern Virginia nursery was brought to Blacksburg. English and American boxwood were potted in the untreated soil. A part of the soil sample was sterilized and English and American boxwood were potted in this soil. After 16 months, the plants were harvested and rated for diseased roots. Both English and American boxwood in the non-sterile soil had 90% of the roots rotted while there was only about a 10% rot of plants in the sterile soil. The American boxwood showed no foliar symptoms. *Fusarium* was isolated 61% and 35% of the time from the American and English boxwood in the non-sterile soil. No pathogenic fungi were recovered from plants grown in sterile soil.

In the greenhouse, four months is the maximum length of time that tests have been conducted. In no instance has the amount of root damage approached that observed in the field. Field observations have shown that a loss of 75-95% of the fibrous root system is required before top symptoms appear. Very rarely are top symptoms observed in the four month tests. Boxwood decline appears to be a disease caused by several organisms and developing over a long period of time. Even with the large amount of data accumulated at this point, we have just begun to scratch the surface in the study of boxwood decline.

Many members of the ABS are justifiably concerned with control measures. At this point, six reg-

istered, and one experimental, fungicide have been tested *in vitro* against the growth rate of *F. solani* and *P. buxi*. Of the registered fungicides, only two were effective against *Fusarium* while none were effective against *Paecilomyces*. The experimental fungicide was highly effective against both *Fusarium* and *Paecilomyces*. This fungicide is being reformulated and will have to undergo another period of intensive testing before the company will even consider production. Chemical control of boxwood decline may be two to three years in the future.

Experiments currently underway or planned include the following:

1) Inoculation tests conducted in soil temperature tanks at four different temperatures (59, 68, 77 and 86° F) are in progress.

2) A soil moisture experiment involving moisture stressing of plants prior to inoculation has been started.

3) Inoculation of American boxwood with some of the fungi which infect English boxwood.

4) A study of root colonization by certain fungal isolates using excised roots as a rapid test of pathogenicity to circumvent the minimum four-month test period needed in greenhouse tests with whole plants.

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### Are You a Neighbor of Blandy Farm?

#### If You Are,

— and in Virginia neighbor means anyone living within a twenty or thirty miles drive — this appeal is to you.

**WANTED:** several electric heaters (portable, plug-in type) for Mrs. Kirby's ABS office and the Boxwood Bulletin storeroom at Blandy Experimental Farm. These rooms are located in a side wing of the building, where the steam radiators do not provide enough heat to control chill and dampness.

If you have an electric heater that you are not using, PLEASE donate it to ABS (tax deductible at fair market value). Please call or write Mr. Thomas Ewert, Director of Blandy Experimental Farm, Boyce, Va. 22620. Telephone 703-837-1758 or 837-1068.

Neill Phillips

Dear Mrs. Whiting:

In the minutes of the October meeting I note that Dr. Lambe was requested to provide a list of VPI & SU publications that will be of use to ABS members. To assist Dr. Lambe in this endeavor, I am enclosing some of the publications prepared by the Department of Horticulture that would especially be of interest to the many members of the society living in Virginia. Copies of these publications are enclosed for your files. Virginia residents can obtain copies by contacting their local Cooperative Extension Office or by writing the VPI & SU Mailing Room, Hutchison Hall, Blacksburg, Virginia.

Sincerely,  
Albert S. Beecher  
Extension Specialist  
Ornamental Horticulture

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*As space is limited in this issue, Admiral Phillips selected the following, as most immediately useful to boxwood growers.*

**Boxwood in the Landscape.** Publication 248. Revised August 1972.

**Note:** this pamphlet should be read and re-read by everyone interested in boxwood culture.

**Turfgrass Guide.** Publication 311. Rev. June 1972.

**American Holly.** Pub. 247. Reprint May 1972.

**Flowering Dogwood.** Pub. 244. Rev. Feb. 1972.

**Planting Seeds.** Pub. 75. April 1970.

**Transplanting Seedlings.** Pub. 65. April 1970.

**Propagation by Cuttings.** Pub. 76. April 1970.

**Pruning Ornamental Trees.** Pub. 455. Aug. 1971.

**Landscaping Slopes.** Pub. 125. Aug. 1970.

**Pruning Shrubs.** Pub. 457. Aug. 1971.

**Protecting and Repairing Trees During Construction.** Pub. 395. Sept. 1970.

*Publications listed above can be ordered from the VPI County Extension Agents office in your county of Virginia. Do not request from Dr Lambe.*

*The Holly and Dogwood pamphlets are included because these plants are so often grown with boxwood.*

# How To Maintain Boxwood

*Jack J. Goehring*

To many, boxwood is the "thoroughbred" of landscape shrubs with its natural beauty, dark ever-green color, versatility, and hardiness, but the sense of permanence that boxwood provides has endeared it to generations of gardeners since Colonial America.

Fortunately, boxwood responds well to basic cultural maintenance techniques. Its insect and disease enemies are few as compared to other types of plantings, and it thrives in a wide range of soil types. Pruning, feeding, covering, and the spraying of control agents produce results which make boxwood an ideal landscape shrub.

One of the most important aspects of boxwood maintenance is pruning and thinning. To grow healthy, thriving boxwood, it is critical that they be pruned once a year by thinning some of the branches in the upper portion of the plant. This interior pruning, or "drop crotching," is necessary so the center portion receives air and light, or the stems will weaken and start to die back. Though this procedure takes more time, as it must be done by hand, the appearance of the plant is preserved because the exterior shape remains unchanged. Height and shape can be controlled by clipping the upper branches of the plant, but this clipping without the thinning of the crown will in time weaken the shrub.

Boxwood that has been neglected can be rejuvenated both by this interior thinning and by severely cutting back the top. This drastic pruning should be done during the winter or early spring so the new growth can cover the cuts and soften the abrupt, recently cut appearance. However, the general clipping and "drop crotching" can be done any time of year.

It is not necessary to feed boxwood every year if they are healthy and thriving. Generally, a feeding every other year is desirable. However, plants that are weak, have a light green or off-bronze color, or look generally "scraggly", should be fed twice a year, once in early winter when they begin their dormant period, and again in the spring when their new growth begins.

At Shadewood they recommend a fall feeding, after dormancy but before the ground freezes, of bone meal with a spring application of dehydrated blood, both organic and high in nitrogen, when the ground is moist. Further, in early summer, May to mid-June, they use a liquid fertilizer (17-17-17) or 23-21-17) applied into the ground under pressure with a drenching needle.

This granulated bone meal and blood is installed in holes drilled in the ground with a feeding machine about 8-15 inches in depth and a foot apart, which encourages the roots to spread and grow deeper. The holes should be a foot away from the trunk and extend partly outside the edge of the foliage. The rate of application is between 3 and 5 pounds of food for each inch diameter of the trunk.

Generally, fertilizing is not done — unless survival is at stake and then feeding should be done any time — later than August, as this will encourage too much new growth at the later part of the season which will be too tender to cold weather, resulting in winter injury.

Perhaps the most critical of all cultural practices in the care of boxwood is the understanding of their need for water. If rainfall is less than normal, boxwood must be watered both during early spring and summer. The ideal is to water them at frequent intervals, but thoroughly at each interval.

For example, let the hose or sprinkler run for several hours once or twice a week so the water can percolate into the soil, rather than water them for a few minutes every day. This keeps the roots down deep and prevents burning. If the ground is dry in the fall, saturate just before it freezes. This will provide enough water for the plant during the winter.

During the winter boxwoods are subject to a severe drying effect by cold winds. This is caused by evaporation from the foliage while the roots are unable to replenish the moisture supply from the frozen soil. This winter burn is aggravated in areas where the shrubs are exposed to the sun, especially the early morning sun.

If ice, snow, or water droplets are on the foliage, they will have a magnifying-glass effect upon the leaves, and the sunlight passing through this "liquid prism" will cause the leaves to burn with a pronounced reddening or bronzing of the leaves.

There are several ways to minimize this damage. First, cover the boxwoods with a temporary burlap screen to shade them from the sun, and to protect them from the drying effects of the wind and the accumulation of ice and snow.

A good system of covering is to erect a wood frame around individual plants and cover it with burlap, both on top and on the sides. Enough clearance between foliage and burlap should be left so

that friction will not occur when the burlap is weighted with snow. Burlap should be erected just before cold weather sets in and removed as soon as the prospect of snow is over.

Mulch — sawdust, pine needles, wood chips — assists in protecting the soil from changes in temperature, aids in the retention of moisture and lessens the depth of frost penetration. Further, the application of anti-dessicant sprays — such as wilt-pruf — to prevent water loss from the plants in January is very helpful.

Perhaps the most technical aspect of boxwood care is the spraying for control of insect pests. The most familiar ones are boxwood leaf miner, cup psyllid, and mite.

Leaf miner, which is maggots that mine in the leaves and give a blistered look to their underside, is the most serious. It is controlled by spraying the plants when the larvae have just hatched in early May, with a systemic insecticide, Cygon, or with Malathion. The spraying is repeated in June and July, as necessary.

Psyllids are sucking insects that cause the leaves on boxwoods to "turn-up" or "cup," giving them a lime green, spotty appearance, though normally no permanent damage results. They are controlled by using Sevin or Malathion as the leaf buds open and new growth develops.

The boxwood mite causes a stippling of the leaves, a deterioration, and a gradual weakening of the shrub. These pests are easily controlled with an insecticide, Dicofol, applied in early to mid-May, though it may be applied effectively up until early June.

Further, there is a fall dormant oil spray that is applied after the 1st of October, when the temperature is below 75 degrees but not freezing. The control agent Volck Oil 70 Supreme, which is a clean-up spray for the following year, is recommended. It assists in controlling red spider, scale, candle fly, and woolly aphids, as well as the cup psyllid.

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*Mr. Goehring is head of Shadewood Tree Expert Corporation of Middleburg, Virginia. His article is reprinted with his permission and that of the monthly publication "Grounds Maintenance," in which it first appeared.*

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*It is about three years since the Boxwood Bulletin last carried the following disclaimer and recommendations, formulated and used by the Virginia Cooperative Extension Service. We are repeating them now for the benefit of new members and others who may recently have become our readers.*

The American Boxwood Society as represented by the Boxwood Bulletin uses trade and brand names in its articles only for the purpose of information, and does not guarantee nor warrant the standard of the product; nor do we imply approval of the product to the exclusion of others which may also be suitable.

### Key to Proper Use of Pesticides

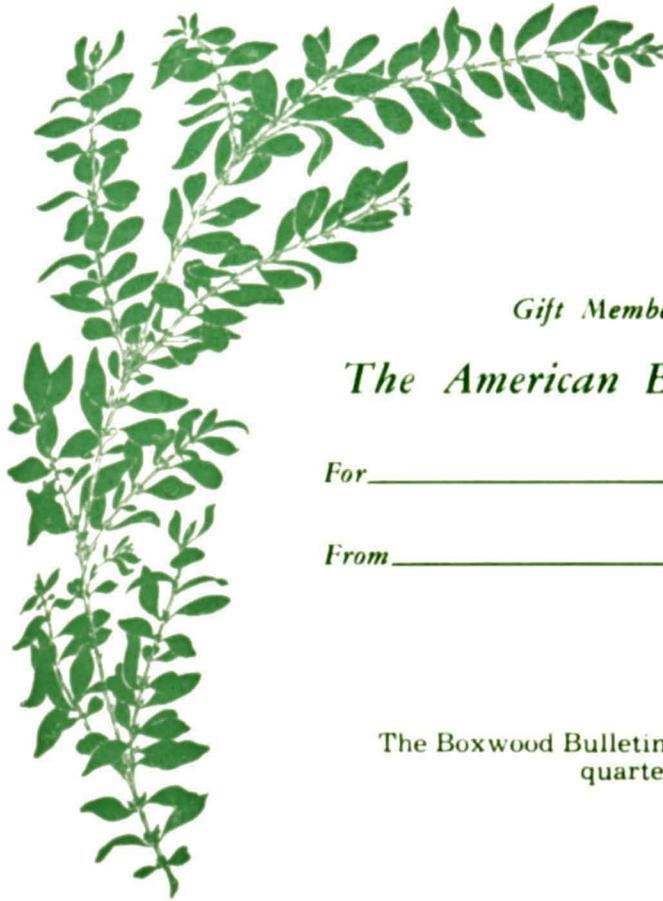
1. Read the label on each pesticide container carefully before each use. Follow instructions to the letter; heed all cautions and warnings, and note precautions against residues.
2. Keep pesticides in the containers in which you bought them. Put them where children or animals cannot get to them, preferably under lock and away from food, feed, seed, or other material that may become harmful if contaminated.
3. Dispose of empty containers in the manner specified on the label. If disposal instructions are not printed on the label, burn the containers where smoke will not be a hazard, or bury them at least 18" deep in a place where water supplies will not be contaminated.

SEE YOUR DOCTOR IF SYMPTOMS OF ILLNESS OCCUR DURING OR AFTER USE OF PESTICIDES.

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All membership correspondence should be addressed to Mrs. Andrew C. Kirby, Secretary-Treasurer, The American Boxwood Society, Box 85, Boyce, Virginia, 22620.