

The *Boxwood* Bulletin

A Quarterly Devoted to Man's Oldest Garden Ornamental



An entrance to the boxwood display gardens at Kimberly Boxwood Gardens, Wilsonville, Oregon. See article, page 52.
(Photo: Mrs. Robert L. Frackelton)

IN THIS ISSUE

Boxwood Leafminer, <i>Monarthropalpus</i> , <i>Gabe d'Eustachio</i>	43
Four Recently Registered Boxwood Cultivars, <i>Lynn R. Batdorf</i>	45
ABS Supports Boxwood Genetics Research Project, <i>Henry F. Frierson, M.D.</i>	47
Reducing Synonyms of Intraspecific Nomenclature, <i>Lynn R. Batdorf</i>	48
Correspondence, <i>Decca Frackelton</i>	52
News of the Society	62
Notices	63

The American Boxwood Society

The American Boxwood Society is a not-for-profit organization founded in 1961 and devoted to the appreciation, scientific understanding and propagation of the genus *Buxus* L.

Officers:

PRESIDENT:

Mr. Thomas Saunders Piney River, Va.

VICE-PRESIDENTS:

Mr. Charles Fooks Salisbury, Md.
Mr. Daniel Moses St. Louis, Mo.

SECRETARY:

Mrs. Sigrid Harriman Fredericksburg, Va.

EXECUTIVE TREASURER:

Mrs. Katherine D. Ward West Augusta, Va.

REGISTRAR:

Mr. Lynn R. Batdorf Washington, D.C.

DIRECTORS:

Mr. John W. Boyd III (2001) Roanoke Va.
Mr. Scot Butler (2000) Winchester, Va.
Mrs. Robert L. Frackelton (2000) Fredericksburg, Va.
Dr. Henry Frierson (2000) Charlottesville, Va.
Mr. Richard D. Mahone (2001) Williamsburg, Va.
Mr. Ian Robertson (1999) Charlottesville, Va.
Mr. Jim W. Saunders (1999) Piney River, Va.
Mr. Clyde Weber (1999) Bentleyville, Pa.
Mr. Steve Zapton (2001) Port Republic, Va.

EX-OFFICIO:

Dr. Michael Bowers Boyce, Va.

BULLETIN EDITOR:

John S. McCarthy St. Louis, Mo.

Memberships:

Memberships for the year May through April include \$16 for four quarterly issues of *The Boxwood Bulletin*:

Individual	\$25	Sustaining	\$75
Family	\$35	Life	\$500
Contributing	\$50		

Non-member subscriptions for groups and institutions, such as botanic gardens and libraries, are \$25 by the calendar year as established or current year for new subscriptions.

Available Publications:

Back issues of <i>The Boxwood Bulletin</i> (thru Vol. 37)	(each) \$ 4
<i>Boxwood Handbook: A Practical Guide (Revised)**</i>	\$ 17
<i>Boxwood Buyer's Guide (4th Edition)</i>	\$ 6
<i>International Registration List of Cultivated Buxus L.</i>	\$ 3
<i>Index to The Boxwood Bulletin 1961-1986</i>	\$ 10
<i>Index to The Boxwood Bulletin 1986-1991</i>	\$ 4
<i>Index to The Boxwood Bulletin 1991-1996</i>	\$ 3

Publications may be ordered from Mrs. K. D. Ward, ABS Treasurer, 134 Methodist Church Lane, West Augusta, VA 24485-2053. **Price includes tax, postage and handling.

Contributions:

Gifts to the Society are tax-deductible and may be undesignated or applied to:

Boxwood Memorial Garden Fund
Boxwood Manual Fund
Boxwood Research Fund

Correspondence:

For address changes, memberships, dues, contributions, or to order back issues or publications, write:

Treasurer, The American Boxwood Society
P.O. Box 85, Boyce, Va. 22620-0085

For general information about the Society, advice concerning boxwood problems or cultivar selection, write to The American Boxwood Society at the same address. You are also welcome to write directly to the President:

Mr. Thomas Saunders
2498 Tye Brook Hwy.
Piney View, Va. 22964

Call for Papers:

Technical articles, news, history, lore, notes, and photographs concerning boxwood specimens, gardens or plantings are solicited for possible publication in *The Boxwood Bulletin*. Material should be submitted to:

Chairman, Bulletin Committee
1714 Greenway Drive
Fredericksburg, Va. 22401-5209

The Boxwood Bulletin (ISSN 0006 8535) is published quarterly for \$16.00 per year by The American Boxwood Society, Blandy Experimental Farm, Boyce, Va. 22620. Periodicals postage paid at Boyce, Va. POSTMASTER: Send address changes to *The Boxwood Bulletin*, P.O. Box 85, Boyce, Va. 22620. The *Bulletin* is printed by M-J Printers, Fredericksburg, Va.

Boxwood Leafminer, *Monarthropalpus flavus*

New Research on Chemical Control

Gabe d'Eustachio

Over the past few years The American Boxwood Society has been supporting the research of Mr. Gabe d'Eustachio, a graduate student at the University of Maryland who is doing his masters thesis on the boxwood leafminer. This is the second article detailing his work on the use of pesticides to control boxwood leafminer in landscape settings.

Boxwood plants form a key part of numerous landscape settings. Fortunately, it has few arthropod pests. The three pests of economic significance are the boxwood leafminer (*Monarthropalpus flavus*, Schremk), the boxwood mite, and the boxwood psyllid. This paper shall deal with chemical control of the boxwood leafminer.

At the present time, control of the boxwood leafminer is unreliable due to a lack of knowledge regarding the choice and optimal timing of pesticide applications. Historically, timely applications of molasses plus nicotine sulfate, fumigation with hydrogen cyanide gas, or even dipping smaller plants in boiling water have provided adequate control of the leafminer (Hamilton 1925). Sulfur dusts have been used against adult leafminers with moderate success, and applications of arsenic have been attempted with minimal success (Hamilton 1925). The main problem with dusts and molasses-based sprays is they are washed off by rain and wind. Since adults emerge over a two-week period, keeping materials on the plant long enough to kill all of the adults proves difficult. DDT was recommended for control of adults as they emerged and walked through the material (Barnes 1948). DDT and

molasses/nicotine sulfate were applied at the first sign of adult emergence. Cyanide fumigation was done in the fall when plant growth had slowed to reduce damage to plant tissue.

Modern control is usually attempted with a contact insecticide for adults and systemic insecticide to control larvae (Brewer 1980, Batdorf 1994). Brewer (1980) tested Soldep, pirimiphos-methyl (Actellic), and omethoate (Folimat). Pirimiphos-methyl seemed to provide reasonably good control. Schread (1967) obtained effective control with late (July 22) applications of diazinon (Diazinon) and even later (August 4) applications of dimethoate (Cygon).

The most important aspect for implementing chemical control of the boxwood leafminer is proper timing of application. Catching the adults as they oviposit, before the boxwood leafminers are hidden in the leaves, is crucial.

Carbaryl (Sevin) (also applied July 22) was found to give less control. Late applications of dimethoate were not very effective when tested in the summer of 1994 at Dumbarton Oaks (P. Page, personal communication). Newer pesticides such as avermectin (Avid) and imidacloprid (Merit) are currently under examination for potential usefulness. Studies indicate that the timely application of avermectin or imidacloprid both provide exceptional control (d'Eustachio, unpublished). A common feature of all these methods is a limited time period for effective control (Hamilton 1925, Brewer 1980, Batdorf 1994, Reif 1994). Application of pesticides

coinciding with emergence of adult leafminers seems to be important, although not essential, for effective control.

To test the effectiveness of different pesticides and different times of application, trials were initiated during the summer of 1995.

METHODS

Two trials were conducted to test the efficacy of different pesticides applied at different stages of boxwood leafminer development. The first trial tested early application of Avid (avermectin) and Merit (imidacloprid). The second trial examined the effect of late application of Avid, Merit, and Orthene (acephate), all of which are systemics.

For the early trial, five plants (*Buxus sempervirens* 'Arborescens') were sprayed for each chemical evaluated at the first sign of adult emergence in late April. Both Avid and Merit were used at concentrations recommended for leafminer control. A control group of five plants was sprayed with water and spreader/sticker only. Plants in each group were sprayed to a point slightly beyond leaf drip using a two-gallon hand sprayer. Ten leaves were harvested from each of the plants in September, and the number of surviving larvae were compared among different pesticide treatments. To determine if pesticide treatments affected oviposition behavior, the number of ovipositions was measured by counting the number of oviposition scars still plainly visible on the underside of the leaves. Oviposition scars remain visible for the entire lifetime of a leaf and because box-

wood leafminers only oviposit on the current year's growth, only ovipositions from the current year were observed.

A second trial was initiated in mid-July to test the efficacy of late pesticide application. Plants were selected and leaves were harvested the day of treatment to assess initial pest densities. Each of three groups of plants were treated with Avid, Merit, and Orthene, and another group of plants was again set aside as a control. Spreader sticker adjuvants were used on all plants and each was sprayed to the point of leaf drip. All plants were then sampled in September to determine pesticide efficacy. Ten leaves per plant were dissected using the same technique described previously.

The number of surviving larvae was determined and analyzed for statistical significance. The level of six larvae per leaf was proposed by Hamilton (1925) as the economic threshold, and this level was used to indicate successful control efforts in addition to the relative number of larvae that survived in each treatment.

RESULTS AND DISCUSSION

Recalling Hamilton's (1925) threshold of six larvae per leaf, both Avid and Merit proved quite effective when applied at the first sign of adult emergence and showed significant levels of control. In practical terms, this means that plants can be protected from serious boxwood leafminer damage using chemical treatments. A significant number of leafminers may still exist in the plants, enough to warrant additional treatment the following spring, although the damage level is well below the aesthetic threshold. After a year or two of effective treatment, levels of boxwood leafminer activity have been reduced to a point that further treatment is unnecessary (d'Eustachio, personal observation).

Pesticide applications later in the season provide some control but not as much as spraying a systemic on the adults and leaves. This could be due to a number of factors. By mid-July leaves could have hardened to the point that pesticides can no longer penetrate the leaf tissue. Also, the

waxy cuticle, which is thick on boxwoods, may have developed to the point that water-based materials cannot enter. Another possibility could be that larvae have developed enough by this stage to resist the small amount of pesticide that penetrates their galleries.

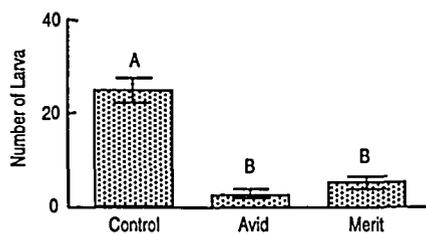
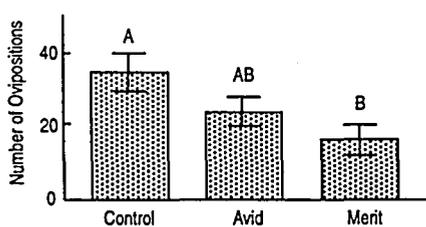
I noted during both experimental and routine pesticide application that use of a power sprayer greatly increased the level of control. This result may be attributed to the power sprayer applying a higher rate of material more forcefully (at a higher nozzle pressure) than a hand sprayer. Power sprayers may give more complete coverage of all leaf surfaces and improved ability of the pesticide to "stick" to the leaf surface. The thick waxy cuticle of boxwood leaves, especially that of new growth, posed problems to pesticide application. A large amount of spreader-sticker adjuvant had to be applied to "wet" new growth. Rates of up to 1 pt/10 gal were necessary for proper adhesion at extremely low nozzle pressures. At higher pressures, less adjuvant was necessary.

A high rate of spreader-sticker application can burn leaves of some plant species, but this was not observed on boxwoods, even at extremely high rates.

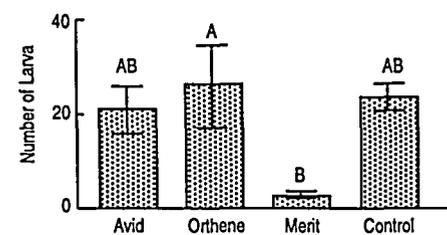
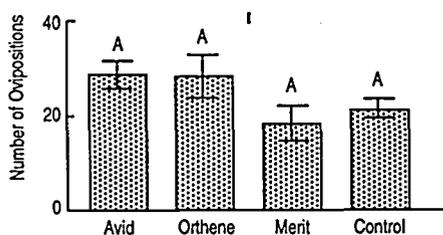
CONCLUSION

In conclusion, the most important aspect for implementing chemical control of the boxwood leafminer is proper timing of application. Catching the adults as they oviposit, before the boxwood leafminers are hidden in the leaves, is crucial. This method allows the control of both adults and newly hatched larvae. Avid seems to be the most effective pesticide; and because Avid is labeled as a miticide, it will probably help control boxwood mites as well.

Early Application



Late Application



Four Recently Registered Boxwood Cultivars

Lynn R. Batdorf

The following boxwood cultivars have been accepted for registration by Mr. Lynn R. Batdorf, Registrar for The American Boxwood Society which is the International Registration Authority for Cultivated Buxus.

***B. microphylla* 'Northern Emerald'**

Registered by Charles A. Hildebrant, Hildebrant Nurseries, Oldwick, N.J.

Description: Single-trunked shrub with multiple branching near the base forming a spreading, mounded habit. A 15- to 18-year-old plant growing at Oldwick, New Jersey, has grown to 0.76 m (30") tall and 1.2 m (48") wide. Foliage is evergreen, opposite, coriaceous, and elliptic. The apex is obtuse to acute and mucronate; the base is cuneate. The leaves are short-petioled, 11 mm to 15 mm (7/16" to 10/16") wide and 14 mm to 19 mm (9/16" to 3/4") long. The internodal length is 9 mm to 14 mm (6/16" to 9/16"). New growth varies from 5 cm to 13 cm (2" to 5") annually. Leaf color, from the second edition of the Royal Horticultural Society Colour Chart, is 137A for the upper epidermis and 143C for the lower.

It is similar to *B. sinica* var. *insularis* 'Wintergreen' which originally had 25 clones, but nursery uniformity has reduced this number. 'Northern Emerald' has foliage that is larger and darker green than most of these clones. It is similar to 'Vardar Valley' in habit, but not in color. This plant matures at 1 m (3') in height. It is similar to 'Winter Gem' in habit, leaf shape and color but with denser foliage due to more open branching. Maintains dark green color all winter. Hardy to Zone 4.

History: This boxwood originated as an open-pollinated seedling in the



Buxus microphylla 'Northern Emerald' (Photos: Charles Hildebrant)

nursery field at Hildebrant Nurseries, Oldwick, N.J., a commercial nursery production firm. It was discovered as an in-row chance seedling in a large block of *B. microphylla* about 1958.

***Buxus microphylla* var. *japonica* 'Hildebrant's Intermediate'**

Registered by Charles A. Hildebrant, Hildebrant Nurseries, Oldwick, N.J.

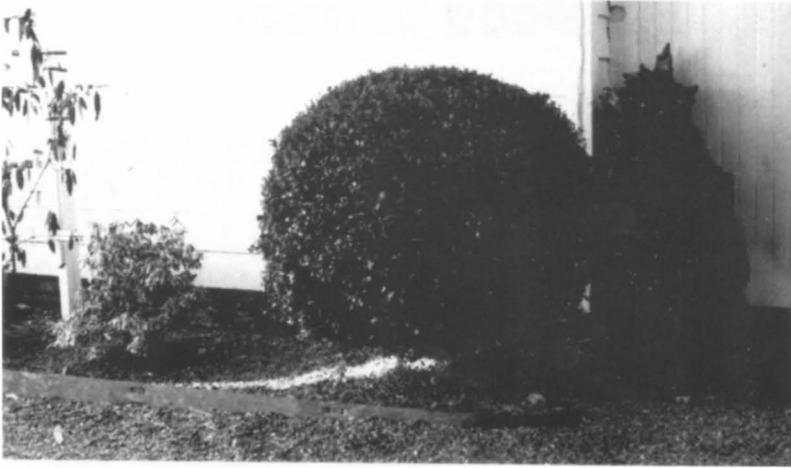
Description: Single-trunked shrub with multiple branching near the base forming a near-perfect sphere. A 23-year-old plant growing at Oldwick, New Jersey, has grown to 1.1 m (44") tall and 1 m (42") wide. Foliage is evergreen, opposite, coriaceous, broadly elliptic. The apex is mucronate to generally retuse; the base is cuneate. The leaves are short-petioled, 13 mm to 20 mm (1/2" to 5/8") wide and 22 mm to 25 mm (7/8" to 1") long. The internodal length is 13 mm to 16 mm (1/2" to 5/8"). New growth varies from 5 cm to 7.5 cm (2" to 3") annually.



(Photo: Lynn Batdorf)

Leaf color, from the second edition of the Royal Horticultural Society Colour Chart, is 139A for the upper epidermis and 144A for the lower.

Its remarkable near-spherical habit gives the appearance of a regularly sheared boxwood. It has proved to be cold weather hardy, having no cold damage during the winter of 1994-5 with a minimum of -25°F temperature.



B. microphylla var. *japonica* 'Hildebrant's Intermediate'. (Photo: Charles Hildebrant)



(Photo Lynn Batdorf)



B. sempervirens 'Appalachian Pyramid'. (Photo: Charles Hildebrant) (Photo: Lynn Batdorf)



The plant had no foliage burn and little discoloration.

History: This plant originated as an open-pollinated seedling in a nursery field at Hildebrant Nurseries, Oldwick, N.J., a commercial nursery production firm. It was discovered about 1983.

***B. sempervirens* 'Appalachian Pyramid'**

Registered by Charles A. Hildebrant, Hildebrant Nurseries, Oldwick, N.J.

Description: Single-trunked shrub with multiple branching near the base forming a pyramidal habit. A 15-year-

old plant growing at Oldwick, New Jersey, has grown to 1.37 m (4 1/2') tall and 1 m (3 1/2') wide. Foliage is evergreen, opposite, coriaceous, and elliptic. The apex is obtuse to mucronate; the base is cuneate to broadly attenuate. The leaves are short-petioled, 10 mm to 13 mm (7/16" to 9/16") wide and 22 mm to 31 mm (7/8" to 1 1/4") long. The internodal length is 13 mm to 16 mm (1/2" to 5/8"). New growth varies from 15 cm to 20 cm (6" to 8") annually. Leaf color, from the second edition of the Royal Horticultural Society Colour Chart, is 135B for the upper epidermis and 144A for the lower.

'Appalachian Pyramid' is more upright than *B. 'Green Mountain'*, maintains a deeper green foliage color than *B. sempervirens* 'Pyramidalis', and is broader at the base than *B. sempervirens* 'Fastigiata'. Young plants of 'Appalachian Pyramid' have a pronounced pyramidal habit. It has been grown in Zone 5 for about 15 years and has performed exceptionally well during this time.

History: This plant was discovered in a nursery field at Hildebrant Nurseries, Oldwick, N.J., a commercial nursery production firm. It was discovered about 1981.

Buxus 'Verdant Hills'

Registered by Dr. Norman E. Pellet, Professor Emeritus, University of Vermont, Burlington, Vermont.

Description: Single-trunked plant with multiple branching at the base forming a mounded plant nearly twice as wide as high. A 25-year-old plant growing at the University of Vermont Horticultural Research Center located in south Burlington, is 1.17 m (46") tall and 1.78 m (70") wide. The plant is growing in a loamy sand soil with full exposure to the sun. Foliage is ever-green, opposite, coriaceous, and elliptic to broadly oblong. The apex is obtuse to acute or retuse, the base is cuneate to acute. The petiole is short (c. 0.3 cm or 0.12"), and the leaf averages 1.1 cm (0.43") wide and 1.7 cm (0.67") long. New growth varies from 5 to 10 cm (2 to 4") annually. Leaf color, from the second edition of the Royal Horticultural Society Colour Chart, varies from 145B to 147C for the upper epidermis.

It is similar to its sister, *B.* 'Green Velvet' although this plant is wider in relation to its height. This cultivar has demonstrated dependable winter hardiness in Burlington, Vermont for the past 25 years. The plant is available from Cobble Creek Nursery, RD 2, Box 3850, Bristol, VT 05443.

History: 'Verdant Hills' is a



Buxus 'Verdant Hills' (Photo: Dr. Pellet)

putative hybrid where *B. sempervirens* is the female and *B. sinica* var. *insularis* the male. It is an open-pollinated seedling selected by the staff at Sheridan Nurseries, Georgetown, Ontario, Canada, in the early 1960s. Given the selection number 77 by Sheridan, it is a sister seedling of *B.* 'Green Mountain' and *B.* 'Green Velvet'.

Sheridan Nurseries distributed this plant to the USDA Plant Introduction Station at Geneva, N.Y. where it was assigned the number G-17882. It was later distributed to the University of Vermont.



Buxus 'Verdant Hills' in bloom. (Photo: Dr. Pellet)

ABS Supports Boxwood Genetics Research Project

Henry F. Frierson, Jr., M.D.

The Board of Directors of the ABS has contributed \$2,500 from its research fund, augmented by donations, to support research on the molecular genetics of boxwood species. The research will be performed by Maria Landgraf for her graduate (diploma) thesis under Prof. Egon Köhler at Humboldt University in Berlin, Germany. Professor Köhler has studied for many years the pollen morphology, leaf anatomy and surface pattern, and

wood anatomy of New World (especially Cuban) boxwood in order to determine evolutionary differentiation and systematic relationships among species. Ms. Landgraf will perform the molecular studies in the laboratory of Prof. Börner, a geneticist in the Department of Molecular Genetics, Institute of Biology at Humboldt University. It is anticipated that approximately 9 months will be required to complete the project.

As the flowers of *Buxus* species are similar worldwide and hence cannot be relied upon for plant classification, determination of DNA sequences (DNA "fingerprinting") among *Buxus* species has the potential to define the most primitive species and then to construct an evolutionary tree of others that have split off. The closeness or distance of various *Buxus* species can be assessed according to their DNA sequence differences.

The molecular genetic experiments will focus on the *matK* gene, 1550 base pairs in length, that is present in the genome of chloroplasts of all photosynthetic land plants. The *matK* gene encodes a maturase (an enzyme) which is invoked in the removal (splicing) of portions of DNA as it is converted (transcribed) to RNA. The variation in DNA sequence of the *matK* gene makes it useful for phylogenetic investigations. The gene has already been successfully copied (amplified) from a variety of dicots including, among others, Asteraceae, Cornaceae, Rosaceae, and Magnoliaceae.

Steps involved in the molecular analysis of the *matK* gene include DNA extraction from leaves, amplification by the polymerase chain reaction, and sequencing. The sequences of the *matK* gene for the various boxwood species will be compared by computer analysis.

In Ms. Landgraf's preliminary data, she has perfected the technique of DNA isolation of sufficient quantity from dried boxwood leaves. She has also been successful in amplifying the *matK* gene by the polymerase chain reaction. Finally, she has shown some differences in DNA sequence for several *Buxus* species using the technique of restriction fragment length polymorphism, a method that shows differences in size of DNA fragments after enzymatic cleavage. She plans to analyze the *matK* gene in 10 to 15 of the newly discovered Cuban species, and, in addition, will examine boxwood species available in the commercial trade in the United States. The latter include *B. harlandii*, *B. microphylla* 'Compacta', *B. microphylla* var. *japonica* 'Morris Midget', *B. sempervirens* 'Suffruticosa', *B. sempervirens* 'Graham Blandy', and *B. sinica* var. *insularis* 'Justin Brouwers'. Ten grams

of dried leaf material from each of these six boxwoods will be sent to Ms. Landgraf for analysis.

The ABS has previously given financial assistance for a boxwood collecting expedition in Cuba in order to build a living collection of native Cuban species at the Jardín Botánico Nacional in Havana. Having been accompanied by Dr. and Mrs. Mark Braimbridge from the Langley Boxwood Nursery in Great Britain, Prof. Köhler has collected dried leaf material from Cuban species for DNA sequence analysis.

Ms. Landgraf will write a summary article concerning her findings for a future issue of *The Boxwood Bulletin*. With success, DNA sequence analysis could be extended to other Asian and African boxwoods. With the examination of all boxwood species worldwide, a molecular taxonomy of *Buxus* could be constructed.

Reducing Synonyms of Intraspecific Nomenclature

A Proposed Use of the World-Wide Web

Lynn R. Batdorf

The following is the text of a presentation at the Third International Symposium on the Taxonomy of Cultivated Plants. It was given by Lynn R. Batdorf, Registrar for the ABS which is the International Registration Authority. This was presented at Edinburgh, Scotland July 20-25, 1998, and was made possible through support by The American Boxwood Society and the U.S. National Arboretum.

Keywords: *Buxus*, intraspecific classification, cultivar, botanical nomenclature, world-wide web.

Abstract

An enumeration of *Buxus* taxa

reveals 161 valid cultivars. However, in Europe and North America there are approximately 470 valid and invalid cultivar names. This discrepancy is due largely to synonyms that occur for species, cultivar and vernacular names. The checklists and registration lists of cultivar names published by International Registration Authorities have a limited impact on reducing the use of synonyms and validating cultivars. There is need for a uniform and widely accessible world-wide web site where correct nomenclature information is available to interested parties.

1. Introduction

Synonym names occur in several

situations. The first involves valid cultivar names that are mistakenly assigned to the wrong species. For example, *Buxus harlandii*, is somewhat obscure when compared to *B. sempervirens*. Due to the popularity of *B. sempervirens* and its cultivars, *Buxus* has been perceived as a monotypic genus. Thus when confronted with the binomial *B. harlandii*, the name is changed to *B. sempervirens* 'Harlandii'. At other times the one species is often confused with another because of shared similar characters. Thus, the valid name *B. harlandii* 'Richard' is changed to *B. microphylla* 'Richard' or *B. microphylla* 'Richardii' or *B. microphylla* var. *japonica* 'Richardii'. When con-

fronted with a lesser known species, the typical conclusion is that the specific epithet must be in error and belongs to a more common taxon. Thus, valid cultivar names are assigned to erroneous species.

It is possible for the same plant to have both a trademark name and a cultivar name. For example, *Buxus* 'Glencoe' is a hybrid boxwood with the trademark name of Chicagoland Green™. This has caused confusion in the nursery industry, which has removed the single quotation marks around the cultivar name and the trademark symbol. Nurserymen are generally more comfortable with common names, and often eliminate or confuse cultivar and trademark names. Thus the names Chicagoland Green™ and *B.* 'Glencoe' have been replaced by the common name "Chicagoland Boxwood," which has become accepted in the nursery trade. Similar trademark and cultivar name changes occur with other boxwood.

Multiple synonyms can exist for the same clone. Perhaps the best example of this is *Buxus sempervirens* 'Suffruticosa', or "English" boxwood. Cultivar synonyms include: 'Fruticosa', 'Humilis', 'Mt. Vernon', 'Nana', 'Rosmarinifolia Fruticosa', 'Rosmarinifolia Minor', 'Suffruticosa Nana', and 'Truedwarf'. In addition, binominal synonyms include: *B. humilis* Dod., *B. sempervirens* var. *nana*, *B. sempervirens* var. *suffruticosa*, and *B. suffruticosa*. Further, English vernacular synonyms include: Dwarf Box, Dwarf English, Edging Box, English Boxwood, English Dwarf Box, Ground Box, Old English Boxwood, True Edging Box, and Truedwarf Boxwood. There are at least seven vernacular names in French, three in German and four in Dutch. There are probably additional names in other languages. As shown in this example the clone has more than 35 names.

Name confusion also occurs

between taxa. For example: *Buxus sinica* var. *insularis* 'Winter Gem' is a Korean boxwood cultivar. Its vernacular name is: "Large Leaf Asiatic Boxwood." Synonyms include: *B. microphylla* 'Asiatic Winter Gem', *B. microphylla* var. *asiatic* 'Winter Gem', *B. microphylla* 'Wintergem', *B. sinica* var. *insularis* 'Large Leaf Asiatic', and simply, *B. sinica* var. *insularis*. The various synonyms occur because this plant is of Asian origin, has a relatively large leaf, maintains a dark green color during the winter, and it is a "gem." The various synonyms were created in an attempt by the nursery industry to describe and promote the various unique characteristics of this boxwood.

There are other events that result in the creation of synonyms and invalid cultivar names. For example, if a cultivar name is lost or confused in the trade, the trade is often quick to create a new name to ensure the sale of the plant. Competing nurseries must respond to market pressures and are anxious to add new and exciting plants. In an effort to improve marketability of plants, unexciting cultivar names like 'Graham Blandy' are changed to flashier names like 'Greenpeace' to increase their appeal and stimulate sales. Foreign cultivar names that seem difficult or awkward can have a negative impact on sales. On occasion the trade has modified or completely changed these names to make them seem more appropriate for the market area. There are also regional influences and landscape uses which give rise to the creation of new vernacular names. Some hybridizers and those naming new selections are unaware of the registration process and assign improper names.

2. Proposal

Many of the complexities surrounding the infraspecific nomenclatural synonyms center largely around

correct information dissemination. Typically, registration and checklists produced by International Registration Authorities (IRAs) reach only a specialized audience. Arboreta, botanic gardens, research institutions, and plant societies which are primarily responsible for breeding, evaluating, increase of stock, naming, and initial distribution of the plant have excellent access to this information. However, several large, important groups are not included in this distribution of information. They include the nursery industry, professional gardeners, propagators, researchers, and plant collectors. These groups are primarily responsible for the distribution of the plant. Here the need for proper names and descriptions to identify the plant and provide the correct nomenclature is the greatest.

The challenge for the IRA is to communicate effectively with these various groups. One avenue is through the world wide web (WWW). Each IRA could establish a web site, under the guidance and instruction of the International Society for Horticultural Science Commission for Nomenclature and Registration. This would improve distribution of correct nomenclatural information. The traditional format is to list the valid name with its earliest bibliographic reference and any synonyms, if applicable. This web site would greatly promote the use of correct cultivar names. It would also reduce the use of synonyms. While this format is exceptionally useful to informed audiences, it is difficult to access and has limited application for others.

For example, verifying that a particular plant has the correct name is not possible. Including information concerning plant characteristics and keeping this information user friendly, requires a different approach. Each genus has its own

unique characteristics with which the IRA is familiar. For example, *Buxus* at the cultivar rank is best differentiated by habit and leaf morphology. For *Hemerocallis*, a variety of floral characteristics are used to differentiate the thousands of hybrids. Brief descriptions in lay terms would permit a broader understanding of these characteristics and allow groups, and possibly individual cultivars to be distinguished. Synonyms and invalid names are often perpetuated because many are unaware of the resources available to obtain a definitive identification at the cultivar level.

3. Discussion

Providing correct information to a wide variety of interested audiences has always been one of the greatest challenges for an International Registration Authority (IRA). A recent development has been the advent of electronic databases for plant nomenclature that can be accessed through the WWW. This proposed forum is unique in that it is constructed by the individual IRA, who has specialized knowledge regarding the cultivars of the respective genus. The common search engines available in the WWW do not permit quick or easy access to the International Society for Horticultural Science Commission (ISHS) site. Access to the ISHS Nomenclature and Registration site could be improved by adding generic key words such as: plant registration, taxonomy, nomenclature, and cultivar. Additionally, the use of keywords such as the genus and its respective common name (i.e., *Nymphaea* and Water Lily) would properly guide the user to the Directory of International Registration Authorities at the ISHS site.

There are distinct advantages to this proposal. Increasing access by adding key words that allow search

engines to locate the IRA site would improve information dissemination. It would permit queries from a vast audience to access on-line information regarding a specific group of cultivars. The information on the site would include nomenclature, registration, synonyms, cultivar characteristics and other information. It would permit easy, accurate and quick access to interested parties such as hybridizers, the nursery industry, and institutions. The ability to contact the appropriate IRA when naming a plant, will assist the IRA in processing cultivar and cultivar-group epithets and in maintaining more accurate records. The plant industry will benefit by having properly named plants. The IRAs will be able to reduce the use of synonyms and will be able to maintain accurate, comprehensive, up-to-date lists of cultivars within their respective authorities.

The WWW has already established itself as an important forum. Indeed the ISHS has a web site that is regularly and often updated. Twelve main topics are presented on the home page of the ISHS and two topics are of interest in this discussion. The first is: "Links to other horticultural pages." The creation of other links to specialized horticultural areas within the interests of the ISHS would broaden resources. For example, IRAs and those seeking links to botanical nomenclature and resources may be interested in some of the sites listed on the following page.

The second main topic of interest on the home page of the ISHS is "International Registration Authorities List." This directory is also regularly and often updated giving a complete listing of IRAs in alphabetical order according to their respective taxon. An examination of this list (updated 12 May 98) reveals 127 registrars with mailing addresses, 68 with fax numbers, and 49 with e-mail

addresses. The e-mail addresses provide a link to the respective registrar.

By providing an additional link to a page created by the registrar, the user could assess specific information regarding that cultivar group. This could include links in the directory to all the IRAs for registration applications, registration lists including synonyms, and information to distinguish cultivars. This would permit the user to gain detailed information and direct inquires or comments regarding registration applications, registration lists, nomenclature, synonyms, plant characteristics and identification, commercial sources, or any other related topic to the appropriate IRA.

4. Conclusion

Assigning appropriate keywords so that interested parties can more easily link to and locate the information on the proposed registrar sites, would accomplish several goals. The broad dissemination of information would reduce the use of synonyms and invalid names for all taxa. The nursery industry, botanic gardens, professional gardeners, propagators, researchers and other interested groups will have an authoritative resource that is easily accessible.

Registrars would be able to maintain a current registration list at this site. With improved access IRAs will have an additional resource to locate new taxa. New synonyms and name combinations will come to the attention of the IRA more quickly. The trade will be encouraged to submit registrations, reducing invalid nomenclature.

Lynn R. Batdorf
International Registration Authority
for *Buxus*
U.S. National Arboretum
3501 New York Avenue NE
Washington, DC 20002 USA

Worldwide Web Sites

- Aquatic & Wetland Database
<http://aquatl.ifas.ufl.edu/database.html>
- Atlas Florae Europaeae
<http://www.helsinki.fi/kmus/afe/database.html>
- Botanical Checklist of N. Am. browser
http://nardac.mjp.berkeley.edu/cgi-bin/browse_smasch_chkl.html
- California State Univ. Bio. Sci. Web
<http://130.17.2.215/>
- Carnivorous Plants Database
http://www.hpl.hp.com/botany/public_html/cp/html/actualcp.htm
- Checklists & Floras, Tax. Databases
<http://www.helsinki.fi/kmus/botflora.html>
- Checklists of Floras of U.S.
<http://trident.ftc.nrcs.usda.gov/plants/staselec.html>
- Chromosome number index
gopher://cissus.mobot.org/77/Chromo/.index/chromo
- Classification of flowering plants
<http://www.systbot.uu.se/classification/overview.html>
- CropSEARCH
<http://www.hort.purdue.edu/newcrop/CropSEARCH>
- CyperFlora California
<http://www.csd.tamu.edu/FLORA/calflora/calflora.htm>
- Families & Genera of Vascular Plt.
<http://www.ars-grin.gov/npgs/tax/faxfam.html>
- Flora Europea, RBG, Edinburgh
<http://www.rbge.org.uk/forms/fe>
- Flora North America
<http://www.fna.org/index1.html>
- Flora North America Online Search
<http://www.fna.org/Libraries/plib/WWW/online.html>
- FLORIN Taxonomy
http://mitia.florin.ru/florin/brief/b_tax.htm
- FlowerBase
<http://www.flowerbase.com/>
- FlowerWeb
<http://www.flowerweb.nl/>
- Germplasm Resources Info. Network
<http://www.ars-grin.gov/npgs/tax/index.html>
- Global Plant Checklist Int'l Org.
<http://iopi.csu.edu.au/iopi>
- Grass Cultivars in the U.S.
http://web.css.orst.edu/Tropics/Species/Grasses/Grass_Varieties/index.html
- Gray Herbarium Card Index
<http://herbaria.harvard.edu:80/Data/Gray/gray.html>
- Index Herbariorum USA
<http://www.nybg.org/bsci/ih/ih.html>
- Index Nominum Genericorum (1NG)
<http://www.nmnh.si.edu/ing/>
- Index Virum
<http://ife.anu.edu.au/viruses/ictv/index.html>
- Indices Nominum Supragenericorum
<http://matrix.nal.gov:8080/cgi-bin/starfinder/7641/suprag.txt>
- International Assoc. Plant Taxonomy
<http://bgbm3.bgbm.fu-berlin.de/IAPT/default.htm>
- International Code of Bot. Nom. -Tokyo Code
<http://www.bgbm.fu-berlin.de/iapt/nomenclature/>
- International Org. of Palaeobotany Plt. Fossil
<http://ibs.uel.ac.uk/ibs/palaeo/pfr2/pfr.htm>
code/tokyo-e/default.htm
- International Society for Horticultural Sci.
<http://www.ishs.org/>
- Internet Biodiversity Service
<http://ibs.uel.ac.uk/ibs/>
- Internet Directory for Botany
<http://www.helsinki.fi/kmus/botmenu.html>
- Integrated Tax. Info. System (ITIS)
<http://trident.ftc.nrcs.usda.gov/itis/>
- Links to Lower Plant Taxa
<http://www.helsinki.fi/kmus/botcryp.html>
- Links to Vascular Plant Taxa
<http://www.helsinki.fi/kmus/botvasc.html>
- Links to Fossil Taxa & Palynology
<http://www.helsinki.fi/kmus/botpale.html>
- Names in use for extant plant genera
<http://www.bgbm.fu-berlin.de/iapt/ncu/genera>
- National Biological Info. Infrastructure
<http://www.nbio.gov/>
- National Center for Biotechnology Info.
<http://www3.ncbi.nlm.nih.gov/Taxonomy/taxonomyhome.html>
- National Wildflower Research Center
<http://www.wildflower.org/>
- New York Botanical Garden
<http://www.nybg.org/bsci/hcol/hcol.html>
- New World Grass Checklist
<http://www.mobot.org/MOBOT/tropics/Poa/agfnames.html>
- Noxious Weeds of USDA in GRIN
<http://www.ars-grin.gov/cgi-bin/npgs/html/taxweed.pl>
- NOAA/Paleoclimatology Pollen Page
<http://www.ngdc.noaa.gov/paleo/pollen.html>
- Peter's Carnivorous Plant Page
<http://www.flytrap.demon.co.uk/>
- Phylogenetic Resources
<http://www.ucmp.berkeley.edu/subway/phylogen.html>
- The Plant Kingdom
<http://www.geocities.com/RainForest/6243/diversity4.html#Plant>
- Plant Chromosome Numbers Database
gopher://cissus.mobot.org/77/chromo/index/chromo
- PLANTS Database
<http://plants.usda.gov/>
- Plant Systematics & Evolution - Links
<http://www.isc.tamu.edu/FLORA/tfplinks.html>
- Plant Trivia Timeline
<http://www.Huntington.org/BotanicalDiv/Timeline.html>
- Publications Database
<http://www.herbaria.harvard.edu/Data/Publications/publications.html>
- Resources for Systematics Research
http://141.211.110.91/tool_dir.htm
- Royal Bot. Garden, Kew
<http://www.rbgekew.org.uk/web.dbs/webdbsintro.html>
- The Tree of Life
<http://phylogeny.arizona.edu/tree/phylogeny.html>
- TreeBase
<http://www.herbaria.harvard.edu/treebase/index.html>
- TROPICOS
<http://mobot.mobot.org/Pick/Search/pick.html>
- Weed Images & Descriptions
<http://www.rce.rutgers.edu/weeddocuments/index.htm>
- Weeds of the World Project
<http://ifs.plants.ox.ae.uk/wwwd/wwwd.htm>
- World Economic Plants in GRIN
<http://www.ars-grin.gov/npgs/tax/taxecon.html>
- World Species Lists
<http://www.envirolink.org/species/>

Outstanding Boxwood Display Gardens in Oregon

To the Editor:

In October 1998, a happy event took me to Portland, Oregon. Fortunately I remembered the ZIP Code of Kimberly Boxwood Gardens in Wilsonville, which indicated that the nursery should be close by, and it was! My son located it via his laptop computer and I was lucky to catch Mr. Kimberly at home. He was most generous with his time and I had a delightful morning exploring all the interesting vistas and boxwood forms.

In just ten years, Mr. and Mrs. A. G. Kimberly have accomplished quite a feat by turning the acreage around their home from an open field into a variety of display gardens.

Hedges, a courtyard garden, "retaining walls" of Korean boxwood, numerous cultivars, topiaries (of which the disc forms especially caught my eye), knot gardens and fields of boxwood were almost too much to take in.

The Oregon climate has perhaps enhanced the work of these two talented enthusiasts. They have been members of the ABS since 1988 and have a web site, www.nurseryguide.com/member/11353.

The photographs on the following pages give a brief tour.

Decca Frackelton
ABS Board of Directors



At Kimberly Boxwood Gardens, a 350-ft length of boxwood hedge, with about 300 plants on 14-in center, is maintained at 4 ft from gateway to front door. (Photos: Decca Frackelton)



The Buxus sempervirens hedge at left ends in a curve and provides an opening as the 80-ft hedge of 'Green Beauty' continues the length of a cold frame holding Buxus microphylla 'Compacta' and other cultivars.



Buxus microphylla var. *insularis* 'Winter Gem' is planted along the stone steps to form a banister effect.



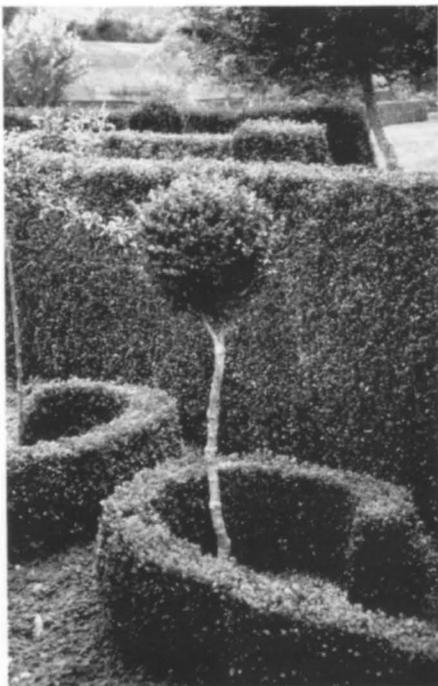
Buxus microphylla 'John Baldwin' specimen with a boxwood hedge behind.



B. sinica var. *insularis* (Korean Boxwood) plants act as retaining walls between levels of lawn terraced toward the river.



*A courtyard boxwood garden with a 4-ft hedge of *B. sempervirens* as backdrop for an S-curve of 'Suffruticosa' clipped at 12 in from 1-gallon containers planted 6 in apart. Pair of *B. sempervirens* 'Variegata' [sic] in right background.*



*Topiary of *Buxus microphylla* var. japonica 'National' used as an accent.*



*Another view of the courtyard garden. A pair of disc forms in the foreground with low-clipped borders of *B. sempervirens* 'Suffruticosa'.*



Boxwood hedge in square forms 17 x 17 x 32 in tall.



Four disc forms around birdbath in background.



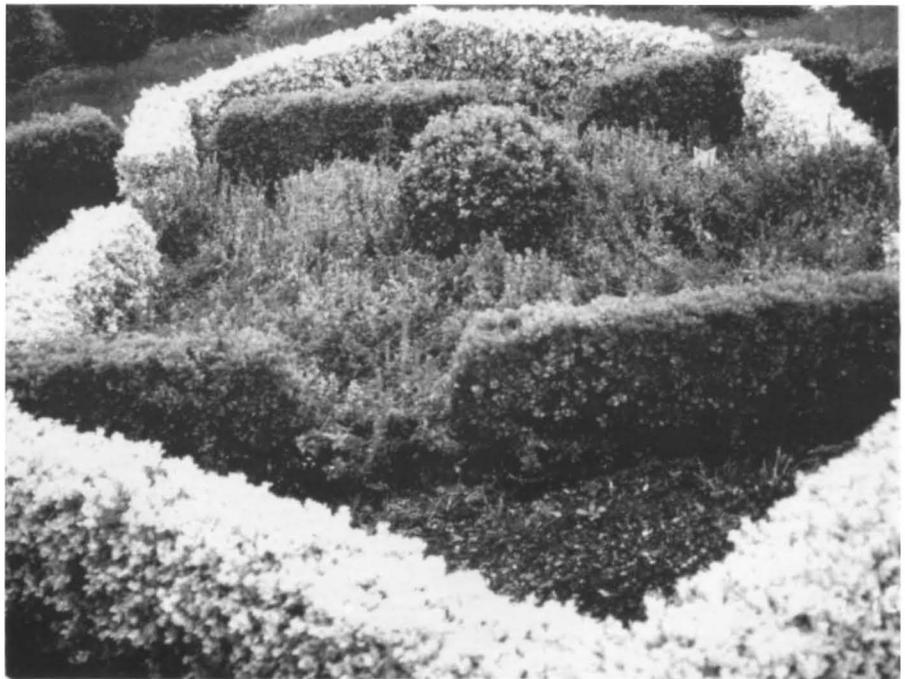
*Disc forms interspersed with small plants of *B. microphylla* 'Curly Locks'.*



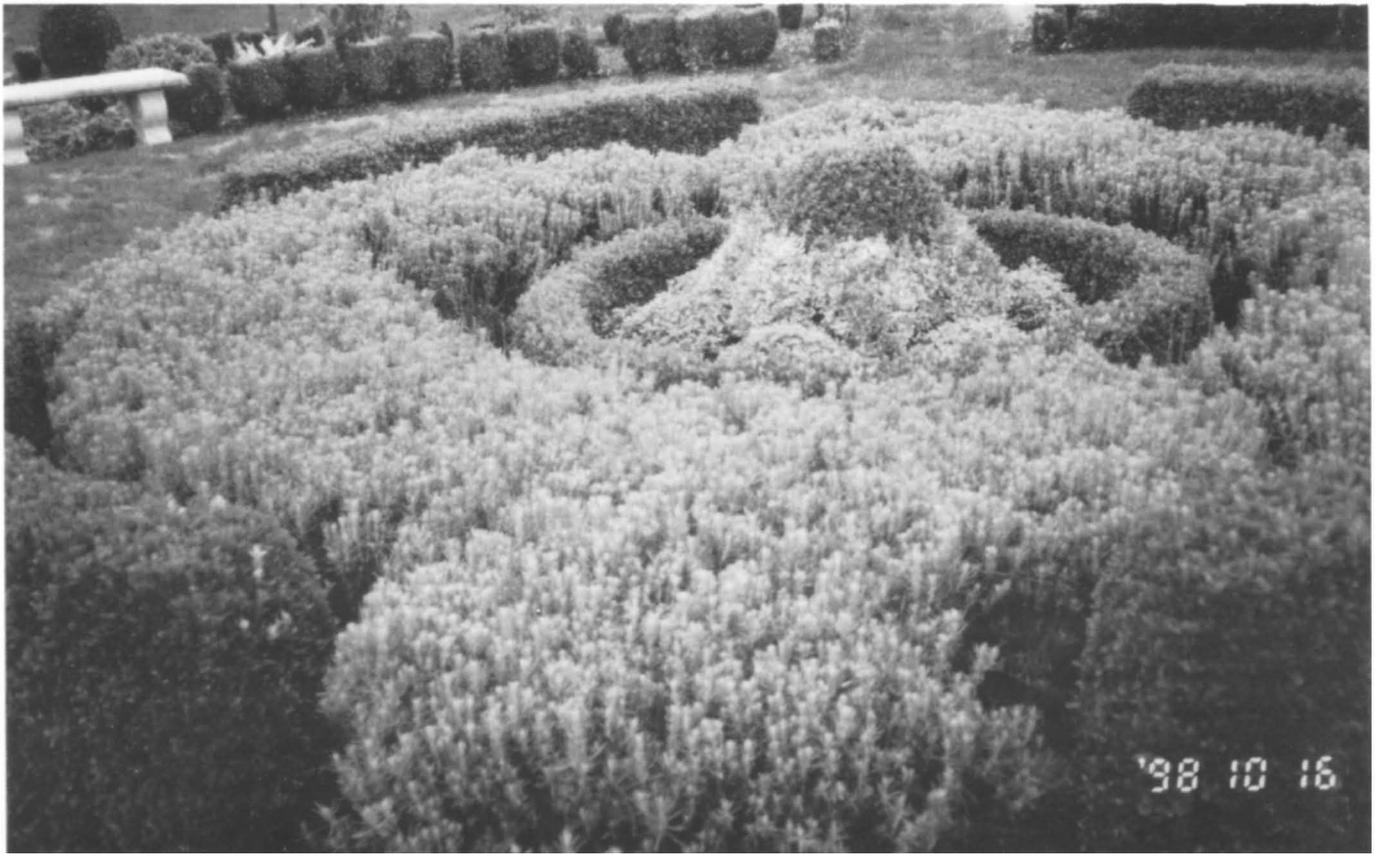
Edge of garden going into farm growing area.



Three-ball topiary of B. sempervirens.



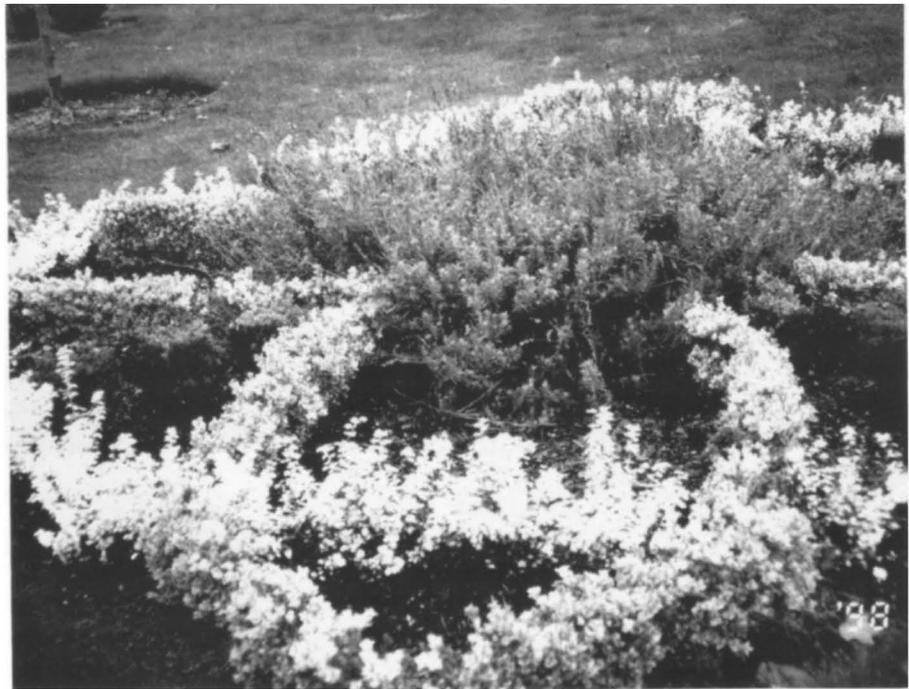
B. sempervirens (18-in globe) at the center of a knot garden, with well-fertilized dark green 'Suffruticosa' and contrasting B. sempervirens 'Variegata'.



Knot garden: center of B. sempervirens 'Suffruticosa' followed by 'Variegata', then a circle of B. microphylla var. japonica 'Morris Midget'. Next a circle and openings of Lavandula 'Jean Bowles', all outlined with 'Suffruticosa'.



Three plants of 'National' limbed up to form an accent in the bed.



Knot garden: lavender in center, Golden Barberry and variegated boxwood, plus B. sempervirens 'Suffruticosa' as dark green contrast.



Knot garden: boxwood globe center, variegated boxwood and lavender contrasts with accents of globe Santolinas.



Center plant of 'National', surrounded by B. sempervirens 'Suffruticosa'.



Gate picked up "for a song" accents entry to knot gardens.



*Accents of upright yews (*Taxus media* 'Hicksii') at corners of low boxwood hedges.*



*A fine specimen of *Buxus microphylla* var. japonica 'National' Σ.*



*Close-up of unidentified *Buxus*, a compact form shaped into a column.*



B. 'Green Mountain', one of the Sheridan Nurseries "Green" series.



B. sempervirens trained in a "flame" form, 5 ft tall.



'Suffruticosa' cones and *B. microphylla* var. *japonica* 'Morris Midget' globes.



Front to back: *B. harlandii*, *B. semp.* 'Vardar Valley', *B. 'Green Velvet'*.



B. sempervirens 'Graham Blandy' with an edging of *Alchemilla mollis*.

Update on ABS Memorial Garden At Blandy



*Plants of *B. microphylla* var. *japonica* 'Morris Midget' set for planting around the ABS Memorial Garden sign. Daffodils planted around the sign last year by a Blandy volunteer group will bloom within the parterre.*



Anderson's Balkan #353-35, originally from Kingsville Nurseries, purchased in the 1960s was moved to the Frackelton garden Sept. 20, 1975, and planted in the Center Bed by Bob Arnold, Nov. 9, 1998.



One of two parterres accenting the topiary. The 'Graham Blandy' is smaller than the one to the east, which was already in place. Bulbs were planted within the parterre. (Photos: Decca Frackelton)

Minutes of Fall 1998 Board Meeting

The fall meeting of the Governing Board was held on Friday, September 25, 1998, at the home of Decca Frackelton in Fredericksburg, Virginia. In attendance were Charles T. Fooks, First Vice President; Katherine D. Ward, Executive Treasurer; Sigrid G. Harriman, Secretary, and directors Scot Butler, Decca Frackelton, Henry F. Frierson, Ian Robertson, Clyde Weber, Steven Zapton. Joan Butler attended in her capacity as liaison to the Orland E. White Arboretum reporting on the ABS Memorial Garden at Blandly.

The meeting was called to order at 1:00 p.m. by Charles Fooks. Mr. Fooks presided because President Thomas Saunders, representing the U.S. Department of Agriculture at an international conference in Italy, was unable to attend. Also absent was Registrar Lynn R. Batdorf who provided a written outline of his activities.

The minutes of the May 15, 1998, Spring Board meeting were approved as published in *The Boxwood Bulletin* Vol.38, No.1, p.17-18.

Mrs. Ward presented the Treasurer's report showing \$8,977.08 in the checking account and \$15,956.48 in the certificate of deposit, which will mature on November 16, 1998.

Approximately 1,500 copies of the 4,000 reprinted *Boxwood Handbooks* were sold since early 1998 in part due to the fact that *The New York Times* reported in July 1998 on the *Boxwood Handbook*. Further reviews are planned to appear in *Garden Design* and *Garden Living*.

Mrs. Ward reported that \$2,270 were collected from the boxwood auction at the 1998 Annual Meeting. This was the best auction so far. Proceeds from the Annual Meeting just about took care of the costs.

Committee Reports

New Boxwood Registrations: Mr. Batdorf listed three new registrations in progress, to be ready for publication in a later issue of *The Boxwood Bulletin*: *B. microphylla* var. *japonica* 'Hildebrant's Intermediate', *B. microphylla* 'Northern Emerald'; and *B. sempervirens* 'Appalachian Pyramid'. All were submitted by Charles A. Hildebrant of Hildebrant Nurseries in Oldwick, N.J. Mr. Hildebrant volunteered to donate two plants each of the new registrations to the ABS Memorial Garden.

Third International Symposium on the Taxonomy of Cultivated Plants: Mr. Batdorf's report on his attendance and presentation of a paper at Edinburgh, Scotland in July 1998 will result in two articles for *The Boxwood Bulletin*. About 250 attendees representing 20 countries were at the symposium.

The Boxwood Bulletin: Mrs. Frackelton stated that at this moment she has several articles promised for the *Bulletin*. One of these on Edgar Anderson Memorial Garden at the Missouri Botanical Gardens.

Updated Buyers Guide: A complete list of all members of the American Nurserymen's Association is needed to have updated names and addresses of nurseries. These nurseries will be contacted and asked to fill out a questionnaire pertaining to their boxwood varieties for sale. It is hoped that the new *Buyers Guide* will be available in 1999.

Memorial Garden Design for Two Parterres: Mrs. Frackelton's idea for two parterres in the Memorial Garden (one around the entrance sign, the second to incorporate the existing topiary and 'Graham Blandly' in North Bed) was discussed and attendees agreed with the planned addition to the Memorial Garden. Blueprints of the future parterres, prepared by Mrs. Harriman, show extensive use of *B. microphylla* var. *japonica* 'Morris Midget'. Preparation and planting will

be scheduled for later in the fall.

Old/New Business

European Boxwood and Topiary Society: Mr. Batdorf agreed to give a repeat of his "Knowing and Growing Boxwood" lecture from the 1998 ABS Annual Meeting on June 12-13, 1999, at Berkshire, England, at the EBTS meeting. He will also prepare an article for *The Boxwood Bulletin* on the forthcoming meeting.

Planning for 1999 Annual Meeting: Mrs. Ward reported on her initial preparations. The Annual Meeting will be May 21-22, 1999 in Richmond, Virginia. The Board is to meet on the afternoon of May 20. Rooms have been secured at the OMNI Hotel, downtown Richmond, with free conference spaces, breakfast and parking.

Mrs. Ward suggested two public gardens, Lewis Ginter Botanical Garden and Maymont, for the tour as well as private gardens. Subjects for speakers suggested during a spirited debate: boxwood cultivars (other than "English" and "American") and their companion plantings; Michael Dirr, author of *Manual of Woody Landscape Plants*, to speak about boxwood and other woody plants and how he defines a boxophile; a primer on terminology: genus, species, cultivars; origin and history of boxwood; workshop on soils, fertilization; soil effects on boxwood (Charles Thornton from Tellus Consulting). Holly Shimizu was mentioned as possible speaker. Mr. Weber volunteered to supply boxwood plants for the meeting, his choice: *Buxus sinica* var. *insularis* 'Winter Gem'.

Year 2000 Annual Meeting: Mrs. Gary Richardson from Annapolis has volunteered to look into hotel, meeting space, and gardens to be visited in and around Annapolis in 2000. She reported that she has no speakers as yet.

Fall 1999 Boxwood Tour: A suggestion was made for a possible Fall Boxwood Tour for 1999 in and around Atlanta, Georgia. Cost, itinerary, etc., will be prepared and presented at the

January Board meeting with help from Mr. Chance Whitaker.

Next Board Meeting: A tentative date, January 15, 1999 at 1 p.m. at the Orland E. White Arboretum in Clarke County, Virginia, was set for the winter Board meeting. (This was later changed to January 22, 1999.)

Discussions followed and Mr. Fooks offered several suggestions given him regarding Annual Meetings: have a banner in hotel lobby, hold social gathering before meeting, introduce new members, invite local press, use volunteers to get meeting together, provide local maps with tour gardens clearly marked, have question and answer panel, gather comments on

meeting. Mr. Fooks also suggested that board members survey five attendees each to gather opinions about meeting. Board members to summarize and report at next Board meeting.

At the close of the meeting Dr. Frierson reported on his correspondence with a German biology student who is researching the variances in DNA (deoxyribonucleic acid) of Cuba's indigenous *Buxus* species. This research is linked to Dr. Egon Köhler's (Humboldt Universitaet zu Berlin) research with wild species. The student provided fairly good data so far and plans to spend 9-10 months studying 10-15 Cuban species. ABS was asked to partially fund this particular research

project. Board members suggested that more specific data must be requested about how this research might benefit ABS, perhaps a genetic comparison with selected horticulturally important species. The Board approved the sum of \$2,000 for this research and expects an appropriate report that can be published in *The Boxwood Bulletin*.

All attendees thanked Decca Frackelton for graciously opening her home to hold our meeting and for an excellent lunch. The meeting adjourned at 4:00 p.m. and all were invited to tour Decca's garden.

Sigrid Georgii Harriman
Secretary

NOTICES

1999 Historic Garden Week in Virginia

Suzanne Munson writes that visitors will get to lift the latch of the garden gate and view more than 250 of Virginia's most outstanding homes, gardens and historic landmarks during "America's Largest Open House" April 17-24.

A 200-page guidebook, to be mailed in February, may be ordered by sending a \$5.00 donation to cover postage and handling, payable to Historic Garden Week, 12E Franklin Street, Richmond, VA 23219.

1999 Tour Schedule

Sat., Apr. 17: Alexandria, Ashland/Hanover, Orange/Madison Co., Charlottesville Friendly Gardens (4/18 also), Roanoke, Suffolk/Eclipse, Winchester/Frederick Co. (4/18 also)
Sun., Apr. 18: Chatham, Leesburg (4/19 also)
Mon., Apr. 19: Charlottesville Country Estate Gardens (4/20 also)
Tues., Apr. 20: Charlottesville (UVA gardens), Fredericksburg, Lynch-

burg, Petersburg, Richmond (4/21 & 22 also), Virginia Beach, Williamsburg
Wed., Apr. 21: Harrisonburg, Martinsville, Newport News/Hampton, Northern Neck, Warrenton (4/22 also)
Thurs., Apr. 22: Danville, Norfolk
Fri., Apr. 23: Fairfax Club Tour, Middle Peninsula/Essex Co.
Sat., Apr. 24: Eastern Shore, Gloucester/Mathews, Lexington, Warren Co.
James River Plantations:
Bacon's Castle: daily except Monday
Belle Air: Tues., Apr. 20 through Sat. Apr. 24
Berkeley: Wed., Apr. 21;
Thurs. Apr. 22
Brandon: Thurs., Apr. 22 through Sat. Apr. 24
Evelynnton: Wed., Apr. 21;
Thurs. Apr. 22
Sherwood Forest: Wed., Apr. 21;
Thurs. Apr. 22
Shirley: Wed., Apr. 21

1999 Maryland House and Garden Pilgrimage

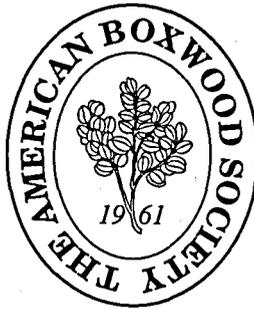
The 62nd anniversary of the Maryland House and Garden Pilgrimage will run from April 17 through May 12. Mrs. Philip Noble Powell, Executive Director, reports that there are many boxwood gardens on the tour this year.

For further information, call or write to Maryland House and Garden Pilgrimage:

1105-A Providence Road,
Towson, MD 21286-1790.
Phone: (410) 821-6933
Fax: (410) 821-7620
e-mail: MHGP@aol.com

1999 Tour Schedule

Sat., Apr. 17: Anne Arundel County
Fri., Apr. 23: Baltimore City (Guilford)
Sat., Apr. 24: Kent County
Sun., Apr. 25: Worcester County
Wed., May 5: Baltimore County
Sat., May 8: Calvert County
Wed., May 12: Carroll County



Annual Statement of Ownership, Management, and Circulation

1. *Filing Date:* October 30, 1998
2. *Title of publication:* *The Boxwood Bulletin*
3. *Frequency of issue:* Quarterly
4. *Complete mailing address of office of publication:*
P.O. Box 85, Boyce, Va. 22620
5. *Complete mailing address of the headquarters or general business offices of the publishers:* The American Boxwood Society
P.O. Box 85, Boyce, Va. 22620
6. *Names and addresses of Publisher, Editor, and Managing Editor:*
Publisher: The American Boxwood Society
P.O. Box 85, Boyce, Va. 22620
Editor: John S. McCarthy
345 Gray Ave., St. Louis, Mo. 63119
Managing Editor: Mrs. Robert L. Frackelton
1714 Greenway Drive
Fredericksburg, Va. 22401
7. *Owner:* The American Boxwood Society
P.O. Box 85, Boyce, Va. 22620
(Incorporated, non-stock,
non-profit corporation)
8. *Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities:* None