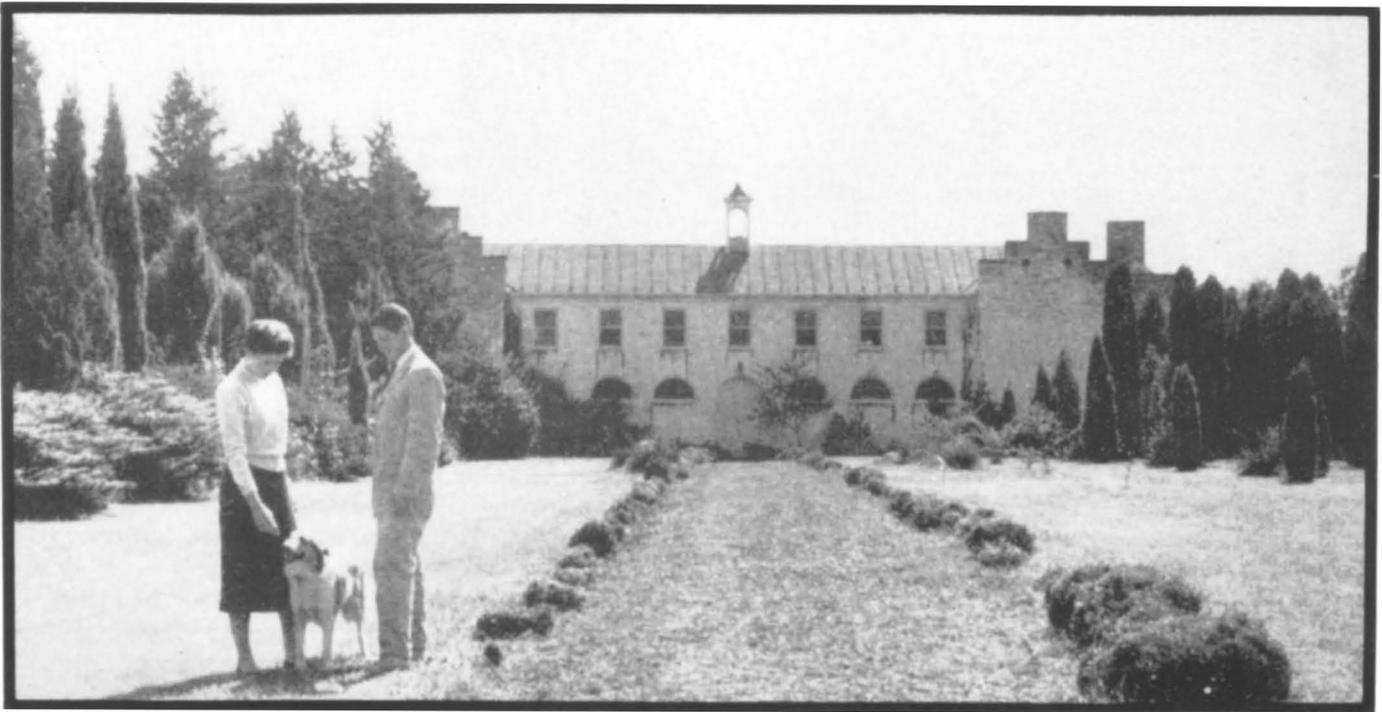


The *Boxwood* Bulletin

A quarterly devoted to Man's oldest garden ornamental



WALK BORDERED BY THIRTY-YEAR-OLD TRUE DWARF BOXWOOD at the Administration Building, Blandy Experimental Farm, Headquarters of the American Boxwood Society (Photo and caption from the cover of the first issue of The Boxwood Bulletin, October, 1961. Story begins on Page 33.)

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The American Boxwood Society is a not-for-profit organization founded in 1961 and devoted to the appreciation, scientific understanding and propagation of *Buxus L.* and its cultivars. There are more than 700 members in the United States and nine foreign countries.

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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:

Mrs. Robert L. Frackelton
1714 Greenway Drive
Fredericksburg, Va. 22401

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Technical articles, news, history, lore, notes, and photographs concerning boxwood specimens, gardens or plantings are solicited for possible publication in *The Boxwood Bulletin*. Photographs should be suitable for reproduction and fully captioned. Suggestions regarding format and content are also welcome. Material should be submitted to:

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

Material to be returned to the sender must be submitted with a self-addressed envelope carrying suitable postage. Every effort will be made to protect submittals, but the Society cannot be responsible for loss or injury.

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Twenty-Six Years Later: A Look Back

Mrs. Robert L. Frackelton

The 26 years since the founding of the American Boxwood Society have been a period of advancement and growth, and there have been many changes. So it is interesting, as we introduce a new format for *The Boxwood Bulletin*, to look back to the beginning.

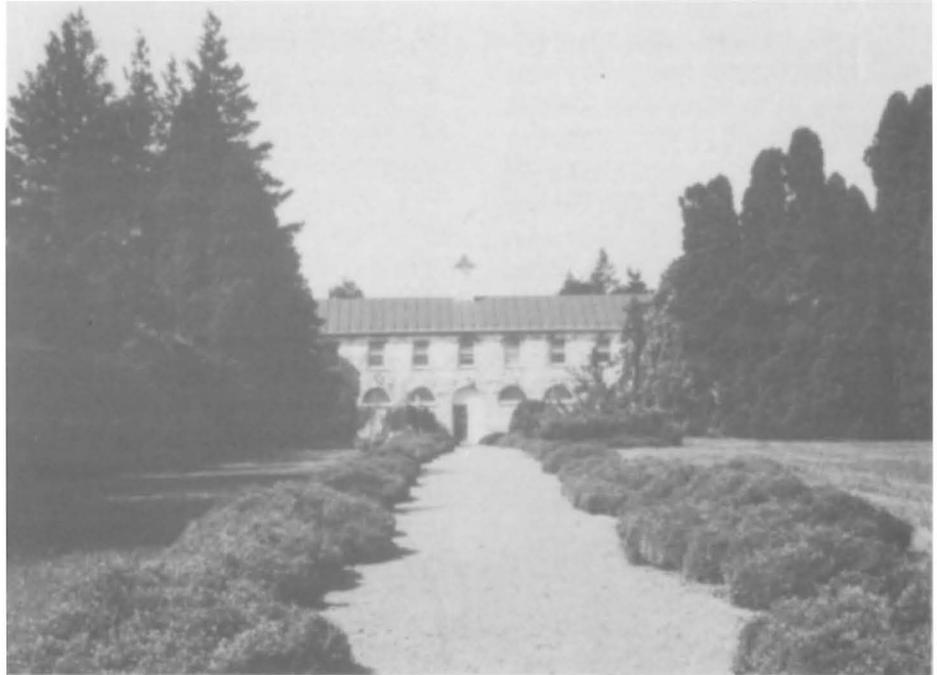
The photograph on the cover of this issue was also on the cover of the first issue of the *Bulletin* (October, 1961).

The boxwoods have grown in stature. Reports indicate some had to be replaced, but most are obviously the originals, which have spread but maintained their low height. Aged 30 in 1961, they would now be 56, certainly senior citizens.

And their name has changed. Then described as "true dwarf boxwood" and known as *Buxus microphylla koreana* (Nana), today the name probably should read *Buxus sinica* (Rehder & Wilson) Cheng. Meanwhile Truedwarf has become the common name for *Buxus sempervirens* 'Suffruticosa.' (See *International Registration List of Cultivated Buxus L.*)

The two students in the photograph have also grown. With the assistance of Dr. Walter S. Flory, Babcock Professor Emeritus of Botany at Wake Forest University, an ABS Director, and a former Editor of *The Boxwood Bulletin*, we were able to trace the progress of Dr. Gertrude Earl Jones and Dr. Walter H. Lewis, who were at Blandy in the 1950s working toward their Ph.D.s in Biology.

Dr. Jones married shortly after receiving her Ph.D. in 1957. She and her engineer husband have four children. All received degrees from the University of Virginia, and have continued with graduate studies in journalism, electrical engineering, mathematics and medicine. Dr. Jones does substitute teaching in biology in Fairfax County schools and noted,



1987 Photograph of "The Quarters" entrance to Blandy Experimental Farm and the Administration Building. (Photos: Robert Frackelton)

"There have been such advances in cell biology and genetics." Of Blandy and its faculty, she says, "My years at Blandy were the most intellectually stimulating that I've ever spent. I still draw on what I learned there. [Dr. Flory] and Dr. White were inspiring teachers."

Dr. Lewis has had a distinguished career in biology. He is at present



Entrance to the ABS Memorial Garden at Blandy.

Senior Botanist at the Missouri Botanical Garden and Professor of Biology at Washington University, St. Louis. As a student, he won the Orsley Research Award, usually reserved for more senior scientists. He was a Guggenheim Fellow at Leeds University, England, in 1963-64. As part of a team with his wife (who in 1974 was Chairman of the Department of Dental Microbiology) and others, studying the effects of the use, by African natives, of wooden sticks in dental hygiene, he collected plants in Africa. He has also collected in South America and China, with resulting publications. Recently he was in Peru doing research.

Blandy Experimental Farm has also changed. The first issue of *The Bulletin* stated that an objective of the new American Boxwood Society would be to establish a "Boxwood Museum," one part of which was to be "a collection of all hardy and adapted *Buxus* species and cultivars." This has resulted in the development of the ABS

Memorial Garden, which now contains some 85 specimens. The ABS contemplates planting additional cultivars of merit as they become available.

A new pavilion, under construction at The Quarters entrance to the Farm, is scheduled to be dedicated on October 18, 1987. The gift of the Friends of Blandy organization, it was supported by the ABS and other groups and individuals. The pavilion will be an information center for visitors, with eight display panels, each twelve feet



Visitors' information pavilion under construction at "The Quarters" entrance at Blandy.

square, containing information about the history and future plans of Blandy; its programs; the Friends of Blandy; and the ABS and its Memorial Garden, with brochures for self-guided tours.

The present Director of Blandy, Dr. Edward F. Connor, Department of Environmental Sciences, U. Va., is enthusiastic about future plans for research and for improvements to the Orland E. White Arboretum, now designated as the "State Arboretum." Dr. Michael Bowers is the Research Coordinator in residence at Blandy.

Mrs. Frackelton is President of the ABS. She attributes her interest in horticulture to her father, the late George Gilmer, and to the outstanding nurseryman, the late Henry J. Hohman, who supplied the mainstay of her collection of boxwood, azaleas and conifers.

What's in a Name?

Boxwood Classification for Non-Botanists

Dr. George Rogers

With the advent of ancient civilization, knowledge grew quickly regarding the uses of plants in medicine and as food. It soon became necessary to identify the plants. The gathering, naming, and classification of plants in modern times is carried on primarily to show their relationships.

The botanical name of every plant consists of two parts, and is not complete without both. The first part designates the genus (e.g. *Buxus*) and the second part is the species (e.g. *sempervirens*).

This presentation will be concerned primarily with species.

Three aspects of plant classification will be discussed. The first is defining and determining what really is a species. This can be a difficult problem, but once properly researched, provides a strong foundation in establishing the taxonomic hierarchy. The second is a description of the general principle of taxonomy. The third concerns the requirements in naming species and cultivars.

Species. All plants of the same species have common characteristics, such as leaf, bark, habit, bud, and especially, flower, that distinguish them from other species. They are ideally an interbreeding unit.

The plant world is very large. The total number of species of plants is unknown. This is because the earth has not yet been completely explored. Among the seed plants, countless specific names have been published. While many of these names are duplicates or synonyms, there are still probably a quarter-million species.

Determining interbreeding units is quite difficult and generally is not feasible. For example, there are perhaps 500 different species of oaks. Suppose there is a one-acre plot of forest that has only four different

species of oaks growing on it. Through time the distinction between these four oaks could become blurred as they hybridize among themselves. Asexual reproduction is another factor that complicates the recognition of species—separate clones of a given species can arise in different areas and become extensive. If they differ somewhat from each other they are often perceived as separate species and named accordingly. Most "species" of hawthorns exemplify this hazard.

Yet another factor that muddles the waters is a cline, which is a variation in a species along a gradient, such as altitude. If there are nine plants, all the same species, growing at nine different altitudes on the side of a mountain, the same species may misleadingly take on multiple appearances. A specimen from one site may interbreed with plants from only four or five of the others. If specimens from different altitudes are transplanted to a common garden, their differences may or may not be retained. As you might imagine, this creates great challenges in the identification of the species.

The question of where the species originated has given rise to the theory of evolution by natural selection. Plants continuously compete with each other to meet their requirements for sunlight, water and space. Some plants will succeed in terms of being more reproductively successful than others. This begins with mutations, chance genetic changes. Most mutations are harmful or neutral. However, a small percentage are beneficial and the possessors are more likely to thrive and reproduce, and thus perpetuate the mutation. Perhaps it succeeds because its water requirements are less than other plants growing in an area of climatic change, where the rainfall is steadily diminishing.

Since evolution is directed by external forces selecting for and against chance variations, it is expected that unrelated organisms subjected to the same forces may evolve the same adaptations to the forces, that is, evolve convergently. An example is that many desert plants that look like cacti are not even closely related to cacti. Such "false" similarity confuses efforts to classify plants, since we generally rely upon resemblance to indicate relationships.

There are still more variables involved. Changing physical environments governed by plate tectonics has had a major role in the evolutionary history of plants. Continents have moved dramatically, affecting the distribution of plants. There have been, and continue to be, geological changes affecting the structure of the earth and the plants on it. In the Northern Hemisphere there was a continuous forest which was significant to the development of *Buxus*.

In areas where the climate has not changed, plants continue to grow in the same manner. Even though the continents have been pushed apart, an orchid growing in North America and its sister species growing in Japan are still much the same since they were separated. But a pokeweed that is now growing on the seashore is exposed to the salt spray of the ocean. This is causing the inflorescence to droop and in time may split the species, giving rise to a plant different from its original species. The bladderwort, growing in a puddle, could easily be 50 to 100 miles from the next bladderwort. They may stay alike, or perhaps more likely, they will slowly evolve, influenced by their respective environments, and change into distinct types.

Taxonomy. Plant generations are a series of splits, much like a person's family tree. The taxonomic hierarchy of a classification establishes division, class, order, family, genus, and species. In the flowering plants, one classification level with great interest is the family. For example, in the family

Buxaceae, the several genera, include *Pachysandra*, *Sarcococca*, and *Buxus*.

At the genus level, boxwood names are classified in this manner: A new species of boxwood discovered by Rogers could appear as *Buxus bonus* Rogers. If, at some later time, Jones finds a variation in *Buxus bonus* Rogers, Jones would be able to name it, and it could appear as *Buxus bonus* subspecies *minus* Jones. Now the plant that was originally *Buxus bonus* Rogers is automatically changed and would become known as *Buxus bonus* subspecies *bonus*. The species and subspecies would have the same name and no author would be cited.

If Smith was studying *Buxus bonus* Rogers and found that the genus should have been *Sarcococca* and not *Buxus*, he would initiate a name change. The new name would appear as *Sarcococca bona* (Rogers) Smith.

A taxonomic category below the rank of species, in addition to subspecies and variety, is form. It is used to distinguish small variations within a species. The difference could be between a pink and a white flowering form. If *Buxus bonus* Rogers has a pink flower, the new variation or a white form could appear as *Buxus bonus* Rogers f. *rosea*.

Names. The procedure for naming a newly discovered species is not difficult. First, an individual finds and collects the plant. One would try to record as much information as possible regarding the plant, such as location, description of site, growth habit, and any flower/fruit. One would then take several herbarium specimens of the leaves with flower or fruit and press them. Next they are dried and then mounted onto sheets of paper. Included on the sheet is a label that has the name of the plant, source, the collector, date, usually a very brief description, and the site where it was growing. The sheet would also have a herbarium stamp that would identify which herbarium the specimen is from, as well as determinations. After the plant has been filed, botanists may examine the specimen

and may agree or disagree with the name given the plant. They would include their name, date of the determination and their affiliation.

A carefully selected specimen, often the original specimen collected from the field, becomes the type specimen. This is important in comparing subsequent specimens to determine whether they belong to that species. After comparing a specimen with various types, and if it is found to be unique, then an article describing the find needs to be published. All newly described species are indexed in *Index Kewensis* and, for New World discoveries, the Gray Herbarium Card Index. The new species would now appear as:

<i>Buxus bonus</i> Rogers A Latin description of the plant The type number Specimen illustration Location where the plant was found, with site description
--

In conjunction with the herbarium specimen, is documentation and library research. One would review information in the library, trying to supplement what the last person had recorded on a particular plant, whether it was five or fifty years ago. Information evaluated may include pollen grains or seeds, anatomy, structure, chemistry and/or chromosomes.

Before one can name a plant, one must be sure that the plant is different and unique from all other previously named plants. A drawing should be made and then the name selected. The *International Code of Botanical Nomenclature* would serve as a guide in properly selecting a name for the plant.

Dr. Rogers received his Ph.D. in Botany from the University of Michigan, and then held a position as a postdoctoral fellow at the Arnold Arboretum from 1981-85. Since 1985, he has been a Horticultural Taxonomist at the Missouri Botanical Garden. He presented this lecture at the Missouri Botanical Garden as part of the 1987 ABS Annual Meeting.

Harmony in Three Parts

Site, House, and Garden (with Boxwood)

Mary A. Gamble

La Verne and Ray Jaudes live on the edge of St. Louis in what was once an apple orchard on the southwestern slope of a valley through which the scenic Meramec River flows on its way to join the great Mississippi nearby. The orchard covered some 15 acres when it gave way to homes, and the Jaudeses chose one of these acres as their house site. The acre extends from near the wooded river bank more than halfway up a steep (15 to 20 degrees), but manageable, slope. The southwest wind, which funnels upward from the valley, ranges in intensity from breeze to gale; proximity to the Mississippi flyway brings many seldom seen visitors, such as the pileated woodpecker, during the migratory season.

Ray Jaudes describes the drainage on the entire lot as "perfect." The slope of the hill carries excess water away without erosion. Under the topsoil lies a substratum of flint, and Indian arrowheads are frequent finds. When a plant requires a hole deeper than ten inches, Ray gets out his pickaxe. At the foot of the hill a strip of native woodland continues to give permanent or occasional shelter to such wildlife as deer, red fox, possums, racoons and squirrels. This area has been left "as is" except for the planting of some white pines.

Only two trees—an ancient persimmon and a pecan—were left on the upper lot. During the past two decades La Verne and Ray have added a number of trees selected for their physical characteristics. One of their favorites is a Korean oak (*Quercus acutissima*) which La Verne thinks should be more widely planted. Other oaks include the pin oak, red oak, and English or pyramidal oak. Trees chosen for their ornamental quality include the sour gum, the whitebud, the golden rain tree and the linden. Aside

from boxwood, the most prized shrubs are viburnums, forsythia, and star magnolias.

The Jaudes' house, facing south with a slight twist to the east, is in harmony with its site. It is low, spacious and contemporary; it lacked only the finishing touches when they moved in in 1966. Its exposure, however, has forced the removal of

landscape architects or designers, in a three-year adult education course in landscape design offered at St. Louis' Washington University. Her greatest inspiration, however, came from Harriet Moore Bakewell, a prominent landscape architect (and a founding member of the Boxwood Society of the Midwest), who struck a responsive chord with her precept that a house should suit the site, the garden should



*The boxwoods at the front door are **Buxus sempervirens** 'Mary Gamble.' This dainty plant has strong green lanceolate leaves. Its mature size is unknown, but it falls in the medium-sized range. It is hardy and its neat growth habit makes it suitable for many garden purposes. (Photo: Ray Jaudes)*

boxwood from the west side, except for two plants sheltered by a waist-high brick wall.

The garden, which the Jaudeses designed without professional help, is in harmony with the house. The lot lends itself to naturalized treatment, not to geometric shapes. The curves of the garden beds follow the natural contours and shape of the land. There are no artificial barriers or obstacles. Ray Jaudes remarks, "It was all done with a very long garden hose. La Verne directed where it should go and I moved it." La Verne says that she learned much from her instructors, all practicing

suit the site and the house, and all three should suit the owner.

La Verne has developed some precepts of her own: a garden should be well maintained ("If you're not going to take care of it, why plant it?"); when you plant, think first of the form or shape the space needs (form and shape mean more than the plant itself) and consider the mature form of the plant you are setting out; take into account the importance of foliage because bloom so often is brief, while foliage is with you throughout the growing season.

Boxwood plays an important role

in the Jaudes' landscape. In all, there are some 80 boxwoods in their garden. The collection includes 15 varieties or cultivars of *Buxus sempervirens* and *Buxus microphylla*. Favorites in the first group are 'Hermann von Schrenk,' 'Mary Gamble,' 'Vardar Valley,' 'Natchez,' and 'Welleri.' In the second group there is 'Compacta.'

The first boxwood planting is at the front door. A row of nine medium-sized boxwoods (*B. s.* 'Mary Gamble') leads from the doorstep to the southeast corner of the house. Turn the corner and the working end of the garden lies before you. Ray's vegetable plots are here in three raised beds edged with railroad ties. La Verne's boxwood nursery is also here. "Vegetable space," says Ray, "is shrinking because La Verne takes more and more space for boxwood." She replies, "With boxwood in the Midwest, you'd better have a good back-up."



The small "balls" of boxwood around the sundial are *Buxus microphylla* 'Compacta,' a dwarf introduced in 1948 by the late Henry J. Hohman of Kingsville Nurseries. Here, it is growing in partial shade, which it likes. (It burns in full sun.) Its leaves are a pleasing yellow-green. (Photo: J. C. Horner)

The next turn of the path is to the south, and the garden proper stretches the length of the house. It is at the same time both spacious and intimate. There are four individual beds which meld into each other to form a harmonious whole. La Verne has placed



The point of this picture is not the boxwoods, although several can be glimpsed. Rather, it is the quality of the total garden environment which Ray and La Verne Jaudes achieve through their meticulous, informed care. (Photo: Ray Jaudes)

boxwoods in the beds to act as a cohesive element in the garden design, as well as to enhance the complementary plantings.

The Jaudes' interest in boxwood began when they read, more than 10 years ago, a story in the local paper that said the Boxwood Society of the Midwest was to be formed at a meeting to be held at the Missouri Botanical Garden. They came to the meeting and became founding members. "Normally, I don't specialize," says La Verne, "but boxwood is different. I have a great affection for it." When asked why, she elaborated:

"Boxwood has constancy—its historic record speaks for that."

"Boxwood confers a sense of permanence, tradition and unobtrusive elegance."

"Boxwood adds year-round beauty to a garden, and beauty in a garden is always uplifting."

"Boxwood gives a garden an added dimension. Its presence is a sure sign of an appreciation of finer things. It shows that people care, and gardening

is a form of caring."

La Verne uses a relatively small number of perennials, which she chooses for color, habit and period of bloom. These she plants in free-form masses in harmony with the naturalized look of the garden. Her color preferences for spring are yellow and white; for summer, stronger yellows, oranges and reds; for autumn she turns to containers and sets pots of chrysanthemums where wanted. She likes liriopse and hostas for bedding material and to define beds.

Her favorite perennials are the daffodil, narcissus, Siberian iris, peony, columbine, coral bell, bleeding heart, astilbe, daylily, and an Aurelian hybrid lily. She chooses the named varieties she likes best, planting each in quantity. And through the seasons, the green of

the boxwoods remains the constant against which the changing palette of the perennials unfolds.

It is evident that this garden is in harmony with its owners. Ray and La Verne have an amicable and effective division of labor insofar as maintenance is concerned. They employ no regular or seasonal help, preferring to do their own work. Ray mows the lawn, helps with the planting and watering, and tends to the beds. La Verne cares for the flowers, prunes, and does most of the watering. In pruning she strives for a natural look. And as she lives with the garden she corrects past mistakes. "I don't think our garden will ever be finished," she says, "because it's ever-changing. But in that respect, plants are like antiques. It's the discovery that fascinates."

A visitor to the Jaudes' garden senses serenity, order and harmony. Perhaps the greatest compliment possible came from the elder Jaudes son, Paul, who died in 1985. He told his parents that he wanted to come home and spend his last days looking at their garden.

Mary Abney (Mrs. D. Goodrich) Gamble is a native Missourian. She became interested in boxwood in the 1960's and asked the late Dr. Edgar Anderson to direct her study of the plant. "He pointed me in the right direction; and after 20 years, I am still studying this fascinating plant and feel I have hardly scratched the surface." She was the first president of the Boxwood Society of the Midwest.

NOTICE

For Sale

Boxwood, slow-growing and compact, in ground in hedgerows. Sizes 3, 4, and 5 feet in height and diameter. Sixty plants available of 120 in ground. Healthy condition. You move. Call (703) 668-6066 (Virginia).

Prominent Gardens in the British Isles Display Boxwood

Lynn R. Batdorf

Ask any American gardener or horticulturist about the gardens of the British Isles and he will likely speak about their beauty and romantic appeal. The history, culture and skill of British gardens tend to overwhelm a foreign observer. The British continue to improve their botanic gardens, which are such a large part of their heritage.

Probably nowhere in the world is there such a concentration of great gardens as in Great Britain. The most prominent of these are the botanic gardens, the grounds of numerous universities, and more than one hundred National Trust gardens. Climatic conditions in the British Isles are favorable for growing and displaying a multitude of genera. The collections of boxwood, both herbarium specimens and living plants, in some gardens are unusually comprehensive.

Three weeks in England last fall allowed enough time to visit only the most comprehensive collections. The gardens were selected for their boxwood collections, herbariums, and libraries.

The garden that merited the most time and attention was the Royal Botanic Gardens at Kew. In the



One of the two major plantings of Boxwood at the Royal Botanic Gardens, Kew. (Photos: Lynn Batdorf)



*This *Buxus sempervirens* 'Pendula' at Kew is growing in full shade and is 12 ft. high and 24 ft. across.*

southwest part of London, Kew has essentially seven complementary divisions. There is a school of horticulture with a three-year course of study that includes work in the gardens. The living collections, which are of the greatest interest to the public, are extensive and unique. Three hundred acres are filled with magnificent herbaceous and formal gardens, trees and shrubs, greenhouses, and ponds. The library, certainly one of the best botanical libraries in the world, holds extensive collections of books, periodicals, reference materials, illustrations and maps.

There are several museums that concentrate on economic botany materials. The Jodrell laboratory division undertakes research on the anatomy, cytology, biochemistry and physiology of plants. There is also an administration division that provides services for Kew's nearly 500 employees.

Finally, there is the herbarium. Kew's enormous herbarium, with more than five million specimens, makes it a world leader in taxonomy. *Index Kewensis* is the world's standard for



Buxus rolfeii Vidal, a typical herbarium specimen at Kew.



Collected by Dallimore, this specimen of *Buxus sempervirens* 'Myosotidifolia' was used for a description in his book, *Holly, Yew and Box*.

the names and references for new species. Kew's collection of botanical books, the largest in the world, was recently moved into an ultra-modern library building.

The herbarium specimens of *Buxus* species and cultivars, more than 200 in number, yielded valuable documentation. Type specimens, native collec-

tions and documented specimens collected by such great horticulturists and botanists as William J. Bean, Erik L. Ekman, Augustine Henry, August Loher, and George Nicholson, greeted every turn of the page. Many specimens originally collected by William Dallimore and used to write his 1908 book, *Holly, Box and Yew*, were also found.

Several type specimens, which are the original specimens collected in the wild and used to document a newly-discovered species, were of special interest. Three days were spent studying and recording the herbarium specimens.

It is seldom sufficient to have just an inventory of living boxwood from an institution. Often the plant records office will have a wealth of information

seed, a cutting, or a plant has a strong influence on its genetic characteristics. The planting history, number of plants received, location in the gardens, and plant observations are also available.

It is vital to collect and understand this information before making an evaluation of the living collections. Although too long to list, there are 169 accessions of living boxwood at Kew Gardens. Current emphasis at Kew is on the living plant, and because of this policy the collections are very well maintained.

From the map of Kew, it was apparent that most of the boxwood is located in two areas. The first is midway between the orangery and the large greenhouses. The second is by the Brentford Ferry Gate, and there are many interesting diversions on the way



The RHS Garden at Wisley must be seen by all who go to England. Here is a garden for the physically disabled, one of many specialty gardens.

about the plants growing in the living collections. At Kew, the plant inventories are on computers, which allows easy retrieval of information. Typically, the recorded information shows when a plant was received, which will disclose the age of the plant. From this the growth rate can be determined. Information on where the plant was obtained often validates the plant. Whether the plant was received as a

there. The Tropical Conservatory, the Rock Garden, the Alpine House, the Filmy Fern House, the Queen's Garden and the temporary Palm House all offered shelter from the foggy drizzle.

The living collection of boxwood at Kew is certainly as comprehensive as any that can be found. It is well located, the plants are labeled, and each plant has excellent documentation. The

staff at Kew were particularly helpful and generous with their time.

The next stop was southwest of London in Wisley. The official garden of the Royal Horticultural Society was acquired in 1904 and is now 60 acres in size. The horticultural excellence at



Hillier Arboretum with its twin perennial borders.

Wisley more than makes up for the limited number of boxwood. The variety of well-labeled ornamental plants at Wisley is impressive. A pinetum contains a definitive collection of conifers, some of considerable size and age. There are numerous model gardens, vegetable plots, a range of greenhouses, and a new rose garden. The extensive trial gardens are full of recently introduced dahlias, iris, and other border perennials.

The following day was spent in Jermyns' Arboretum in Ampfield. Perhaps better known as Hillier's Arboretum, it has a well-deserved worldwide reputation for its vast collections of woody plants. The enormous quantity of plant material assembled and displayed together in one arboretum is enough to hold any visitor in awe. It was, after all, Harold Hillier's life-long ambition to have the most complete woody plant catalogue in the world. The result of his tenacious work is astounding. With more than 100 acres, Hillier's was developed largely by planting material where it

was most likely to find congenial conditions rather than by creating a preconceived landscape. However, a visitor entering the Arboretum is immediately overwhelmed by a landscape of very large twin borders with herbaceous perennials, roses and



Autumn Flower Show at the Royal Horticultural Society's New Hall.

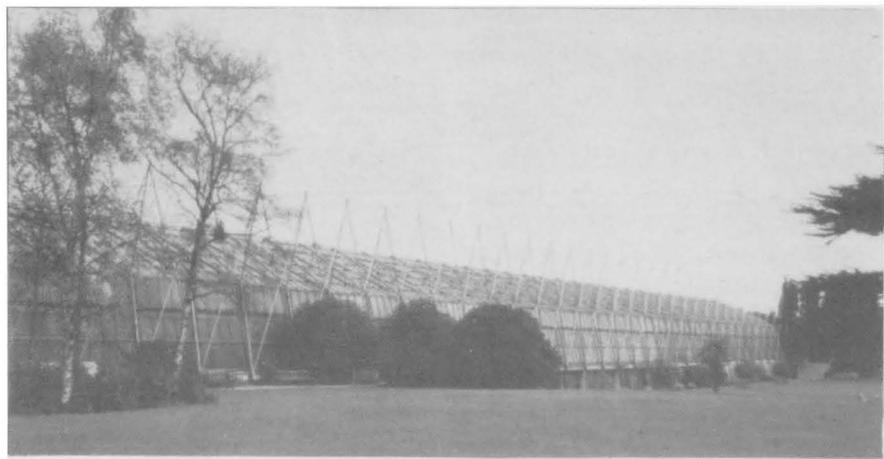
shrubs, including 23 different species and cultivars of boxwood. The boxwood are cultivated as specimen plants, thereby focussing attention on the unique characteristics of each type. The boxwoods in the collection were well chosen and are attractively landscaped.

Between visits to gardens, time was found to visit the Fall Flower Show at the Royal Horticultural Society's New Hall in Westminster, London. Unfortunately, not one boxwood was to

be seen. However, the RHS is renowned for hosting well-produced exhibits and the visit proved quite worthwhile. New introductions and colorful cultivars of chrysanthemums, orchids, cactus, heather, conifers, pansies, and ornamental grasses were all featured. In addition there was an art exhibit.

Next was a six-day tour of botanic gardens north of London. The first stop was at Cambridge to see the University Botanic Garden. Established in 1831, the garden occupies 40 acres on the south side of town. There are several notable features, including a limestone rock garden arranged geographically, a scented garden, beds of herbaceous plants arranged by family, as well as a greenhouse, a library, herbarium and, of course, boxwood. While the number of boxwoods is small, the plants were well displayed in a bed devoted to *Buxaceae*. Growing in this bed were plants of *Buxus sempervirens*, *Sarcococca humilis*, *Pachysandra terminalis*, and *Pachysandra terminalis* 'Variegata.' In the woody plant portion of the botanic garden were three plants of *Buxus hyrcana*, originally from Iran.

The next stop was Harrogate, 20 miles west of York. Harlow Car, a contemporary garden by English standards, was founded by the Royal Horticultural Society in 1948. It is designed to provide a trial ground where the suitability for growing plants in northern climates can be evaluated.



Famous externally-supported greenhouses at Royal Botanic Garden, Edinburgh



Herbarium specimen, *Buxus microphylla* var. *sinica* at Edinburgh collected by famous plant explorer E. H. Wilson at Hupeh, China, in 1907.

This 60-acre facility, maintained by only eight gardeners, also has a training program for horticultural students. There are extensive trial and demonstration areas of annuals, perennials, vegetables, and herbs. There is also an alpine house with ferns, dwarf conifers and bright schizostylis. The weathered limestone outcropping made an ideal setting for one of the rock gardens. Cyclamen, colchicum, and heather were all in flower, providing a bright fall display of color around the dwarf conifers. In a second rock garden planted in sandstone, there are many types of maples, together with cotoneasters, rhododendrons and other shrubs, contrasting brilliantly with the green and blues of the dwarf conifers.

Unquestionably, the most exciting stop was the Royal Botanic Garden in Edinburgh, Scotland. The 60-acre, walled garden is in the north-central portion of the city. The garden's history is rich and long, dating back to 1670. The staff of nearly 150 maintains an unequalled rock garden, conservatory and herbarium.

The rock garden, several acres in size, has intricate plantings of high mountainous plants which comprise a

large portion of the garden. The blooming *Erica* and *Calluna* and the fruiting *Cotoneaster* provided bright fall colors. The rocks which provide a foundation for the garden were usually covered by prostrate shrubs and conifers, and by mats of herbaceous plants.

There are ten separate conservatories which are enormous and quite unique. The supporting structures for the greenhouses are external, allowing for open and unusual uses of the plant material they exhibit. Each house displays a different group of plants. Cactus and succulents, warm temperate aquatics, temperate plants, tropical aquatics, ferns, cycads and orchids, and the tropical peat and rock plants were represented. There is a separate palm house and an alpine house.

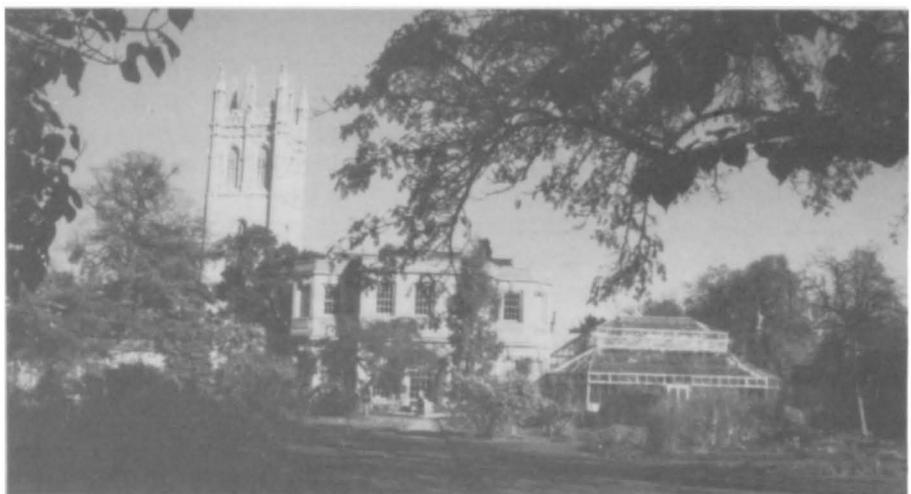
Other major attractions include a peat garden with overhead shade trees. With a soil pH of 4 or less, there were members of the *Ericaceae*, particularly *Gaultheria* and *Pernettya*, that provided brilliant fall foliage and colorful fruit. Many other noteworthy dwarf shrubs and heathers of the *Ericaceae*, especially *Phyllodoce*, *Cassiope*, *Menziesia* and *Leucothoe*, were attractively planted. A large demonstration garden of border and perennial plants provides nearly 12 months of color. It was exciting to see *Meconopsis villosa*, a colorful species with large yellow flowers.

The largest section at Edinburgh is the arboretum with its woody trees and

shrubs. Many new species native to the Himalayas and western China are planted here. Most were collected by George Forrest during his seven plant-hunting expeditions. There are 24 accessions of boxwood growing in the arboretum. Although they are scattered throughout the grounds, the inventory and map of the arboretum made locating them an enjoyable adventure.

The large herbarium contains 1.5 million filed specimens. *Buxus* specimens were well represented. There were nearly 100 plants, including several additional type specimens. Plant explorers such as Wilson and Henry, as well as many contemporary explorers, were represented. The laboratories and staff of the Royal Botanic Gardens in Edinburgh made studies at the garden a genuine pleasure.

The three days at Edinburgh passed quickly and then off to Oxford. While only a few acres in size, the Oxford Botanic Gardens has a history that started in 1621. It is correct to refer to these famous gardens in the plural for there are actually three. First, there is the Botanic Garden, which exhibits a wide range of flowering plants found throughout the world. The second garden is the Genetic Garden, which is an experimental garden designed to illustrate the evolution process. Nuneham Arboretum, which displays native and naturalized woody trees and shrubs, is the third garden. The plant



Botanic garden at Oxford with the greenhouse and laboratories in the background.

inventory lists eight cultivars of *Buxus sempervirens*. Unfortunately, the staff could locate only three.

The last several days in London were spent as a tourist, enjoying the history and beauty of the city. A last

bishop of York. The building was designed as the centerpiece of a vast formal landscape. Much of the late seventeenth-century garden layout is still intact, allowing an opportunity to study the scale and magnificence of



A formal garden with Buxus sempervirens 'Suffruticosa' at Hampton Court.

day at Kew was devoted to locating and documenting the remaining boxwoods on the grounds. While there was no improvement in the weather from earlier visits, the gardens continued to provide unique enjoyment; the large Temperate House, Australian House, the ten-story Pagoda, and the boxwood were special attractions.

A visit was also made to Hampton Court Palace. Construction of this palace was begun in the reign of Henry VIII by Thomas Wolsey, the Arch-

Baroque planning. One alteration to the gardens was made by Queen Anne who reputedly disliked the smell of boxwood and had the parterre swept away in favor of wide lawns. Today there are two formal boxwood gardens using *Buxus sempervirens* 'Suffruticosa.' Other gardens include a maze of *Ligustrum*, an orangery, fountains with a canal, and an aquatic display.

The boxwood gardens in England and Scotland are among the best in the world. The living collections of box-

wood are at least equal to, if not superior to, most in North America. The wide range of species and cultivars being grown in the British Isles is impressive. The libraries, plant records and herbarium facilities at Kew and Edinburgh are exceptional. The information they contain on boxwood is so comprehensive that it will take years to assimilate all that was recorded.

It is unfortunate that the British Isles have acquired a reputation for neglecting boxwood. Institutions at Kew, Cambridge and Edinburgh are regularly planting new cultivars and species of boxwood. Hillier's and even private citizens have a high regard for preserving and enlarging the number of available boxwoods. Perhaps we ought to look at what can be learned from their experience. We only need to step forward and make use of it.

The author gratefully acknowledges the overwhelming hospitality and generosity of Mark and Elizabeth Braimbridge of London, England. This trip would never have been so successful, nor even possible, without them.

Mr. Batdorf is Horticulturist in charge of Boxwood Collections at the U. S. National Arboretum in Washington, D. C., as well as Registrar of Boxwood and First Vice-President of the American Boxwood Society.

Insects of Boxwood

William A. Gray

There are three major insects that may damage boxwood. Therefore boxwood plantings should be examined periodically for the boxwood leafminer, psyllid, and mite, or their tell-tale symptoms of injury. Some species of scales, mites, and webworms that normally feed on other plants attack boxwood only occasionally.

Boxwood Leafminer

Evidence: Discolored leaves in fall and winter, with internal mines; foliage discoloration is frequent; defoliation

when infestation is severe.

Description: Adults are small (2.5mm long) yellow/orange mosquito-like flies. Larvae are small (reach 3mm) whitish/green maggots living inside the leaf mines. Pupae occur in early spring, extending through leaf surface.

Life cycle: One generation/year. Adults emerge over a two-week period, from mid-April through early May, laying eggs immediately in the upper surfaces of the leaves. The individual

adults live only two to three days. Eggs hatch in June. Larvae feed in between the leaf surfaces from June through fall; then inside the leaves, pupating in early spring.

Control: Prune worst cases in winter. A contact spray such as malathion can be used against the adult flies when they are swarming. The timing is very critical, and this measure may not be effective, except in cases of heavy infestation. The most effective control is to use a systemic insecticide

spray, such as Cygon 2E, in late June to early July, after the eggs have hatched and the miners are quite small.

Boxwood Psyllid

Evidence: Conspicuous cupping of foliage of the new growth. The psyllid is mainly a cosmetic problem, but a severe infestation may retard new growth.

Description: Adults are small (3mm long) gray-green hopping/flying insects with transparent wings and piercing/sucking mouth parts. Nymphs are smaller (reach 2mm) crawling six-legged insects, flat, greenish-brown, with a white filament cover.

Life cycle: One generation/year. Nymphs molt into adults in May to early June; females lay eggs under bud scales in July to August. After hatching, 1st instar nymphs remain in protected egg shell over winter. In spring, as new growth appears on boxwood, nymphs emerge and suck chlorophyll from the new leaves, causing them to curl. Both nymphs and adults feed by sucking, but nymphs

cause most of the damage.

Control: Light infestations can be controlled by pruning, prior to hatching. Otherwise, spray during late April, just after new boxwood growth begins; use an effective contact insecticide or a contact/systemic, such as Orthene.

Boxwood Mite

Evidence: In the early stages, foliage is stippled with tiny flecks or henscratches. This is the best time to catch an infestation. Later, foliage shows a gray tinge, followed by bronzing. Defoliation occurs with heavy infestation. The mite is the most insidious boxwood pest.

Description: The eight-legged adult is green/yellow/brown, .4mm long. The tiny eggs are lemon-yellow in color.

Life cycle: Eight or more generations/year, depending on temperature. The hotter it is, the more generations. If the summer is wet or cool, there will be fewer generations. Mites overwinter as eggs laid in September-October. The first generation hatches

in early spring. The egg-larva-nymph-adult cycle covers only 18 to 21 days. The boxwood mite is most active in the spring and fall, although damage may be most evident in summer.

Control: Spray with a miticide, such as Kelthane, in April-May and September-October. Insecticidal soap is an effective alternative.

These boxwood pests have natural controls, including predacious insects. Many established plantings have been pest-free for years without attention. Do not attempt a general preventative chemical spraying program, since this would be more likely to kill predators than the boxwood insects themselves. Nevertheless, a severe infestation, if not controlled, can be damaging. One must use appropriate contact or systemic sprays targeted against known problems.

Mr. Gray, of the Brecknock Nursery in Charlottesville, Va., is a Director of the American Boxwood Society and Chairman of the Research Committee.

Propagating Boxwoods Through Cuttings

Dale T. Taylor

For the avid boxwood enthusiast, there are few joys that can compare with the propagation of boxwood—a pursuit that can be practiced year-round.

Boxwood is propagated in two ways: first, through sexual reproduction (or germination of the seed); and second, through vegetative propagation (which includes layering and cuttings). This article will be concerned with the second method, particularly cuttings.

The reader should be aware that the author is an amateur horticulturist and professional banker who has learned that there is one caveat in life that can be applied to both professions: "It all depends."

Propagation through cuttings can be traced back to ancient Greece. Indeed, it is not too difficult to conceive

of the practice going back even further, probably to still earlier periods in China and other parts of Asia.

Not too many years ago, here in our own country, the taking of cuttings for the purpose of propagation was known as "slipping." Boxwood cuttings were known as "slips." In fact these terms are still used today by many an old hand in boxwood propagation. Whatever the term, the propagation of boxwood through cuttings can be personally rewarding and interesting, and even a bit addictive!

Horticulture is a science, just as there is a science of business management. And in every science there are principles, rules, and proven theories to be followed. But experimentation, innovation, and the sharing of similar experiences (even with dissimilar

results) are also a part of the pursuit of science. As such, there are likely to be those who read my recommendations and find them to be in total contravention of their own experiences—if not good sense.

But such is the pursuit of science, if only by amateurs, coupled with the joy of it all, and occasionally accompanied by a tall boxwood tale or two!

The three most important things to remember when embarking on the propagation of boxwood by cuttings are: (1) attitude, (2) attitude, and (3) attitude.

The first "attitude" reminds us, to put it quite simply, to have fun. Few of us (and I hope none of us) face severe health problems or loss of employment if we fail to achieve a certain boxwood propagation success rate. In other

words (and I am not minimizing the serious nature of the pursuit of boxwood propagation), learn to enjoy what you are doing. If you do, the chances are that you will do a better job of it!

The second "attitude" has to do with the fact that even though we want to enjoy ourselves, we also want to do a creditable job, built on good propagation principles and research. So approach your propagation efforts by proper planning, reading up on the subject, and by asking others to share their experiences with you.

The third "attitude" is an important one, for it is the one that essentially ties together the first and second. In a word, we should be challenged to experiment. Try different approaches and different rooting methods. Take cuttings at different times of the year. Try different soil mixes, various methods of watering and different temperatures. Use different root hormones (or no hormones). Propagate at the same time and compare propagation indoors versus outdoors. It is fun to experiment, and experimentation gives us good data and experiences to use (and share with others) in future propagation efforts. And now to some particulars:

Taking cuttings. You will get a lot of different comments, opinions, and even some controversy, on the best time to take cuttings. The experiences of others seem to be across the board, from spring to early fall—or even winter. However, having rooted about a thousand cuttings, my own experiences point to July and August as the best months, well after the new growth has hardened off.

I have, however, had good experience with early June cuttings (although not any earlier) and have had a success rate as high as 80% with cuttings taken in October. Generally the best time seems to be mid to late summer. For best results you should make sure that the plants you get cuttings from have not been under stress for any period of time due to dryness, disease, etc.

Here again, take some cuttings

every month from late spring to early fall. See how you do (keep records) and try a good mix of species and cultivars.

One might find that different species, varieties, and cultivars root better. In general, regardless of the time, I have found that *microphylla* tends to a bit more difficult to root than *sempervirens*. Variegated forms of *sempervirens* seem to be more difficult than non-variegated forms of the same species. Here again, this is just one person's experience.

One important rule on taking cuttings, briefly mentioned previously, is to take cuttings from healthy plants. In the spring of 1986, there was a below normal amount of rainfall in Virginia (where I get a lot of cuttings). As a result, of the cuttings made in early summer, only 20% rooted. This compares to a 92% success rate the previous year when cuttings were taken from the same plants, at the same time, and rooted under the same conditions and controls.

Yet cuttings taken at the same time in the early summer of 1986, from my own collection of boxwood (the plants had been well watered and cared for during the dry spring), yielded an 80% success rate. Even putting the tips of the stems in water for several days didn't help very much because of the stress the plants experienced from the drought. However, keeping the stems in water between the time of cutting until placement into a rooting medium is always a good idea.

Almost as controversial is the size of cuttings to take. I recommend taking 5- to 6-inch lengths from the tips of the branches.

Transporting Cuttings. If one is taking cuttings from one location and transporting them to another over any length of time, it is important that the cuttings stay cool and do not dry out. Placing cuttings in plastic bags with ice chips is one method. I prefer to use inexpensive styrofoam coolers (the kind easily available in stores at the beginning of summer). Inside the coolers I

arrange small plastic drinking cups (the disposable kind), each with about an inch of water in the bottom.

Each cup will hold cuttings of a particular boxwood, so that it is necessary to put only one label or plant stake in each cup. This is done to properly identify the cutting(s) as to variety or cultivar, date taken, place, etc. Such data is important, and if properly cared for, can be maintained throughout the rooting and growth phases of each cutting or plant.

Keeping good records. As just mentioned, take a little extra time to keep good notes. It may sound as if there is going to be some work involved in what was supposed to be "fun," but you will appreciate the fruits of your labor when, years after you have rooted boxwood, you can provide your friends and acquaintances with detailed information on each plant. They will be impressed and you will be able to track and compare your efforts over the long term.

The specific records I keep include the date, time, and place that the original cutting was taken; the correct species or cultivar; when the cutting was placed in the rooting medium; and when the cutting evidenced roots and was transplanted into a 6-inch pot. My records also show when cuttings are placed in my cold frame for hardening off during the second winter, and when they are placed into my woodland garden, where each plant is numbered by location and type on a map.

Winter is usually the time that I take all of my notes hastily written during the summer and carefully update them and place them into a more presentable format. This is one of the ways that the propagation of boxwood can truly be enjoyed year round.

Rooting boxwood. In preparing to root boxwood, two "M's" are important to remember: Moisture and Medium.

Moisture: Moisture must be neither too much nor too little. Leaves of a plant lose water into the air (transpiration). Water is normally

absorbed into a plant through its root system (something that a cutting doesn't have). Therefore, desiccation (the drying out of leaves and stems) can occur. Leaf and stem tissue must remain moist until a new root system develops.

If there is too much moisture (if the rooting medium is too wet, or even soaked, instead of just "moist"), fungus, decay or rot may develop. Signs that the rooting medium is too wet include leaves dropping off stems, leaves wilting, fungus (a cotton-like growth that emerges on stems), spots on leaves, and yellowing of leaves.

Medium: This is another area where you will get a variety of opinions and experiences. Rooting mediums vary. For indoor propagation, I prefer to use a mixture of equal parts of peat, sand, and perlite (or vermiculite). Avoid Michigan peat as it is acidic and tends to lump up. (Canadian peat is a better choice.) Part of your efforts at experimentation (Remember attitude no. 3) is to try different soil mixes.

Peat provides both loam and texture, and perlite helps to retain moisture. Sand provides aeration, drainage, and a coarseness that helps in developing roots. But be careful: sand that is not kept moist can dry out very quickly and get very hard.

Try to get the sand to be as sterile as possible. This prevents the introduc-



Rooting medium components (peat, sand and perlite) are well mixed in a large container. Pots to hold cuttings are then filled. (Photo: Nora A. Taylor)

tion of unwanted microorganisms into the medium. Sterile sand can be purchased at garden stores and even some toy stores (for children's sand boxes).

If you can't get sterile sand, you can take regular sand and bake it in your oven to kill off any microorganisms that exist. A word of caution here: If you do this, make sure that your wife knows, and your neighbors don't. Failure to follow this rule will result in your wife *not* talking to you—and your neighbors talking *about* you!

Building a humidity chamber. Numerous articles have been written regarding the practice of placing cuttings in cans or jars covered by tent-like structures of pliofilm or some other plastic medium. The purpose, of course, is to allow for the building-up of both temperature and humidity, while also controlling both.

I have found that plastic trays make excellent rooting structures. Bend wire coat hangers into a frame-like structure over the tray. The wire frames should rise as least 10-12 inches in order to provide plenty of air and space over the cuttings. Secure the ends to the underside of the tray with tape. Small plastic pots, each with one cutting, are then placed in the tray. (The stems of the cuttings may first be dipped into a root hormone, a procedure discussed below.)

When the tray is filled, a plastic bag is pulled over the wire frame and under the tray, so that the entire tray is in the bag. (I use the kind of plastic bag available from a dry cleaner.) The end of the bag is then gathered and tied with a plastic twist-tie.

Water is added to the medium when the various components are mixed together and again immediately after the cuttings have been placed in the pots. I add just a little more water to each pot before covering with plastic. With the right amount of moisture in the rooting medium, water beads should appear on the inside of the plastic bag in several days. This means that you have just the right amount of moisture,

and hence, temperature and humidity. This is one area where practice and experimentation will result in the best approach over time.

Keep an eye on the chamber at least once a day for the first several days. If all appears well, you need only check once a week thereafter. If no water beads appear, then you may need to provide more water to the medium in the plastic pots.

Also, look for signs that there may be too much moisture (see above). If there is too much, open the end of the bag immediately and allow air to get into the chamber for a day or two. Keep checking the moisture content by



Cuttings are dipped in hormone and placed in pots. Plant stakes indicate variety or cultivar. Plastic (background) then covers tray to create humidity chamber. (Photo: Dale T. Taylor)



Pots with rooting medium are placed in trays (different mixes are tested). Cuttings are ready in background. (Photo: Dale T. Taylor)

gently poking the medium with your finger. Once the medium is at the right moisture level (damp, but not wet), re-tie the end of the plastic bag and continue to monitor.

If, as a result of too much moisture, rot, decay, leaf drop or fungus appears on any cutting, remove the infected portion by snipping it off with a scissors. If a large portion of a cutting is infected, remove the entire pot to prevent the infection from spreading to other cuttings.

I mark a plastic plant label (using a waterproof marking pen) as to the species or cultivar of each cutting and put it into the pot with the cutting. This ensures that I will be able to keep track of the cutting through the rooting stage and into the next stage—transplantation into 6-inch pots.

To keep from filling out a lot of plant labels, and to make sure that I have more than one cutting of each type in case some don't root, I always take several cuttings. Since my trays hold six rows of three pots each, I usually get three cuttings or six cuttings of each type. This way I need only one plant label for each row.

Cuttings typically develop roots in about 8-10 weeks. Some develop roots sooner, others later, and some much later. In fact, cuttings have been known to remain perfectly healthy and in good shape, without developing roots, for six months or more.

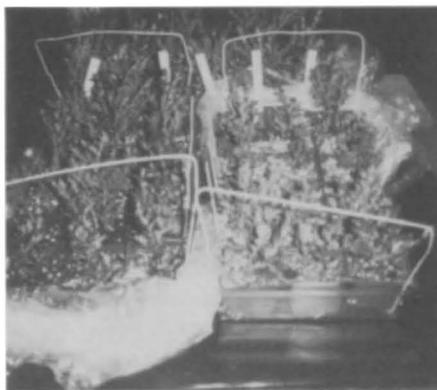
A gentle tug on a cutting after 8-10 weeks should give you some idea whether roots have formed. I simply invert each pot with one hand, gently squeezing the sides of the pot with the other hand, until the cutting and rooting come out (into the hand holding the inverted pot). The process is similar to removing newly purchased plants from their containers.

Generally you will be able to see roots emerging from the rooting medium. If this is not the case, gently remove some of the rooting medium from around the base of the cutting until roots are discovered. If no roots are present, simply place the cutting

into a new pot with freshly prepared rooting medium, label it, and put it into another humidity chamber.

Out of every four trays, I usually have enough cuttings that have not set roots, yet still look healthy, to fill one additional tray. You can continue to do this until the cuttings either put out roots, or give up the effort!

Transplanting rooted cuttings. Once roots form on a cutting, I transplant the new young (and tender) boxwood into a 6-inch pot with a peat mixture (potting soil) purchased from a garden store. Make sure that the peat mixture is for newly rooted cuttings of woody-type plants, and not the heavier type potting soil for flowering plants. Some individuals use



Ten weeks after inserting cuttings, plastic is removed. Most cuttings have rooted in pots. (Photo: Dale T. Taylor)

regular soil, but I avoid this, given the tender nature of the roots.

The 6-inch pots are placed into the same trays used earlier in the humidity chamber. Normally a tray holds 18 small rooting pots, but only six 6-inch pots. An ambitious and successful effort at rooting cuttings therefore means that you will later have to deal with a large number of trays.

The trays containing the 6-inch pots are arranged on a large table in my basement under gro-lux lights. By now, each plant has been tagged as to type and the date and place of the original cutting. The plants will spend their first winter under lights (about eight hours a day) in my basement. (If

near a large window, gro-lux lights are not necessary.) The plants will be gently watered twice a week.

The following spring, the 6-inch pots with the small plants (some evidencing new growth!) will be placed outside in an open cold frame under some medium shade. When the second winter comes, the cold frame will be covered with a 6-mil plastic cover, permitting the now-one-year-old plants to harden off.

The second spring, some of the plants will be removed from the cold frame and planted in my garden where they will be watered well and given plenty of mulch for their first winter in the ground. (Fertilizing will not begin until the following spring.)

My "extras," additional plants of a given species or cultivar that have not been placed in my garden, will be transplanted once again—this time to two-gallon pots. These extras will remain in the larger pots, in the cold frame, and be covered each successive winter with the 6-mil plastic cover (along with the new boxwood plants entering their first year).

These extras provide back-up plants in the event that a plant placed in my garden doesn't make it. In addition, they make excellent gifts. The mere vision of a cold frame filled with rows of potted boxwoods of different shapes, sizes, and textures, causes many visitors to stop, look and talk boxwood!

Eventually, when the boxwood plants get too big for the two-gallon pots, they will again be transplanted to a field nursery (still to be established).

Root hormones. There are many root hormones available, and you will get some lively opinions as to whether or not they do any good. I have tried several, and favor Hormodin No. 2, a powder root hormone. A small amount of hormone is removed from the can and placed in a small cup. The cutting ends are dipped into the hormone, and the excess is gently shaken off the stem.

Make a hole in the rooting medium with a pen or similar instrument. Then

insert the cutting into the hole, being careful not to go all the way to the bottom of the pot. Firm the medium around the cutting with your fingers so that the medium firmly grips the cutting. If need be, you may now add a small amount of water to bring up the moisture level of the medium.

Rooting indoors versus outdoors. One of the arguments you are bound to get regarding the issue of rooting boxwood indoors versus outdoors is how simple and easy it is to propagate boxwood by the latter method. In point of fact I do both, and you should, too. But I believe there are some advantages to doing it indoors.

Control: You have complete control over indoor cuttings and their environment. Try going outside at 10 o'clock at night to look at your cuttings! It is more convenient when they are indoors, where they are easy to inspect, care for and monitor.

Winter rooting season: While the outdoors rooting of cuttings taken in early- to mid-summer is relatively easy, cuttings taken in the fall could have problems, especially if there are some early cold periods prior to the onset of winter. In addition, cuttings taken in the fall provide for a good indoor hobby during the winter months. (Cuttings taken in October-November should have rooted by January-February.)

So there you have it. Perhaps this article has not covered everything you wanted to know, and possibly there are some things that you might even disagree with. But it should give you some ideas and, hopefully, stir up some interest in starting some boxwood cuttings yourself. Come to think of it, why not get some boxwood cuttings and build your own indoor humidity chamber *today!*

Dale T. Taylor, a Director of the American Boxwood Society, is professionally a consultant in the banking field. He lives in southern New Jersey, where he is an enthusiastic and energetic boxwood hobbyist.

NEWS OF THE SOCIETY

Bulletin Gets New Editor, New Look

The April 1987 issue of *The Boxwood Bulletin* marked the retirement of its well-known Editor, Mr. Scot Butler. Mr. Butler served almost five years in the tedious work of preparing each issue for the printer. The Board is grateful for his long and faithful stewardship of the *Bulletin*, both as Chairman of the *Bulletin* Committee and as Editor.

At the same time the Board is pleased to announce that a new Editor has been selected, effective with this issue. He is John S. McCarthy of Webster Groves, Missouri. Mr. McCarthy, a retired aerospace executive with experience in graphic design, is a long-time friend and neighbor of Mrs. Malcolm L. Holekamp, Second

Vice-President of the ABS.

The new format of *The Bulletin* was carefully selected for legibility and economy. With three columns and slightly smaller type, it is estimated that the same quantity of material can now be presented in 30% fewer pages. This will result in significant reductions in printing and mailing costs. The mast-



Mr. McCarthy

head at the top of the cover page includes a reproduction of a wood-cut of *Buxus sempervirens* taken from a 1485 herbal, and thought to be the earliest depiction of boxwood in print.

Minutes of 1987 Spring Board Meeting

The ABS Board of Directors met in Fredericksburg at the home of President Mrs. Robert L. Frackelton on Friday, March 13, 1987. Those attending were President Frackelton; Vice-President Lynn Batdorf; Treasurer Kathy Ward; Directors Albert Beecher, William Gray, Phillip Larson, Richard Mahone and William Mays; *Boxwood Bulletin* Co-Editor Joan Butler, who served as acting secretary; Thomas Ewert, representing Blandy Farm; and guest Millie Beecher.

The President called the meeting to order at 10 a.m. The minutes of the fall board meeting, October 15, 1986, were approved as published in the January 1987 issue of *The Boxwood Bulletin* (Vol. 26, No. 3, pages 68-70).

The Treasurer reported a current checking account balance of \$3121 and savings of \$14,759.46 in a certificate of deposit. Contributions allotted to special funds (and included in the savings total) included: Handbook

\$4,477.50; Memorial Garden \$1,200.14; Research \$484.50; Bulletin Index \$575; Monograph \$117; Miscellaneous \$2080.

Two recent articles appearing in Raleigh, N. C., newspapers and in the March issue of *Horticulture* have occasioned orders for the *Buyer's Guide* and requests for membership information. Twenty-eight new members have joined since October.

COMMITTEE REPORTS

Annual Meeting and Tour. Arrangements for the meeting and tour in St. Louis have been completed.

Bulletin Committee. Mrs. Butler reported that the April issue should appear by the end of March. It contains new registration lists of *Buxus* cultivars prepared by Mr. Batdorf. These lists will also be printed as a separate pamphlet, to be sold by the Treasurer. This pamphlet will be noted

on the inside back cover of *The Boxwood Bulletin*.

Mrs. Frackelton requested that material for the July *Bulletin* be mailed to her for coordination. Board members were asked to cover specific assignments. All material is due to Mrs. Frackelton by May 25.

Buyer's Guide. Two members have asked that growers' telephone numbers be furnished in future editions. It was suggested that American Nurseryman be requested to print an announcement stating that a revision will be prepared and that information from all boxwood growers would be welcomed. Mr. Batdorf offered to prepare a revised *Buyer's Guide* in the fall of 1987. It was voted unanimously that a revised *Buyer's Guide* be ready for distribution at the 1988 Annual Meeting.

Handbook. Professor Beecher will obtain help from Mr. Batdorf on cultivar descriptions and hardiness zones. Other Board members will review sections on history and growth of boxwood, and advise on quantity of text and pictures. A brief history of the ABS Boxwood Memorial Garden will also be included.

Memorial Garden. Cdr. Larson presented a written report, which follows these minutes. An information kiosk is to be built near the entrance to the Garden, with financial support from the Friends of Blandly. A budget request for the Garden of \$500 for 1987-88 was passed unanimously. A self-guided tour through the Memorial Garden has been prepared by Cdr. Larson and Mrs. Mary Gamble. It was suggested that mention of ABS and Friends of Blandly be included in the tour brochure.

Nominating Committee. Mr. Mahone had no report.

Registrar's Report. Mr. Batdorf distributed copies of an article from the 1984 *American Journal of Botany* presenting a reclassification of *Simmonsia chinensis* (Jojoba) out of the Buxaceae into treatment as a monotypic family, Simmondsiaceae. Mr. Batdorf

also discussed the use of the nomenclature *Buxus microphylla* var. *insularis* to refer to Korean boxwood. The new registration list published in the April 1987 *Boxwood Bulletin* will become the guideline for all cultivars of boxwood and for labeling of plants in the Memorial Garden.

Research. Mr. Gray noted that he expects to receive an abstract from Professor Wills and Miss Melinda Gates of VPI & SU on the results of a study on biological controls for boxwood root rot. Dr. Thomas Banko will be continuing field studies at the Hampton Roads Agricultural Experiment Station. Mr. Gray's written report appears following these minutes. In order to meet 1987 ABS research obligations, an additional \$560 will be needed. Mr. Gray asked that the July *Boxwood Bulletin* print a request for additional contributions to the Research Fund.

Mr. Gray announced a possible new research project, a National *Buxus* Evaluation Program, under which selected cooperators would grow specific cultivars under correct names and in controlled conditions, to test hardiness in various parts of the country. Mr. Batdorf presented a plan for undertaking such a study. After discussion of the amount of preparation and work required to list, propagate and distribute as many as 1,200 small plants, a committee consisting of Mr. Gray, Mr. Batdorf, Cdr. Larson and Mrs. Butler was appointed to present recommendations at the fall Board meeting.

Workshops. Professor Beecher announced that a workshop is to be held at Blandly Farm on June 4, 1987. Panel participants will include Mr. Harrison Symmes, Mr. Batdorf and others. A special announcement flyer will be mailed to ABS members in the region, as well as to local garden clubs. Registration will be limited to 100.

Budget. Mr. Mays presented a proposed budget for 1987-88, totalling \$13,000, which was accepted by unanimous vote.

It was noted that notebooks in the Blandly Farm library contain complete sets of *The Boxwood Bulletin* and the *Bulletin* of the Boxwood Society of the Midwest. It was voted to have a bookplate printed containing the ABS name and logo (silhouette of a boxwood sprig). *The Boxwood Bulletin* notebooks will be labeled as property of the ABS, as will the copy of *Holly, Yew and Box*, by Dallimore, donated to the Society many years ago.

It was agreed unanimously that *The Bulletin* will carry a notation that \$12 of dues are allotted for that publication; single copies will be sold for \$4 (including \$1 for postage). It was voted to reprint 100 additional copies of the July 1982 issue, of which only one remains in reserve. It was also voted to print 500 copies of the new Registration List as a separate folder to be available for \$3 per copy.

The Friends of Blandly has appealed for financial support to match a challenge grant which will permit the construction of the information kiosk at Blandly Farm. The Board unanimously approved a donation of \$250 to the Friends of Blandly for this purpose.

Mr. Mahone spoke of his trip to Australia and New Zealand. He has photographs and could prepare an article for *The Bulletin*.

Mr. Ewert noted that the large unlabeled boxwood plants on the terraces leading out to the pond at Blandly Farm will be removed, and will be available to individuals who want them.

The meeting was adjourned at 2:30 p.m., with Board members expressing their thanks and appreciation to Mrs. Frackelton for her gracious hospitality and delicious lunch.

Joan Butler, Acting Secretary

Memorial Garden

Plant conditions. It appears that the summer drought conditions

have had no serious effect on the older plantings other than 'Suffruticosa' which will require some medium pruning. A few of the younger plants look a little ragged, but believe some judicious pruning and a good spring will perk them up. Since watering facilities at "Blandy" are quite limited, the Memorial Garden is quite dependent on the peculiarities of Mother Nature.

Maintenance. The routine maintenance program is progressing nicely, however a fairly heavy mulching will be required during 1987. The spray program is scheduled for mid-April for psyllids and mites as well as mid-June for leaf miner.

Pruning. We have made considerable progress, thanks to Friends of Blandy, in completing our major pruning program and should have it well in hand by early spring.

Labeling. We are still having to replace some labels for various reasons, but believe we have solved the problem of labels coming loose from their standards by better preparation of the components on original glue-up and the use of industrial strength epoxy.

Propagation Program. We have rooted cuttings of over 40 different plants from the Memorial Garden, as well as six cultivars not in the Garden ready for lining out this spring. These plants will be used for back-up to the Garden as well as preparation for a future testing program at other sites to determine hardiness ranges.

Acquisition Program. We are well along in determining potential sources for plants not presently in the Garden and will be implementing a judicious plan of extending its range and depth. As these plants are received, accessioned, labeled and planted, we will be reporting the vital statistics in *The Bulletin*.

Self-Guiding Tour. This brochure has been expanded from emphasizing 19 plants to now include 47 individual plants and will be available for spring distribution. Thanks must go to Mrs. Mary Gamble

of the Boxwood Society of the Midwest and Mr. Billie Thompson of the Friends of Blandy for their continuing support.

Garden Chart. An updated version of the Memorial Garden chart and plant listings has been forwarded to the *Bulletin* Editor for publication in a future issue.

Plant Data Program. Good progress is being made on the development of the Plant/Leaf Data Characteristics for all plants presently in the Memorial Garden and for future acquisitions. This data will ultimately provide such information as: approximate plant size at maturity, shape, growth rate, hardiness zones; leaf shape, size, color; and potential landscape usage. Target date for completion is early 1988.

Information Kiosk. It now seems quite certain that an information kiosk and parking facility will be constructed during 1987, through the joint efforts at the University of Virginia and The Friends of Blandy. Its planned location will not be far from the present entrance to the Memorial Garden. Consequently, we are deferring some of our planned activity until the kiosk becomes a fait accompli.

Public Information. A column about boxwood continues to be a quarterly submission to the *Friends of Blandy Newsletter*. We are hopeful that we may expand this program to other publications in the future.

Budget. It still appears that the Garden's financial requirements for planning, routine maintenance and upkeep will be approximately \$500 and \$100 for plant acquisition and related costs for the 1986-87 accounting period.

P. D. Larson, Chairman

Report of Research Committee

Dr. Wirt Wills and Ms. Melinda Gates, VPI&SU "Biological Control of

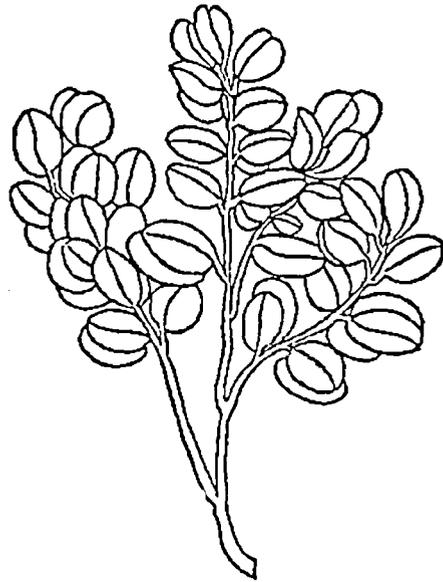
Boxwood Root Rot." Ms. Gates completed her 150-page thesis about one month ago, covering microflora antagonists to *Phytophthora parasitica*. In several weeks, Ms. Gates, with Dr. Wills' advice, will prepare an abstract containing essential information for the *July Bulletin*. Later, the experiments of promise will be repeated for scientific publication. Society funding for this task was completed last year.

Dr. Tom Banko, Hampton Roads Agricultural Experiment Station, Virginia Beach (formerly VTORS). This is a continuing field research study on boxwood. A paper on growth regulators was published in the January 1987 *Boxwood Bulletin*. Dr. Banko will provide a brief summary paper on compost and container growing for the *July Bulletin*. Planned boxwood research for 1987 includes: soil media studies by Mr. Walden, the resident soil chemist; a demonstration of a capillary-type irrigation system designed to save water, especially in container growing; and further rooting studies with varied media mixes and pH values.

Dr. Jim Hendrix, U. of Kentucky. This is a long-range program of basic research on the association between mycorrhizal fungi and boxwood. Dr. Hendrix has no *Bulletin* item underway at this time. He is continuing the greenhouse study of roots and mycorrhizae, but using the more rapidly responsive Japanese box. His future plan will include observation of established plantings, studying root growth and mycorrhizae colonization—essentially research on boxwood biology. The objective will be to acquire basic data not now available for woody ornamentals. Pertinent material will be made available for *Bulletin* publication.

It is recommended that the Society support for the field study of Virginia Beach and the mycorrhizae research at the University of Kentucky be continued for 1987 at the past level of \$500/year each.

William A. Gray, Chairman



Buxus sempervirens, taken from a wood-cut published
by Peter Schöffer in Mainz, Germany, in 1485.