

The

October 1970

Boxwood Bulletin

A QUARTERLY DEVOTED TO MAN'S OLDEST GARDEN ORNAMENTAL



*Box Trees with elder on the side of Beacon Hill at Chequers, Buckinghamshire, England.
Fig. 1 from A HISTORY OF BOX IN THE BRITISH ISLES, by M.J.C. Staples. (pp. 19-23).*

Edited Under The Direction Of
THE AMERICAN BOXWOOD SOCIETY

President ----- Rear Admiral Neill Phillips
 1st V. P. ----- Dr. J. T. Baldwin, Jr.
 2nd V. P. ----- Mr. Alden Eaton
 Secretary-Treasurer ----- Mrs. Andrew C. Kirby

Directors ----- { Mr. Alden Eaton
 Rear Adm. Neill Phillips
 Dr. Henry T. Skinner
 Dr. W. R. Singleton
 Prof. A. S. Beecher
 Mrs. Edgar M. Whiting

Ex officio, Mr. Alan C. Caspar, Director Blandy
 Experimental Farm.

Address: The American Boxwood Society,
 Box 85, Boyce, Virginia 22620

Headquarters, Blandy Experimental Farm (U. of Va.), Boyce,
 Va.

Please address all communications, including manuscripts
 and change of address to the Boxwood Bulletin, Boyce, Va.

The Boxwood Bulletin is published four times a year by the
 American Boxwood Society in the quarters beginning with
 October, January, April, and July.

A subscription to the Boxwood Bulletin is included as one
 of the benefits of membership in the American Boxwood
 Society.

The Bulletin is \$5.00 per annum to non-members in the
 United States and Canada; single numbers are \$1.50 each.

Reprints will be supplied to members and authors at cost but
 should be ordered at the time of an article's acceptance for
 publication.

Make cheques payable to the American Boxwood Society.

Except for material copyrighted by the author, or that used
 by permission of the original copyright holder, all articles
 and photographs in the Boxwood Bulletin are copyrighted by
 The American Boxwood Society.

The Editors solicit and will welcome contributions of articles,
 news notes, photographs suitable for reproduction, of box-
 wood specimens, gardens, and plantings, and other items of
 probable interest to readers. While every effort always will
 be made for the protection of all material submitted for pub-
 lication, the Editors cannot assume responsibility for loss or
 injury.

Entered as second-class mail matter at Post Office
 Boyce, Virginia
 Copyright 1970 by the
 American Boxwood Society
 Printed in U. S. A. by
 Carr Publishing Co., Inc., Boyce, Va.

The Boxwood Bulletin

October 1970

Vol. 10 No. 2

EDITOR — MRS. EDGAR M. WHITING

INDEX

The Mail Box	17
A History of Box in the British Isles	19 - 23
<i>M. J. C. Staples</i>	
Winter Care Explained	24
<i>Arthur Dugdale</i>	
Collecting Boxwood in the Balkans	25
<i>Dr. Edgar Anderson</i>	
Boxwood For St. Louis	27 - 29
<i>Mary A. Gamble</i>	
Let Earthworms Help You Dig	30
<i>Houston Hume Carr</i>	
Control of Boxwood Insects	31
<i>T. K. Wolfe</i>	
In Defense of Topiary	31
<i>Richardson Wright</i>	
Boxwood in the Formal Garden	32
<i>Dr. E. Bade</i>	

ILLUSTRATIONS

Box Trees with Elder at Chequers in England	(cover)
Map of Sites, Box Remains from Past	18
"Can Happen!" Snow-Covered Boxwood	24
B. s. 'Agram' in Missouri Botanical Garden	26
Demonstration of Pruning	28
Boxwood Study Group At Work	29
Clipped Hedge of <i>B. microphylla koreana</i>	29

THE MAIL BOX

BOXWOOD IN TEXAS

Dear Mrs. Whiting:

In reply to your card in reference to the growing of Boxwood in Texas, I can only give you information as to our area. The Hi-Plains of Texas, have in recent years started growing Boxwood very successfully. (It is grown, too, in other sections of the state, does especially well where the humidity is high, and winters not so severe.)

The climatic conditions here are hi-and-dry. Our average rainfall is approximately 30 inches a year, many years not that high. We have many days of good sunshine, some months are very windy, and blowing sand is one of the enemies to our plants. However in recent years some of the sturdy types of Boxwood are doing well in our area.

There are some very healthy and lovely Boxwoods in Amarillo, and I am growing them in my garden also.

Buxus microphylla koreana, is grown very successfully in planter boxes, and in protected areas. Is used extensively for border plantings. Does grow rather slowly, but color is rich and green and is becoming one of the favorites of the landscape architects.

B. Sempervirens. Common Box Z, is perhaps the choicest planting here. We have found it resistant to some of our growing conditions, and many of the gardens are featuring it. It is very popular because of its rich, glossy, dark green, aromatic foliage. Six years ago I planted four of this variety at the front of our new home, and as of today they are approximately three to four feet tall, and I am beginning to shape them for the effect I wish them to create. At the same time I planted two of the variegated typed Boxwood (white and green) and they are about half as tall. However I have learned that the latter does much better if used in protected areas, around fountains, and for border effects.

B. Sempervirens suffruticosa, Dwarf Boxwood z6-10a, is a good plant here also. This last spring I planted eight of these, for border of one of my cutting plots. They have grown real well this summer. The dwarf was also used by our Church Garden Club, in landscaping a new portion of the church grounds. These were used as border plantings, in a redwood, boxed framed planting. With these we used the coral geraniums. Very effective.

I think many of the characteristics of the Boxwood will make it a very popular planting in our part of Texas. Its evergreen loveliness in winter is one of its most liked features, making the winter gardens interesting and pretty.

Thanks for writing me, and I hope that I have given you some of the information which you wanted.

Very best wishes,
Mrs. A. L. Manjeot
Hereford, Texas

THE AMERICAN BOXWOOD SOCIETY

(New Members added since July 1970)

- A. M. Leonard & Sons, Inc., P.O. Box 816, Piqua, Ohio
Cullinane, Mrs. Eugene J., 405 Lloyd Lane, Alexandria, Va.
DeAlba, Mrs. James T., 25 River Road, Newport News, Va.
Goode, Mrs. Lewis B., Jr., 1936 Parkland Drive, Lynchburg, Va.
Hoke, Harry F., RFD 3, Box 41, Emporia, Va.
Nash, Harry Lee, P.O. Box 174, Waynesboro, Va.
Parsons, Alison J., 7439 Flicker Point, Algonquin Park, Norfolk, Va.
Ullrich, Mrs. George M., RFD 3, Chestnut Hill, Killingworth, Conn.

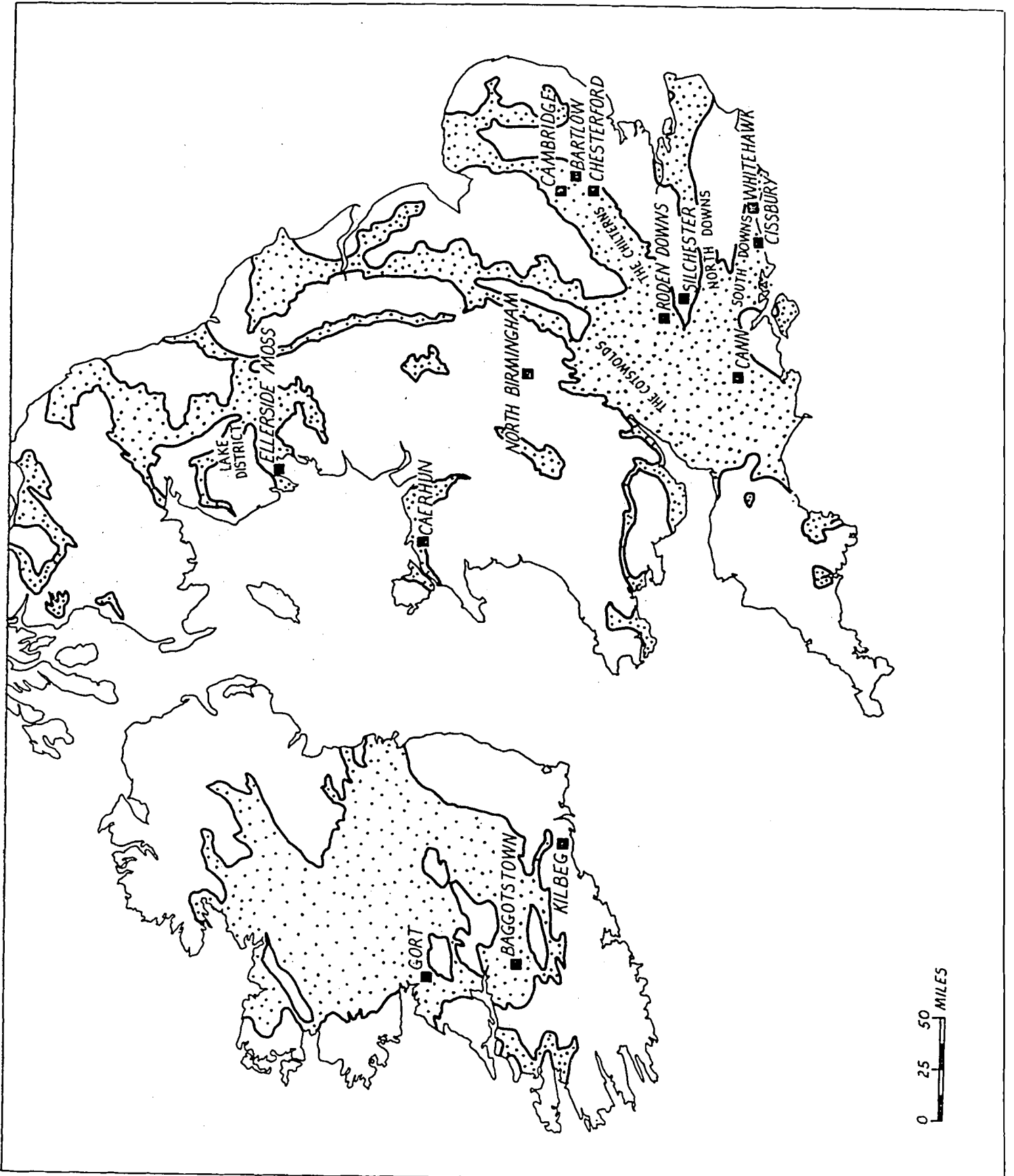
REMINDER TO ABS MEMBERS

ARTICLE V — Membership — of the Constitution of the American Boxwood Society, revised in 1964 and published in the July 1964 (Vol. 4, No. 1) issue of The Boxwood Bulletin, states in part:

“Section 4. Any regularly elected, enrolled and previously paid up member who thereafter permits his dues to fall into arrears for a period of three or more months automatically shall cease to be a member.”

We have been planning to print a current membership list, to mark the 10th anniversary of ABS, and should be sorry to miss old friends' names there. Please send in your dues for 1970-71 to Mrs. Kirby promptly, to help her keep the mailing list up-to-date.

More information on the different classes of membership and dues is given on the inside back cover page of this issue.



A History of Box in the British Isles

By M. J. C. STAPLES

(Department of Botany, University of Bristol)

ABOUT THE AUTHOR

Michael Staples (born 1947) was educated at Tiffin Boys' School in Kingston-upon-Thames, Surrey. From there he went to the University of Bristol where in 1968 he obtained an honours degree in Botany. Since then he has remained at Bristol, on a grant from the Nature Conservancy, to do post-graduate research into the distribution and ecology of *Buxus sempervirens* L.

INTRODUCTION

During the past hundred years there has been intermittent debate on the nativity of *Buxus sempervirens* L, the Common Box-tree, in Britain. Used in many gardens and parks, the plant was considered by many authorities not to be a native species of the British Isles; even although it was well naturalized in several localities, the chief of which are Boxwell in Gloucestershire, Box Hill in Surrey, and Chequers in Buckinghamshire.

Pigott & Walters (1953) detail two reasons whereby this confusion arose. Firstly, no native word for *Buxus* exists (the word 'box' coming from the Greek 'pyxos' via the Latin 'buxus'), hence the view tendered by Charlesworth (1949) that an alien word indicated an alien origin of the species; and secondly, the distribution of *Buxus* in Britain was discontinuous with that on the Continent of Europe. Tansley (1939), for instance, says erroneously that it was absent from the north of France except where planted.

That 'box' is a loan word is indisputable but, as Pigott & Walters point out, in nearly all European languages this same element is found. The Graeco-Latin word may have supplanted pre-existing words, or, if they were of similar construction, assimilated them. In Basque there occurs a pre-Indo-European word 'ezpel', and similar roots occur in some southern French dialects and place-names. It is impossible to tell whether this stem appears, in a form resembling 'buxus' in construction, without tracing its se-

Fig. 2 — (opposite) Map showing the sites of occurrence for box remains from the past. The dotted areas indicate outcrops of chalk and limestone.

quential development, and none such exists. With regard to the English word: the Anglo-Saxons came from northern Europe where no *Buxus* grows; they would only have come into contact with the plant through the Romans or their subjects from southern Europe, and they probably adopted their name for the plant before arriving in Britain in the 5th century AD.

The statement that the British stations are discontinuous with the Continental ones is demonstrably untrue. Lawalree (1964) gives many localities for Belgian stations only 1° south and 5° east of the British ones; and there are many disjunct stations in northern France (Lenoble & Broeyer, 1945).

There are several means by which it is possible to trace the history of this species in the British Isles — through plant remains; by the record available to us through the interpretation of present-day place-names; and through other historical references to the plant. In this account it is hoped to examine these three topics in turn, and to indicate their relevance to the present distribution and ecology of *Buxus sempervirens* L.

I. THE PALAEOBOTANICAL RECORD

Direct records of *Buxus* remains from the past are not extensive. They take the form of pollen from accumulated organic debris, or charcoal and plant fragments left by man.

THE INTERGLACIALS

From before the Last Glaciation (Wurm) only pollen grains survive. There are no microscopic remains of *Buxus* from interglacial deposits in the British Isles, although several are known from the Continent of Europe (Depape & Bourdier, 1953). If the theory of four major glacial advances is accepted then, following the Alpine glacial terminology (with the north-west European equivalents in parentheses), the Glacial and intervening Interglacial Periods can be summarized as follows:—

Glacial Period	Interglacial Period Present	Interglacial Deposits Flandrian
Wurm (Weichselian) -----	Riss-Wurm	Ipswichian
Riss (Saale) -----	Mindel-Riss	Hoxnian
Mindel (Elster) -----	Gunz-Mindel	Cromerian
Gunz (Menapian) -----		

During each of the interglacials the retreat of the ice exposed virgin land which became colonized by arctic tundra. As the climate ameliorated so the vegetation developed with the migration of more temperate species northwards, until at the climatic optimum much of the land was covered with the climax mixed forest (*Quercetum mixtum*). Where then did *Buxus* fit into the vegetational pattern of those times?

The deposits typified by the Cromer Forest Beds have yielded no pollen of *Buxus*; however the Hoxnian deposits of the Great Interglacial (Mindel-Riss) show the species to have been locally abundant, especially so in Ireland. Jessen *et al* (1959) worked on deposits of this age at Gort in County Galway, Ireland. Using histograms of the relative frequencies of pollen of various species, they showed there to be six recognizable stages (or pollen zones) in the establishment of temperate vegetation on the Carboniferous Limestone of central Ireland after the Mindel Glaciation. In zone 2 there was a predominantly *Pinus* (pine) forest with *Quercus* (oak), *Ulmus* (elm), *Betula* (birch), and other deciduous trees indicating a temperate climate. Zone 3 is characterized by a massive increase in *Taxus* (yew) which contributes 63% of the total pollen. The mixed *Pinus* forest declined. However in zone 4 the position was reversed and *Taxus* pollen was reduced to 10% of the total, *Pinus*, *Quercus*, *Betula*, *Picea* (spruce) and *Abies* (fir) increasing. *Rhododendron* spread considerably at this time. In zone 5 *Taxus* reached a second maximum, one only of 35%, perhaps indicative of the partial coverage of the limestone by peat deposits which would account for the high incidence of *Rhododendron* and other Ericales. Here *Buxus* pollen occurs for the first time. *Taxus* declines in zone 6, but *Buxus* accounts for 3% of the total — the plant, being entomophilous (insect-pollinated), is liable to be under-represented in pollen counts, and so this figure shows *Buxus* to have been exceptionally abundant in that period.

Jessen *et al* (*op cit*) advance the theory that the increase in *Taxus* was due to periods of increased wind activity, it being a wind-hardy species. Showing similar resistance is *Rhododendron*, another evergreen forming dense thickets. It too showed no decrease during zones 3 and 5, although most deciduous trees, except *Fraxinus* (ash) and *Alnus* (alder), did so.

Buxus is ecologically related to *Taxus*. Both require high summer and winter temperatures and high humidity, although *Buxus* withstands drought better. Both colonize shallow well-drained calcareous soils. They can survive as an understory in deciduous woodland. In Ireland *Taxus* appears to have formed pure stands on the more exposed and steeper sites. The *Buxus*, associated with it as at Box Hill, Surrey, today, also may have formed localized scrub and groves on the most unstable sites. Certainly with the decline of *Taxus* in zone 6 *Buxus* played an increasingly important role.

Buxus has been found at two other Hoxnian sites in Ireland. Watts (1959), working on material from

Kilbeg, County Waterford, recorded a similar flora to that at Gort, but with less *Buxus* which he explains as due to a more acidic rock and soil. He equates the climate and vegetation prevailing then to that of the present-day Caucasus, where *Buxus* and *Rhododendron* are frequent. Leskov (1929) records for the Caucasus a canopy of *Fagus* (beech), *Carpinus* (hornbeam), *Ulmus*, *Acer* (maple), *Tilia* (lime) and *Fraxinus*, with a secondary storey of *Buxus* and *Taxus*. Evidently in Ireland conditions were more favourable (more suitable sites and greater exposure) for the *Taxus/Buxus* association to have assumed local dominance.

Watts (1964) describes an essentially similar site at Baggotstown, County Limerick. There *Pinus* and *Quercus* fell off sharply to be replaced by *Taxus* and *Alnus*, with *Abies*, *Rhododendron*, *Picea*, and a small amount of *Buxus*.

The only English record of *Buxus* pollen from this interglacial comes from North Birmingham (Kelly, 1964). An increase in the size of lakes and the dominance of *Alnus* indicate a wet oceanic climate. *Quercus* retained dominance on the drier hills with *Ulmus*, *Pinus*, *Fraxinus*, and *Tilia* as minor components. In England the dominant forest community was *Quercetum mixtum*, unlike Ireland or the Continent where *Pinus* plays a much larger role throughout this interglacial. *Buxus* is recorded early on in the *Taxus* maximum following the decline of *Quercus* and before the rise in importance of *Picea* and *Abies* on leached soils. Kelly says the climatic optimum is represented by the *Abies* maximum. *Taxus* declined in importance during this phase but did not disappear until the increase in *Betula* and *Pinus* heralded the onset of the Riss Glaciation. *Buxus* may have followed a similar course. In the Birmingham area *Taxus* and *Buxus* were more likely to have formed a second tree layer in the drier woods, and with a paucity of limestone habitats in the neighborhood would have formed dominant communities in very few localities.

Buxus is known from many interglacial deposits on the Continent, usually associated with *Abies*, *Picea*, *Taxus*, and *Rhododendron* (Ludi, 1953, and others). Many sites for the association of *Buxus*, *Fagus*, *Taxus* and *Abies* exist in Poland, Austria, France, and as far south as Rome in Italy. In the southerly sites mediterranean plants are found in association. In Poland and Czechoslovakia *Buxus* occurred during the *Abies* phase but elsewhere it arrived earlier.

Over most of western and central Europe the climate during the Mindel-Riss Interglacial was warm and humid. Ireland exhibited an extreme oceanic climate and *Rhododendron* flourished on the developing peat. Four main communities of woody species may be discerned before the *Abies* phase:

1. *Fraxinus-Alnus* carr (marshy district) occupying the wetter soils and valley bottoms, little affected by climatic and vegetational changes.

2. *Quercetum mixtum* in Britain, or a *Pinus* dominated mixed forest in Ireland and on the Continent.
3. *Taxus/Buxus* community as an understorey to the mixed forest, but becoming dominant under suitable edaphic (soil) and climatic conditions.
4. *Rhododendron* and heath vegetation on developing peat (not present in Britain), restricting the incidence of exposed limestone for the *Taxus/Buxus* community. If *Buxus* grew on the steeper sites, with *Taxus* occupying the more level areas, then it would have been less affected by the extension of peat which contributed to the *Taxus* decline in zone 6 at Gort.

Buxus appears later than most species in the pollen diagrams. It is unlikely to be due to climatic factors as *Taxus*, its associate, had long been prominent at Gort before it was recorded. More likely its lateness was due to its slow rate of spread. Its inedible seeds (spread a few metres by explosive discharge) do not favour swift long-distance migration. This would explain why it never reached Ireland until recent times. Ireland, Britain and the Continent were separated far sooner following the last glaciation (Wurm) than they were during the other interglacials, and the Irish Flora in general is very impoverished. Today *Buxus*, naturalized in Killarney, flourishes in association with *Rhododendron*, *Taxus* and *Ligustrum* (privet), indicating the suitability of Ireland's oceanic climate for the growth of *Buxus*.

In general then it may be said that *Buxus* spread slowly from the Mediterranean region, and did not become important in north European floras until late in the post-glacial succession. It remained a component of the vegetation, especially important during the *Taxus* maximum, until the decline of the *Abies* phase which followed.

There is but one record of *Buxus* in a British Ipswichian deposit. Hollingworth *et al* (1950) tentatively record a single grain of *Buxus* pollen in calcareous organic mud from a sewer trench in Cambridge. They date it as deposited in the last interglacial period, between the Riss and Wurm glaciations, about 160,000 years ago. In their pollen analysis *Pinus* is preponderant, with a high frequency of *Carpinus*, and some *Betula* and *Corylus* (hazel). The pollen zone is equivalent to zone g of Jessen & Milthers (1928), a period when the climate was cooling prior to the reincursion of the glaciers. There is a large amount of herbaceous pollen, indicating open habitats. In France *Buxus* can be seen growing under an open coniferous canopy as a scrubby understorey plant; such may have been the situation in this case.

THE RECENT POST-GLACIAL

Another pollen record comes from the end of the Atlantic Period (junction of pollen zones VIIa and VIIb) in the recent Post-glacial. Oldfield & Statham (1963) record one grain from peat in Eller-

side Moss, Lancashire. Thus, in the climatic optimum 4,500 years BC, *Buxus* existed in the Lake District 175 miles north of its present stations in Britain, the furthest north and west in Europe. The presence of *Ilex aquifolium* (holly) pollen indicates the relatively frost-free climate which prevailed at that time (Iversen, 1944). A suitable habitat in that locality would have been the local outcrops of Carboniferous limestone. Oldfield & Statham exclude the possibility of contamination, and hence this record may be taken to indicate the earliest *Buxus* which can be related to our presentday population: the pre-glacial survival of a sub-mediterranean species such as *Buxus* is scarcely feasible!

CHARCOAL REMAINS

Two records of *Buxus* charcoal are extant: the earlier from Whitehawk Neolithic Camp near Brighton (Ross-Williamson, 1930); the later from Cissbury Iron-Age to Roman Camp near Worthing (Curwen & Ross-Williamson, 1931). These records, from the Chalk of the South Downs in Sussex, suggest the existence of *Buxus* here for some two thousand years before the coming of the Romans. Nearby, during recent times, there has been *Buxus* recorded as growing "apparently wild" at Steyning (Wolley-Dod, 1937). That the boxwood which formed this charcoal was brought over from the Continent by man is most unlikely. Very probably it resulted from the rapid forest clearance that continued from Neolithic times, the wood being burnt fortuitously, or deliberately, as the present author can certify the efficaciousness of boxwood on an open fire.

ROMAN REMAINS

The Roman period in Britain furnishes us with six records of *Buxus*, although one, a fragment of a boxwood comb from Caerhun in North Wales (Baillie-Reynolds, 1936), can be discounted as it was probably brought there from a distance. It is indicative though of the use to which the wood of this tree was being put — namely the manufacture of small artifacts.

Clement Reid (1903) has identified *Buxus* from rubbish pits at the Roman city of Silchester in Hampshire. He describes the remains as "clippings". The Romans were well versed in the art of topiary work, and it is likely that they created box gardens in Britain similar to those mentioned by Pliny and other writers. In 'Naturalis Historia' Pliny writes of a cultivated variety of *Buxus* with "no branches". Whether the Romans took the pre-existing native *Buxus* for their gardens, or brought with them special varieties, we may never know — they may have used both. However, the *Buxus* clippings from the rubbish pit were mixed with various weeds and with *Sambucus nigra* (elder), which does not suggest a garden origin. Clement Reid states that they may have been withered garlands cut from the wild.

The remaining four Roman records are all finds from the interiors of lead coffins, recorded from Bartlow and Chesterford in Cambridgeshire (God-

wins, 1956), Cann in Dorset (St. George Gray, 1918), and Roden Downs in Berkshire (Hood & Walton, 1948). The Roden Down material was a loosely compacted layer of small *Buxus* shoots on the bottom of the coffin. Godwin says that, for the Bartlow and Chesterford finds, Henslow had recorded a precisely similar situation. The leaden coffin found at Cann, which contained the body of a child, is more interesting. The *Buxus* twigs, it was said by the workmen who found the coffin, were in a circle at the bottom of the head-end. Unfortunately the significance of this find was not appreciated by those who made it, and the skeleton was disturbed. However it seems that the twigs formed a wreath or garland around the head of the child.

These records show the use to which *Buxus* was put in funeral rites, as a lining to the coffin or as a wreath for the deceased. The foliage of *Buxus*, being evergreen, has always lent itself to decorative uses, and has from early times been associated with the continuity of life into the next world (Folkard, 1884). Quinn (1968) says that it used to be believed that no ghost could rise from a grave lined with *Buxus*. These finds amply confirm the written historical record, and illustrate the origin of present-day customs connected with *Buxus* in the Christian Church and in folk-traditions.

Three uses of *Buxus* in Roman Britain can thus be defined: firstly, its wood for the small tools and the inlay work for which it was justly prized; secondly, the plant itself in the hedges and topiary work of their gardens; and lastly, the foliage, either from the wild or from their gardens, used as an adornment of their dead.

SUMMARY

From the records, detailed *supra*, an impression may be gained of the position of *Buxus* in British and Irish vegetation during Glacial and Post-glacial history up to Roman times. A characteristic member of the European flora, classified by Matthews (1955) in the 'Continental Southern' species grouping, *Buxus* migrated, with the rest of the flora, as the ice advanced and retreated during the great glaciations of the Pleistocene. It grew, we know, extensively in the British Isles with *Taxus* during the Great Interglacial (Mindel-Riss), and at least on the Chalk near Cambridge during the Last Interglacial (Riss-Wurm) although *Taxus* was not recorded here. The species would of course have become extinct during the subsequent glaciations. Following the final Wurm Glaciation the present-day British flora migrated northwards and westwards into the British Isles, over the land bridges with the Continent. *Buxus* was probably a component of that part of this flora which arrived in Britain during the Boreal Period, 6,000 BC, some of the last species to arrive before the connection with the Continent was severed. It never reached Ireland which was cut off at a somewhat earlier date.

Pigott & Walters (1954) suggest that, even with forest cover increasing, (at first *Betula* and *Pinus*,

later *Quercus* and *Ulmus*); the Chalk and Limestone scarp slopes in southern Britain remained free of trees for a longer period into the Post-glacial, due to removal by solifluction of Pre-glacial soils, than did the neighbouring clay and plateau areas. These sites would therefore have favoured the colonization of *Buxus* and enabled the plant to spread over southern Britain on the Chalk and northwards on the Oolite, reaching the Carboniferous Limestone of the Lake District by the climatic optimum, 3,000 years after entering Britain. With the increasing forest cover the distribution would have become fragmented, and the deterioration of the climate in the Sub-Atlantic Period restricted the range of the species until, in Neolithic to Roman times, it was confined to southern England, where it still occurs today.

Pigott & Walters (1953) suggest that during the Neolithic forest clearances *Buxus* would have had an opportunity for secondary colonization, within its climatic limitations, particularly as scrub vegetation on the Chalk. The remains at Silchester suggest that nearby existed a scrub of *Buxus* and *Sambucus*, or even a boxgrove with invading *Sambucus* as today is found at both Boxwell and Chequers. Ecologically, these two plants seem closely associated.

The Ancient Britons would have had little use for *Buxus* other than for firewood, and in its niche of steep limestone hillsides it probably remained relatively untouched. If it did become more abundant by Roman times then most certainly the Romans would have been quick to realize the potential of its wood. This, coupled with increasing pressure on land, must have resulted in many of the native boxtrees being cut down.

BIBLIOGRAPHY (PART I)

- BAILLIE-REYNOLDS, P.K. (1936). Excavations on the site of the Roman Fort at Caerhun. *Arch. Cambrensis* 91:240.
- CHARLESWORTH, M. (1949). *The Lost Province, or the Worth of Britain*. Cardiff, p 73.
- CURWEN, E. C. & ROSS-WILLIAMSON, R. P. (1931). The date of Cissbury Camp. *Antiqu. J.* 11:31.
- DEPAPE, G. & BOURDIER, F. (1953). Le gisement interglaciaire a *Rhododendron ponticum* L. *Trav. Lab. Geol. Fac. Sci. Univ. Grenoble* 30: 81-102.
- FOLKARD, R. (1884). *Plant Lore, Legends and Lyrics*. London, p 256.
- GODWIN, H. (1956). *The History of the British Flora*. Cambridge, p 181.
- GRAY, H. ST. GEORGE (1918). Leaden coffin found at Cann, near Shaftesbury. *Proc. Dorset Nat. Hist. & Antiqu. Fld. Cl.* 38:68-73.

- HOLLINGWORTH, S. E., ALLISON, J. & GODWIN, H. (1950). Interglacial deposits from the Histon Road, Cambridge. *Quart. J. Geol. Soc. Lond.* 105:495.
- HOOD, S. & WALTON, H. (1948). A Romano-British cremating place and burial ground on Roden Downs, Compton, Berkshire. *Trans. Newbury Dist. Fld. Cl.* 9:47.
- IVERSEN, J. (1944). *Viscum*, *Hedera* and *Ilex* as climatic indicators. *Geol. Foren. Stockh. Forh.* 66:463.
- JESSEN, K., FARRINGTON, A. & ANDERSON, S. J. (1959). The interglacial deposits near Gort, Co. Galway, Ireland. *Proc. R. Ir. Acad.* 60 B:1-77.
- JESSEN, K. & MILTHERS, V. (1928). Stratigraphical and paleontological studies of interglacial fresh water deposits in Jutland and northwest Germany. *Danm. Geol. Undersg.* 48.
- KELLY, M. R. (1964). The Middle Pleistocene of North Birmingham. *Phil. Trans. R. Soc.* 247: 533-592.
- LAWALREE, A. (1964). *Flore Generale de Belgique. Bruxelles.* iv:343-7.
- LENOBLE, F. & BROYER, C. (1945). Sur la distribution du *Buxus sempervirens* L. en France. *Bull. Soc. bot. France* 92:118-131.
- LESKOV, A. I. (1929). *Buxus sempervirens* L. in the North Caucasus. *Comp. Rend. Acad. Sci. URSS.* pp 473-478.
- LUDI, D. (1953). Die Pflanzenwelt des Eiszeitalters im nordlichen Vorland der Schweizer Alpen. *Veroff. G.I.R.U.* 27.
- MATTHEWS, J. R. (1955). *Origin and Distribution of the British Flora.* London, p 156.
- OLDFIELD, F. & STATHAM, D. C. (1963). Pollen-analytical data from Urswick Tarn and Ellerside Moss, North Lancashire. *New Phytol.* 62: 53-66.
- PIGOTT, C. D. & WALTERS, S. M. (1953). Is the box-tree a native of England? *Rep. Bot. Soc. Brit. Isl. 1952 Conference.* (ed. J. E. Lousely) pp 184-7.
- PIGOTT, C. D. & WALTERS, S. M. (1954). On the interpretation of the discontinuous distributions shown by certain British species of open habitats. *J. Ecol.* 42:95-116.
- PLINY (77 AD). *Naturalis Historia.*
- QUINN, V. (1968). Boxwood and its Legends. *Boxwood Bull.* 8:7-9.
- REID, C. (1953). Notes on plant remains of Roman Silchester (W. H. St John Hope — Excavations on the site of the Roman city at Silchester, Hants). *Archaeologia* 58:425-428.
- ROSS-WILLIAMSON, R. P. (1930). Excavations in Whitehawk neolithic camp, near Brighton. *Sussex Arch. Coll.* 71:82.
- TANSLEY, A. G. (1939). *The British Isles and their Vegetation.* Cambridge, p 265.
- WATTS, W. A. (1959). Interglacial deposits at Kilbeg, and Newtown, Co. Waterford. *Proc. R. Ir. Acad.* 60 B:79-134.
- WATTS, W. A. (1964). Interglacial deposits at Baggotstown, near Bruff, Co. Limerick. *Proc. R. Ir. Acad.* 63 B:167-189.
- WOLLEY-DOD, H. H. (1937). *Flora of Sussex.* Hastings. p 399.

Copyright (c) 1970 by M. J. C. Staples. All rights reserved.

TO BE CONTINUED

A HISTORY OF BOX IN THE BRITISH ISLES will be continued in the next two issues of *The Boxwood Bulletin*. Part II, THE PLACE-NAME LEGACY, will appear in the January issue; Part III, THE HISTORICAL PERIOD, in April.

Winter Care Explained

ARTHUR DUGDALE

Boxwood, the living antique of gardens, depends upon man for a little timely care and protection, to survive winter weather with little or no damage, and to begin growth each April in healthy, vigorous condition.

Perhaps the most important winter protection for boxwood is to see that they enter the dormant season in healthy, vigorous condition, with good drainage (both surface and subsoil) and with adequate moisture in the ground. Two other preventive measures are also important — light pruning of branch tips if necessary in late August or early September, to reduce snow and ice holding capacity, to strengthen the branches and to induce lateral growth; also, to thicken and improve the plant's shape, if necessary.

Be sure that boxwood plants, especially *Buxus semp. suffruticosa* (dwarf) are clean inside the crown — free of dead leaves, twigs and other debris, and that a little sunlight and air circulation have access there, to keep the plants clean and healthy. Dead leaves inside the bushes help to hold snow, preventing it from falling to the ground.

In fact, the above cultural suggestion regarding sanitation applies during all four seasons, for insects and diseases breed, live and revel in these dark, unhealthy areas. This applies especially to Red Mites and Boxwood Webworm, a relatively new pest in Virginia, chiefly affecting *Buxus suffruticosa*. It may be controlled with a spray application of Malathion to destroy the larvae. Consult nurserymen for details.

VERY BRITTLE

Boxwood twigs and branches are very brittle when frozen. If snow covers them in this condition, efforts to remove the snow may result in serious damage. So, as soon after the snowfall as practicable, remove the white mantle by carefully shaking the bush with a broom or stick. If snow-laden branches break with movement, stop! Your care will do more harm than good. Return when warmer weather enables the snow to be removed with no breakage.

Sunshine through snow crystals can serve as a burning glass, giving boxwood and some other evergreens a severe case of sunscorch, marring their beauty until new foliage appears in April and May. Sunshine on frozen leaves often causes sunscald, a similar ailment which also discolors them.

Boxwood that have been moved recently, and those in cold, exposed locations, really need the winter protection of snow fencing or lattice frames, covered with new burlap if necessary. This applies particularly to *Buxus suffruticosa*.

EXPOSED LOCATIONS

In windy, exposed locations even established English boxwoods need this winter protection. Satisfactory frames consist of prefabricated sections of lath or lattice, on 2 x 2-inch cypress strips, making frames 4 x 4 ft. for easy handling. They may be bolted together, and anchored with stakes or iron fence posts. Put them up in November, remove them in late March, store them in the barn or tool house, and they will serve for many winters.

Other methods of providing winter protection for boxwoods include the use of pine and cedar (*Juniper virginiana*) branches, sharpened at butt and stuck into ground around the plants and between them, then tied in place with strong nylon cord. Mats to use around shrubs as a windshield, or for covering the coldframe, may be made of corn stalks or straw, hand-woven with nylon cord into square or rectangular shape, supported by 2 x 2-inch wooden frames and steel posts driven into the ground.

The recently planted boxwood hedge or row of plants may be protected by pine or cedar branches, or corn stalks stuck into the ground between and around the plants.

"AMERICAN BOXWOODS"

The so-called "American Boxwoods" may be protected against snow damage by wrapping the outer branches with a strong nylon cord. Tie the cord securely to a low branch, pressing the boughs upwards and inward; wraps cord in an upward spiral around the bush, having cords 8 to 10 inches apart. Have cord tight enough to prevent breakage from excess weight of snow or ice, but not enough to exclude air circulation inside the plant.

Reprinted by permission of the author, from the Richmond News-Leader, Friday, November 29, 1968.



COLLECTING BOXWOOD IN THE BALKANS

By the late DR. EDGAR ANDERSON, Honorary Life Member of ABS

From the January 1963 issue of The Boxwood Bulletin, reprinted here as introduction to Mrs. Gamble's article on the work of Dr. Anderson in St. Louis, and on the boxwood study group which he inspired, and their plans for the Anderson Memorial Boxwood Garden in his honor.

My Arnold Arboretum trip to the Balkans in the late summer and early autumn of 1934 was an attempt to get strains of holly, ivy, yew, and boxwood which would fit the difficult climate of the eastern United States, hot and dry in the summer, cold in winter with drying winds, late frosts following deceptive warm spells in the spring, bright winter sunshine sometimes in extremely cold weather so that leaves are apt to be damaged.

For these reasons I went to the Balkans since they have somewhat the position in Europe that the Ozarks do in the United States. Just as our Great Plains are a vast bowl of cold air in winter and of hot air in summer so the Russian steppes (which extend eastward to the very outskirts of Bucharest) are a similar bowl which slopes over now and then towards the Balkans and makes a difficult, chancy climate there, much like our own. It is not quite so difficult for plant life as ours since the presence of high mountains brings dews at night and cooler night air even in very hot weather.

Boxwoods are not evenly distributed all over Europe; there is a northern area where they are found and then another separate area at the south. At the Royal Botanic Garden at Kew and at the Botanical Garden in Belgrade by consultation and study in the herbarium I found that the northernmost extension of this southern strain was just outside of Skopelie in the valley of the Vardar river, in the Macedonian edge of Yugoslavia. The government gave me a courier to travel with me and help in buying tickets, reporting to the police, carrying luggage and generally serving as a companion. He was a White Russian and spoke almost no English but he spoke fluent German and we communicated in that language.

Our directions had been to go to a monastery in the outskirts of Skopelie and that there we would find boxwood in quantity. My memory is that we took some sort of conveyance out to the bridge over either the Vardar or one of its tributaries and then proceeded afoot along the pathway which led to the unpretentious little whitewashed monastery. The river bed, broad and gravelly, was at one side and the mountains from which the stream rose loomed ahead, dry and rocky with some shrubs on the lower slopes and here and there an occasional battered tree. The records of the monastery showed that up to a few hundred years ago the mountain was largely covered with a beechwood forest, from which the monastery had drawn a substantial part of its revenue. Over-cutting and over-grazing had destroyed the forest. Heavy erosion had done the rest and much of the mountain was down to the bare

rock. Goats, which were still everywhere, were the worst offenders and when we came to the acres and acres of boxwood they too were nibbled, sometimes almost down to the ground; seldom or never were they over shoulder high. While the boxwoods grew in great abundance there were other characteristic evergreen shrubs in with them; big bushy thymes and rosemarys I remember in particular.

At the time of our visit the seeds were already ripe and had been scattered by the browsing goats. We got down on our hands and knees and picked up the shiny black seeds (a little smaller than apple seeds) from underneath the bushes. It was slow work but we eventually got a hundred or so. We also took cuttings to send back airmail to my collaborators in England and made herbarium specimens of the boxwoods and other shrubs. The bushes had been so heavily grazed it was difficult to tell anything about their growth habit but from the stubs that were left it was easy to see that there was much more variation from bush to bush than in the boxwoods which grew wild (or apparently so) at Box Hill in the south of England. They varied conspicuously in leaf size and in leaf shape and in the amount of bluish bloom on the leaves.

The first Balkan boxwoods to be distributed in the United States were raised from these seeds collected in among the bushes of the goat pasture near the monastery. A year after I returned to Harvard University and the Arnold Arboretum where my seeds and cuttings were coming on safely, I went back to the Missouri Botanical Garden in St. Louis and it was from St. Louis that the largest number of boxwoods were introduced. I got in touch by mail with the acquaintances I had made in the Yugoslav forest service and we imported a pound or so of boxwood seed which was raised at the Gray Summit Arboretum of the Missouri Botanical Garden. Eventually a fairly complete set of more than a hundred different bushes was sent as cuttings under number to Henry Hohman of Kingsville, Maryland, for distribution to the Orland E. White Research Arboretum at Blandy Farm and to the box collection at the College of William and Mary. They are extremely variable like the population from which they came and among them are certainly going to be found the hardiest in existence. They are doubly hardy because of the area they came from, being drought resistant as well as cold resistant. They vary a great deal in branching habit as well as in leaf shape and color. One dwarfish lowgrowing form has been found among them and one gracefully columnar form. As a group they are rampant and a little coarse but they have great ability to do well under exacting conditions.



Boxwood For St. Louis

MARY A. GAMBLE

The boxwood study group of the St. Louis Herb Society has a three-fold purpose: to increase the individual member's knowledge of the plant; to encourage more fellow St. Louisans to grow boxwood in their gardens; to further the Anderson Memorial Boxwood Garden at the Missouri Botanical (Shaw's) Garden.

The first is a lifetime project; the second a psychological battle against the opinion shared by many St. Louisans that, while boxwood is beautiful, you can't grow it here. The third is a labor of love and respect, its goal a testament to the unique contribution made by the late Dr. Edgar Anderson to the modern development of *Buxus*.

The study group began under the aegis of Dr. Anderson and its framework met his approval before his death in June of 1969. Presently the roster includes 30 of the Society's 50 active members, with non-membership reflecting, generally, the lack of physical facilities to grow box. The program is oriented to the practical, its efforts concentrated on learning about *buxus* which will grow in our area. The three original members — Mary A. (Mrs. D. Goodrich) Gamble, Mary (Mrs. M. L.) Holekamp and Jane (Mrs. George E.) Penhale — serve as chairman and co-chairmen.

Boxwood is no stranger to Missouri; it has been growing here for many years. Much of the *Buxus sempervirens* you see in St. Louis grounds and gardens came from the towns of Ste. Genevieve and Washington, Mo. Ste. Genevieve, on the banks of the Mississippi some 65 miles southeast of St. Louis, was founded in 1735, many of its settlers coming down the river from French Canada. Boxwood has grown in Ste. Genevieve for over a century and a half. Washington, 50 miles due west of St. Louis on the Missouri River, is a German settlement, platted in 1828. Boxwood has grown there for over a hundred years. The box from both towns is handsome

with thick-growing, slender, pointed leaves in a deep, rich green.

In the last three to four decades St. Louisans have added *Buxus microphylla koreana* to their gardens, finding its hardiness and acceptance of full sun ideal for our climate. The first plant of Korean boxwood to be distributed from the Arnold Arboretum for testing purposes was sent in 1926 by Dr. E. H. Wilson, its discoverer in Korea, to Mr. George H. Pring of the Missouri Botanical Garden. The original plant still grows at the Garden's Arboretum at Gray Summit, Mo. Another *buxus* of interest at the Arboretum is *B. m. sinica* grown from seed obtained in the 1940s by the Garden from the Sun Yat-sen Memorial Garden in Nanking, China. And in the last quarter-century many examples of the Balkan strain of *Buxus sempervirens* introduced by Dr. Anderson have added a range of leaf shape and size as well as habit of growth to local gardens. Unquestionably, the eye opened to boxwood finds variety in the St. Louis scene. Our study group hopes to discover, through our program of testing in both the new boxwood nursery at Shaw's Garden and in our home gardens, additional varieties of both *Buxus sempervirens* and *Buxus microphylla* which will prove hardy here.

Just as our purpose is three-fold so are the problems which appear to beset St. Louis growers of box. The first is our climate; the second our lack of widespread knowledge of the cultural requirements of boxwood; and the third our frequent failure to choose the hardier varieties of box.

The St. Louis climate is not as bad as its reputation; but it is what Dr. Anderson described as chancy. We have the lowest average temperature at which *B. sempervirens* will succeed. Further, we experience — especially in late winter and early spring (March is the worst month) — great extremes of temperature; within a few hours we may range from

This is *Buxus sempervirens* 'Agram' (opposite page), the plant which Dr. Edgar Anderson considered the prize of the Balkan group, the result of his exploratory trip to Yugoslavia in 1934. He was seeking a hardy strain of boxwood which would grow in the St. Louis area.

'Agram' is growing at the edge of a wooded area in the Missouri Botanical (Shaw's) Garden Arboretum at Gray Summit, Mo. The plant pictured is a second-generation 'Agram', the first (in almost the same location) having died in below zero weather

in 1950. The plant was propagated from a cutting from the first. Dr. Anderson was convinced that the loss of the first 'Agram' could be traced to inadequate soil preparation, due to lack of funds at the time of planting.

When photographed in 1969 'Agram' II measured 105 inches in height and 44 inches in diameter; it has two central leaders. As Dr. Anderson studied it, he commented on its "graceful form and upward look". This plant will have a place of honor in the Anderson Memorial Boxwood Garden.



Robert Dingwall, chief horticulturist at the Missouri Botanical Garden, demonstrates how to prune a boxwood, to members of the Boxwood study group of the St. Louis Herb Society. This *buxus* (one of the Balkan group) was moved in Spring 1969 from the Arboretum to the Herb Society's herb garden at the rear of Tower Grove House (Henry Shaw's historic residence) at Shaw's Garden. At the Arboretum this plant had thrived in a sunny meadow where it received minimum care.

bitter cold to brilliant warmth. The southwest winds blow to us straight from the Great Plains. These factors combine to produce a high incidence of winterkill where plants, broadleaf evergreens in particular, are not placed, planted or cared for properly.

Our lack of knowledge about growing *buxus* stems from lack of experience, due to general mistrust of the plant. This can be remedied by making the proper exposure, soil preparation, planting and cultural procedures generally available. This our group increasingly will be qualified to do.

The final problem — failure to choose hardy varieties — is inherent in the charm of many of the more delicate *buxus*. St. Louisans visit the Tidewater country and other areas where all boxwood appears to flourish. We become entranced with a beautiful *buxus*, bring it home, plant it where it can be seen to advantage, and expect it to survive. All too often the object of our admiration is *suffruticosa* which, normally, will not live through many St. Louis seasons. However, this exquisite box can be grown here, if handled with care. I know of one beautiful planting now 20 years old. But this is the

exception. The usual loss disappoints us and makes us distrustful of boxwood in general. We close our eyes to the many successful plantings throughout the area. I have seen doubters stand in front of a 10-foot, 20-year old box and declare "You can't grow boxwood here".

This attitude was given almost city-wide proportions in the late 1920s, when, according to Mr. Paul A. Kohl, for many years floriculturist at the Missouri Botanical Garden, "an enterprising nurseryman sought to place boxwood in as many of our city gardens as possible". This nurseryman brought large, mature plants from the Ste. Genevieve area and sold them to many home owners along one of the city's most imposing streets; he also sold a matched pair to the Missouri Botanical Garden where they were planted at the front entrance. This pair failed to prosper, as did most of the others. Could it have been this record which led Dr. Anderson to launch, in 1934, his search for a boxwood which would be hardy in St. Louis?

We began our actual work with *buxus* by making cuttings, by learning the process of vegetative propagation, under the direction of Mr. Kohl. We obtained cutting material from boxwood plants on the Missouri Botanical Garden grounds, from the Garden's Arboretum, from our own gardens and those of friends, acquaintances and strangers, and from some notable boxwood enthusiasts and authorities outside our area. The first to send us cutting material was Dr. J. T. Baldwin, Jr., who shipped a box of Aristocrat from plants at the College of William and Mary. Later he sent *B. semp. Hardwickensis*, *Salicifolia* and *Pendula*, as well as 13 of his seedlings, including a prized *B. m. sinica* for first release testings.

Dr. Donald Wyman sent us from the Arnold Arboretum the following: *B. semp. Vardar Valley*, *Inglis*, *Belleville* and *Northern Find*; and *B. m. Wintergreen* and *Tide Hill*. Mr. Lewis Lipp sent us *B. m. Green Pillow* and *Morris Dwarf*, and *B. semp. Anderson 351-35* and *Argenteo-variegata* from the Holden Arboretum. With only one exception, we were successful in rooting the cuttings and this summer we set out more than 700 small plants in the newly established boxwood nursery on the Missouri Botanical Garden grounds. This we considered our first milestone.

In the meantime, we have been learning how to prune boxwood, how to place, plant and care for it. Mr. Robert Dingwall, chief horticulturist at the Garden and many of the horticulturists and professional gardeners who worked with Dr. Anderson have been our instructors in this area. We are trying to prepare ourselves to answer the questions which St. Louisans ask about boxwood. None of us pretends to expertise; but through study and practice we are acquiring the answers which are right for St. Louis.

As we work with boxwood we are learning about the two species which concern us; we are learning

all we can of the different varieties within the species — those which will grow here. We are developing an eye for the individualities and niceties of boxwood. We are familiarizing ourselves with its history and its legends. We are developing favorites. We talk boxwood. When a visitor comes to our Herb Garden at Shaw's Garden the conversation turns to boxwood with the result that we may find ourselves on the track of another *buxus* which should be hardy here; recently we received clippings of *B. semp.* Abilene in just that way. We are learning to ask the history of each plant destined for our collection. Our study continues; next year we will spend more time on the Balkan strain, and we will have our first lessons in topiary, working on plants designed for the Anderson Memorial Garden.

We hope ultimately to accomplish what Dr. Baldwin thought was a possibility. When we wrote him reporting the results of the cuttings we had made from his seedlings, he replied, "I am delighted that you and your associates are investing yourselves in box; most likely you will change the horticultural pattern for this genus in your whole area."

In the Anderson Memorial Boxwood Garden we hope to have the broadest possible representation of hardy *buxus*. In accomplishing this goal, we would welcome the receipt of limited cutting material from which we could grow plants of any *buxus* the donor thinks is sufficiently hardy to withstand our chancy climate and which has not been included above. Cutting material can be mailed to this writer (Mrs. D. Goodrich Gamble, 23 Bon-Price Terraces, St. Louis, Mo. 63132) who will do her best to see that it is given every chance to succeed and ultimately to find its place in the Anderson Memorial Boxwood Garden. Please send any historic information about the plant as well as its description in maturity as we want the Anderson Garden to be a learning as well as an esthetic experience for those visitors who will come to it from all over the world.

This clipped hedge of *Buxus microphylla koreana* was propagated at the Missouri Botanical Garden from cuttings of the first plant of the variety to be released from the Harvard Arboretum for testing purposes. Dr. E. H. Wilson, who discovered this *buxus* in Korea, sent the plant to Mr. George H. Pring at the Garden in 1926.



Four members of the Boxwood study group learn to grow their own *buxus* in homemade lippigators, as instructed by Paul A. Kohl in a greenhouse at Shaw's garden.



Let Earthworms Help You Dig

HOUSTON HUME CARR

When I was living in Clarke County, Virginia, I had little interest in gardening. The fact that I was a teenager might have had something to do with this attitude. Now that I have left God's Country for someone's, Texas, I have learned to enjoy gardening and the raising and propagation of Boxwoods . . . English, American and Korean. The soil here in Fort Worth is less than ideal . . . unless you consider a quarter-inch of top soil on top of 14 inches of white clay and limestone your cup of tea. It never ceases to amaze me to dig a hole to plant anything and re-discover the composition of my property.

I became interested in the culture of earthworms quite by accident. One of the secretaries at my office over-watered her ivy, flooding the pot it was in. A few worms crawled to the top, as is their custom, and there I was. The next day, I found a delightful book in the library, "Harnessing the Earthworm," by Thomas J. Barrett. I read, learned, and started looking for sources of earthworms. After having found dealers listed in Organic Gardening and Popular Science magazines, I learned of a wholesaler in Fort Worth and purchased 1,000 red wigglers for \$5.00. This breed was chosen for their rapid reproduction rate, high activity in the soil and their medium size. (Night crawlers are larger but tend to leave a container.)

Before describing the actual culture of earthworms, I should discuss why I found them of interest. This small, seemingly undesirable, creature passes through its body each day a volume of soil equal to its own weight. In this process, the soil is ground up and chemically treated, with the output, called castings, being five times as rich in nitrogen, seven times as rich in phosphorus, and 11 times as high in potassium. The castings are almost pure humus, readily assimilable by plants, and are less acid or less alkaline than the surrounding dirt. Therefore, with a quarter-acre of horrible soil, containing five flower beds, and a patio filled with pots of flowers, plants and trees, I was quite interested in the earthworm for his ability to improve the plant's environment. To this end, I have three small boxes of red wigglers and transplant colonies of worms and their eggs to the beds and pots. (Much to the amazement of my secretary, I have a rubber plant at the office which has about 50 worms in the pot and the plant is doing quite well.)

When I acquired my first 1,000 earthworms, I built an 8"x14"x20" wooden box to house them. (Only 50 worms were placed here since I gave one-half of the purchase to a friend.) I have since determined that a more convenient size would be 4 inches deep, 18 inches long, and 10 to 12 inches wide. The box I have is quite heavy, especially after watering.

The first dirt mixture I used was 1/3 soil, 1/3 cow manure and 1/3 peat. Actually, any mixture of soil, sawdust, peat, peat moss, cottonseed hulls, ground leaves, lettuce, or anything organic will work well. The main object is to provide them a medium rich in food and keep it well watered. Under these circumstances, they will multiply rapidly, producing up to an egg per adult worm every 10 days, with each egg containing from 2 to 20 worms.

You will notice I have mentioned watering several times. About three months after establishing my first population, I dumped the box out to harvest eggs, and discovered that not only did I have no eggs, but I had no adult worms and not too many small worms. Even though the soil felt moist to the touch, it was very dry to the worms. Since then I have watered at least once a week in winter and more often in summer to insure that the soil stays good and wet . . . even soggy. To help in watering and prevent rapid drying, layers of wet burlap are placed on the top of the soil.

Once you have a good population established in your box(s), the best way to transplant them to other boxes or beds is to dump a box out and collect the eggs. They are 1/16 inch cloudy yellow balls, but easy to see when you know what to look for. Put about two to four dozen in the desired spot along with a good mixture of wet soil like that in the box. As the worms mature, they will spread and grow, depending on the food supply.

To encourage the increase of earthworms in an existing flowerbed or boxwood area, just provide food and drink. Mulching with cottonseed hulls, peat moss or ground leaves and watering well and often will insure a large supply of helpful diggers. In addition, you will know where to find fishing worms when the need arises.

Another Vote For Earthworms —

"A manure-enriched soil is full of earthworms, which are almost incredibly beneficial to plants and spend their whole time eating, digesting, and excreting soil. Worm casts are the best soil there is, being full of nutrients and perfectly conditioned. Worms aerate the soil, a vital process. They also eat certain pests. Not only do they eat and digest organic matter like leaves or manure, they eat rock particles, and their digestive acids make these minerals available to plants because they are soluble in water."

From "Peacock Manure and Marigolds", by Janet Gillespie; The Viking Press, New York, 1964.

Control of Boxwood Insects

T. K. WOLFE

The prevention of insect attacks on boxwood is better than treatment after infestation takes place.

Based upon forty years' experience in growing boxwood in the Richmond, Virginia, area, *Malathion* sprays have proved very effective in controlling: (1) Spider Mite (red spider), (2) Leaf Miner, and (3) Wax Scale.

The *Malathion* sprays recommended are:

(1) *Fall Spray* — during late October or early November, spray the plants and the area around them, very thoroughly; especially to control spider mites.

(2) *Spring spray* — during late April or early May, as soon as the new growth is well started; especially to control leaf miners.

(3) *Early summer spray* — during late May or early June; especially to control scales.

(4) *Mid-summer sprays* — during July and August, if there is evidence of spider mite infestation.

Reminders —

(1) Leaf Miners can be controlled only at the time of their emergence from the leaves, which usually is during late April or early May . . . in the Richmond area.

(2) Wax scales can be controlled only at the time of emergence of the young, which usually occurs during late May or early June . . . in the Richmond area.

(3) All the sprays help to control spider mites.

Notes On Control of Boxwood Psyllids

T. K. WOLFE

— Psyllid infestation of boxwood causes the young leaves to curl or cup; and usually is worst during April and early May (in the Richmond, Va. area), when the new spring growth is at its height. Psyllids do not attack mature leaves.

— Psyllid attacks do not damage the plants, other than their appearance.

— Often the *Malathion* spray given during late April or early May to control Leaf Miners, also will control Psyllids. If, however, the adult Psyllids —

flying white gnats — appear before it is time to spray for leaf miners, an earlier *Malathion* spray is recommended.

— The various *Malathion* sprays suggested to control spider mite (red spider), leaf miner, and wax scale, also will aid in controlling Psyllids (aphids).

Mr. and Mrs. Wolfe have approximately 500 boxwood in their garden and lawn plantings, mostly classed as "American" and "English". Among the others are Korean, Handsworthii, Chinensis, Rotundifolia, Willow Leaf, Fastigiata, Compacta, "Curly Locks", "Green Pillow", "Vardar Valley"; and several variegated varieties such as Pendula, Elegantissima, Argenteo-Variegata and Aureo-Variegata.

IN DEFENSE OF TOPIARY

RICHARDSON WRIGHT

Some years back, while writing "The Story of Gardening", I was entranced by the ancient history of the topiary art. Almost as soon as man got into his hands the first tool wherewith to prune plants, he also got into his hands the notion of pruning them to amusing or decorative shapes. The story of topiary work runs parallel with the story of gardening until the Romantic Era of the late Eighteenth Century, when it was banished into the limbo of forgotten things.

A few poor souls, who never heard of the Romantic Era, kept on clipping their Yews and Boxwoods into peacocks and ducks and chairs and geometrical shapes, and so carried on the art in cottage gardens. Today (1938) we are on the threshold of a revival of topiary. The tide of garden taste is swinging around in its direction.

This tide is also indicating that our fetish for informality in garden design may be swamped by the rise of formality. Topiary work is the natural accomplishment of a formal pattern. It is the "escape" for those who feel the inhibition of straight lines. Also I see it bringing benefit to men in gardens. Men dearly love to clip and shape. Give them secateurs and a Box bush, and before you know it, they've produced a peacock.

*From The Gardener's Day Book,
J. B. Lippincott Company, 1938.*

BOXWOOD IN THE FORMAL GARDEN

DR. E. BADE

A plant inseparably connected with the old American homestead is the boxwood, *Buxus sempervirens*. Usually it is nothing more than a moderately high bush and only too often it is a dwarfed scrubby tree which, if kept small, is admirably adapted as a border plant. In warmer climates it is a larger bush or small tree, but in the Caucasian Mountains and Asia Minor it attains its greatest size.

In the ancient European gardens this tiny evergreen shrub was neglected for generations. No one paid any attention to it, and so it was able to develop in all its luxuriance until today it has become a bushy tree. Now it is in fashion again, and it is one of the most modern of formal plants, especially if geometrically pruned.

For this purpose boxwood is most admirably adapted. It is especially suited to the formation of hedges and other ornamental designs. At the same time it readily withstands the pruning knife to a remarkable degree, thus making an excellent and plastic material for the gardener. It is a dense, though light, hedge bush, but it is entirely unsuited for the shaded spot. The growth of box is very slow indeed, and centuries must pass it by before it can attain a height of from 20' to 25'.

No more unassuming tree can be selected for the smaller gardens of the city than the boxwood. It remains unaffected by both smoke and dust; and, where the most hardy of conifers cease to exist, this plant still keeps its foliage fresh and green if the soil contains a little moisture. Through the agency of the pruning knife it can be kept in symmetrical and uniform shape to harmonize with architectural surroundings. And it is always effective either as a flat or tall column, as a pyramid or as a spherical tree. Even in its natural condition, an older tree is very ornamental if placed in stately grandeur upon the lawn.

The low form, var. *suffruticosa*, is used as a border plant for both walks and beds. Here it is not only very pretty and distinctive, but a more practical border cannot be imagined. It is beautiful, lasting and clean. For such borders, layers or cuttings are taken from older plants by division. These cuttings should still have a few roots clinging to them. If the old bush has produced much wood, it is to be covered with soil so that only the tips protrude. This should be done at least three months before the cuttings are to be used. At the end of this period nearly all of the twigs will have formed roots and they are best taken off in September or October. Then the cuttings will have time to become accustomed to their new surroundings before the frost sets it. The

cuttings should be placed comparatively deep in the soil so that the resulting plant will be bushy. During the first year the new plants are not to be pruned. Rootless cuttings must be quickly planted in a moist, shaded place.

Older boxwood should only be transplanted with their root balls. The smaller species used as borders are to be freely provided with moisture during the summer months, especially if the soil is dry and parched.

Reprinted from *HOUSE & GARDEN*; Copyright (c) 1922; 1950 by The Conde Nast Publications Inc.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

1. Date of Filing: September 24, 1970.
2. Title of Publication: The Boxwood Bulletin.
3. Frequency of Issue: Quarterly.
4. Location of Known Office of Publication (Street, city, county, state, zip code): Blandy Experimental Farm, Boyce, Virginia 22620.
5. Location of the Headquarters or General Business Office of the Publishers (Not printers): Blandy Experimental Farm, Boyce, Virginia.
6. Names and Address of Publisher, Editor, and Managing Editor: Publisher, The American Boxwood Society, Boyce, Virginia; Editor: Mrs. Edgar M. Whiting, Winchester, Virginia.
7. Owner: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and address of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.) Name, The American Boxwood Society, Boyce, Virginia (Non-Profit Organization).
8. Known Bondholders, Mortgages, and Other Security Holders Owning or Holding 1 Percent or more of Total Amount of Bonds, Mortgages, or Other Securities (If there are none, so state): None.

THE AMERICAN BOXWOOD SOCIETY

INFORMATION

DUES AND SUBSCRIPTIONS

Regular membership dues of The American Boxwood Society are now \$5.00. This includes a subscription to *The Boxwood Bulletin*, to the publication of which the Society allots about 2/3 of the money received from dues.

Non-member subscriptions are for groups and institutions such as botanic gardens, libraries, etc. These are \$5.00 a year, and run by the calendar year.

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

Price per single copy \$1.25 plus 5¢ postage to members: \$1.50 plus 5¢ postage to non-members. Orders of five or more copies are sent postpaid. At the present time any or all *Bulletins* are available, back to Vol. 1, No. 1 (Vol. 1 consists of three issues only, there was no Vol. 1, No. 4.)

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

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

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

FOR YOUR ADDRESS BOOK

If your letter is concerned with
Membership, new or renewal
Payment of dues
Change of address
Gift Membership
Ordering back issues of the Bulletin
Ordering Dr. Wagenknecht's List
General information about the Society

write to

Mrs. Andrew C. Kirby, Secretary-Treasurer,
The American Boxwood Society
Box 85, Boyce, Va. 22620

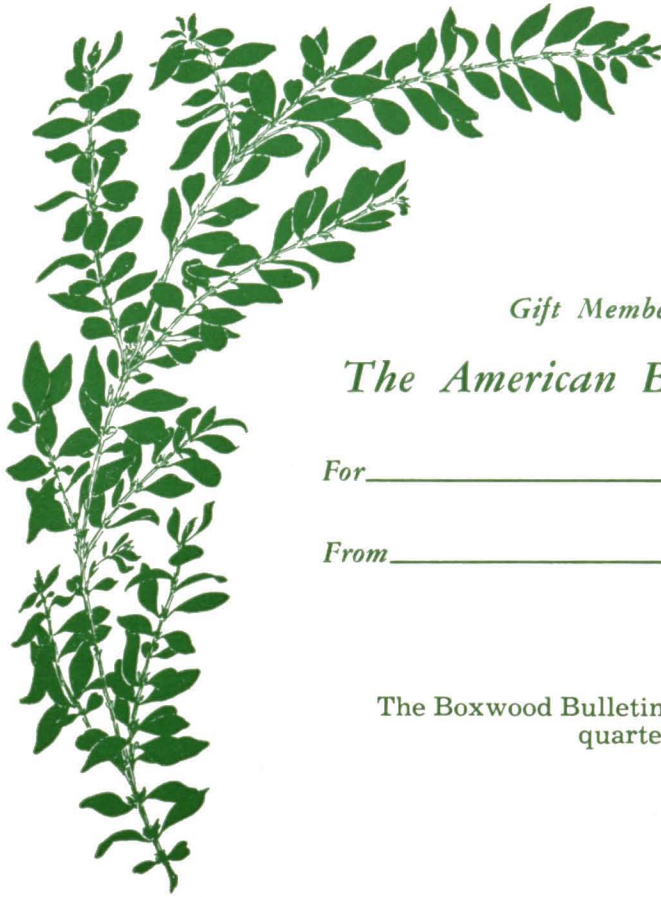
If you have something of real importance — a question of policy, a new project for the Society, a matter which needs top-level consideration, write to

Rear Adm. Neill Phillips, USN Ret'd., President,
Heronwood,
Upperville, Virginia 22176

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

Mrs. Edgar M. Whiting, Editor,
The Boxwood Bulletin,
415 West Clifford St.,
Winchester, Va. 22601

This applies to criticisms and corrections, too — "We regret errors; we welcome corrections."



Gift Membership in

The American Boxwood Society

For _____

From _____

The Boxwood Bulletin will be sent to you
quarterly.

A CHRISTMAS SUGGESTION

**GIFT MEMBERSHIP IN
THE AMERICAN BOXWOOD SOCIETY**

Above you see a reproduction of our gift card just as it would go to one of your friends announcing your gift membership to them for one year. The Society year runs from May 1 to April 30, or from one annual meeting date to the time of the next annual meeting.

Regular membership dues are \$5.00 a year.

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