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The Boxwood Bulletin

A QUARTERLY DEVOTED TO MAN'S OLDEST GARDEN ORNAMENTAL

"English" and "American" Boxwood

Boyce, Va. Vol. 1, No. 3

Edited Under The Direction Of

THE AMERICAN BOXWOOD SOCIETY

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FRONT COVER

The cover picture is from another photograph by Dr. R. O. Flagg of the Blandy Experimental Farm. The two specimens pictured are from different types of *Buxus sempervirens,* both of which are commonly grown and well known — although of somewhat doubtful nomenclature. The specimen to the left is from a plant commonly termed "English Box," while the right-hand clipping is from an "American Box." There are 82 leaves on the English Box" clipping, which weighed 1458 milligrams; the ten terminal leaves averaged 14.8 mm. in length, and .86 mm. in width. In contrast there are 46 leaves on the "American" speciman, which weighed 1538 mgs.; the ten terminal leaves of this averaged 23.9 mm. in length, and .93 mm. in width.

Leaves of "American Box" are longer, apparently thicker, and are more pointed, while being spaced somewhat further apart on heavier stems — than are those of "English Box" which are shorter, slightly thinner, rounded, and more closely spaced. The result is that the "English Box" forms a more compact plant than does the "American Box." It is well known that the plants of the latter grow at a more rapid rate than do those of the former.

Reproduction is at natural size (X I). This permits a direct size comparison with specimens of several species pictured on the Bulletin cover for January 1962 — or with plants of our readers.

Annual Meeting May 1st.

Members of the American Boxwood Society will hold their annual meeting, May 1st, at the Orland E. White Research Arboretum of the Blandy Experimental Farm, near Boyce, eleven miles from Winchester, Virginia. Tentative plans call for registration from 10 to 10:30 that morning, followed by tours, committee meetings, the annual business meeting, luncheon, and addresses by outstanding authorities upon various phases of the subject that bring us together.

After registration members who were not able to be present last year will have an opportunity to tour the arboretum, examine specimens, look into the laboratories, and see the radiation plant, while those returning to the lovely and unusual headquarters of our society may inspect recent acquisitions, renew acquaintances with other gardeners and biologists, certainly question the experts, and perhaps ponder together what environmental changes their great grandchildren may discover in boxwood that they have transplanted to new pleasure grounds on some celestial body a year's space trip, or more, distant.

Meanwhile, after securing all the helpful information we may be pleased to garner about boxwood still on this earth, and in addition to all that, we may be happy to eat of that fried chicken which truly is "out of this world" — even old-timers in the neighborhood inquired the name of the confectioner who served that box luncheon and will do so again — there are rumors of pleasant surprises.

One such, that we enjoyed last May, was the unexpected number of members who came from near and far. We had estimated there would be at least twenty present, secretly but a little fearfully counted to ourselves on thirty to save us from a flop, but certainly dared not even hope for as many as forty. Yet we ended up with around a hundred.

The fact is we were so surprised we lost exact count after eighty some arrived. The loyal, enthusiastic, and over-whelmed dues-collector got sidetracked into conducting a tour. The names of some charter members were not recorded on our guardroom book. And long after the party, the remorseful treasurer still was searching in the bushes and through the quarters for a garden club member who he was convinced had strayed off and probably become lost. He is a meticulous business man, so months after, when finally he complained openly about "missing names," we realized we had credited him with a kindly thoughtfulness for others that he really did not have.

Regarding the coming meeting, we can make no predictions. But we can and will express the hope that every member who was at the arboretum last year will return and bring another member who could not come then — and bring also no fewer than two new candidates for membership. (J.C.N.)

Our Authors

The Boxwood Bulletin has been fortunate in having men of authority in the plant field prepare articles, or give permission for the reprinting of articles, of interest to our readers.

In the present issue is an article written for The Bulletin by Dr. Norman Taylor, Editor of Taylor's Encyclopedia of Gardening, which raises points on a question of much interest to all boxwood growers. This issue reprints a paper by Dr. Richard Howard, Director of the Arnold Arboretum and Arnold Professor of Botany at Harvard University, giving important information on the naming and registering of cultivated plants, including boxwood of course. Also reprinted, herein, is the important descriptive study of boxwood varietal forms carried out at Blandy Experimental Farm, as a graduate research problem, by Dr. Thomas H. Alphin who is now head of the Bureau of Medical Services with The Equitable Life Assurance Society of New York City. This last article presents a method of studying and describing boxwood varieties which needs expansion to include many other undescribed seedlings and cultivars of *Buxus*. The original plates for this article were not available, and we regret-accordingly-that in reproducing its figures some definition has been lost.

The January 1962 issue carried important papers by Mr. Alden Eaton, Landscape Architect of the Williamsburg Restoration; by Dr. Freeman Weiss, Director of the American Type Culture Collection, and retired Plant Pathologist the U. S. D. A.; and by Dr. J. D. Wilson, Plant Pathologist of the Maryland Agricultural Experiment Station, Department of Botany, University of Maryland.

The October 1961 issue was made memorable by the complete treatment on boxwood presented by Professor A. G. Smith, Jr., of the Virginia Polytechnic Institute staff until his recent retirement.

Members of the American Boxwood Society are grateful to all of these writers, and to others, for the articles they have prepared and made available. In addition, all members are appreciative of the contributions of boxwood experiences and questions, and answers, which have been made by fellow members.

May the outstanding articles prepared by authorities on boxwood, and other plants, continue!

Equally, The Bulletin - to be most interesting and successful from the standpoint of all readers - needs contributions from many members: of their boxwood experiences; of descriptions of their own plantings; of descriptions (and photographs) of well-known boxwood plantings of this country (or of other places in the world) with which they may be - or may have an opportunity to become - familiar; of their difficulties, or successes, with boxwood; etc.

FOR MAY 1, 1962 ANNUAL MEETING PROGRAM SEE PAGE 48

What is "Buxus Suffruticosa"?

NORMAN TAYLOR

Throughout tidewater Virginia, Maryland and Delaware there are thousands of splendid box plants eight to ten feet high or more, all popularly called *Buxus suffruticosa,* which is merely a loose contraction of the more correct *Buxus sempervirens suffruticosa.*

At Elmwood we have eighty feet of this luxuriant plant, about eight feet high and as broad. The leaves are roundish at the tip, never pointed, and the tip is faintly or distinctly notched (emarginate). The leaf margin is slightly rolled (revolute) and the leaf blade is completely hairless, except for a few hairs on the midrib on the lower surface. Several similar specimens, kindly sent to me by Mr. A. G. Smith of Blacksburg, Va. were labelled by him as *Buxus sempervirens suffruticosa,* and this is the all but universal name for what is generally called Old English Boxwood.

Let us first dispose of "Old English Boxwood". The genus *Buxus* was almost certainly never native in England, even the plants at Box Hill having been brought there by the Romans in the second or third century. But the plant has been for so many centuries cultivated in England that the term Old English Boxwood seemed perfectly natural to colonal Americans, and so it has been ever since. The plant is slow-growing, never attaining an annual twig increase of much over 1½ inches. The so-called "American box" whatever that is, has narrower, more pointed leaves and may grow 3-6 inches in a year, or sometimes even more.

Many amateurs and a few professionals have stated that the Old English Boxwood at Elmwood and throughout tidewater Virginia, Maryland and Delaware was *Buxus sempervirens suffruticosa,* a statement that provoked a whiff of skepticism in me — hence the title of this note.

In such a dilemma the correct procedure is to go to original sources and these suggest that the skepticism may be justified. Linnaeus in his *Species Plantarum,* in 1753, mentions only a single species of *Buxus* and that is *B. sempervirens.* However, under that species he lists two varieties, well enough known to him to warrant designating by varietal names. They are:

B. sempervirens arborescens, the tree box, which does not concern us for the moment

and

B. sempervirens suffruticosa, which is the plant here considered

Linnaeus cites variety *suffruticosa* as identical with the *Buxus humilis* of Bauhin, a pre-Linnaean author to be mentioned below, and adds Bauhin's descriptive phrase *Buxus foliis rotundifolius.* Thus our nomenclatorial bible appears to restrict *suffruticosa* to a low plant (hence *humilis*) with roundish leaves (hence *rotundifolius*).

Wishing to verify Linnaeus' citation of Caspar Bauhin, I found that this Swiss savant published in 1571 a book entitled *Pinacis Theatri Botanici,* and at page 471 is found the *Buxus foliis rotundoribus,* which is the *Buxus humilis* (christened as *suffruticosa*) by Linnaeus.

To still further clinch the matter Linnaeus, in his treatment of the variety *suffruticosa* cites another author who wrote twelve years after Caspar Bauhin. This is Rembert Dodoens, a Dutch botanist, who published his *Stirpium Historiae Pemptades* at Antwerp in 1583. Here, in chapter 22, pages 769 - 770 he illustrates and describes the dwarf box and cites the *Buxus humilis* of Bauhin.

All of this merely confirms the treatment of *Buxus sempervirens suffruticosa* by Linnaeus, and leaves us with a dwarf plant with roundish leaves, which is a *variety* of the species *B. sempervirens.* The father of botany well knew the meaning of *suffruticosa; i.e.* a little shrub. But only eight years after the publication of Linnaeus' *Species Plantarum,* a distinguished Englishman, named Philip Miller thought that the dwarf box was not a mere variety of *B. sempervirens,* but entitled to a specific name of its own. In *Millers Garden Dictionary,* the eighth edition of which was published in London in 1761 he writes of *Buxus* thus.

> "*Buxus suffruticosa,* humilis foliis suborbiculatus. Dwarf box with round leaves". And he then cites the *Buxus humilis* of Dodoens, as typifying his species.

But more important to our inquiry than his attempt to make a *species* out of *suffruticosa* are the comments he makes about what he called the dwarf or Dutch box:

"There are three certainly distinct species. The two sorts of Tree Box have been frequently raised from seeds, and constantly produced plants of the same kind from those the seeds were taken from; and the Dwarf box will never rise to any considerable height with any culture, nor have I ever seen this sort flower, where the plants have been encouraged to grow many years in the greatest luxuriancy." This further emphasizes the *dwarf* stature of *suffruticosa,* although later authors did not follow Miller in adopting his *specific* name of *Buxus suffruticosa.*

Miller, however, even more than Bauhin, Dodoens or Linnaeus. pins down the epithet *suffruticosa* to a dwarf plant by adding:

"The Dwarf kind of Box is used for bordering flower beds or borders; for which purpose it far exceeds any other plant, it being subject to no injuries from cold or heat . . . . . He then goes into the culture of the plant, which does not interest us in this quest of what is *Buxus suffruticosa?*

A search of competent treatments since Miller's *Garden Dictionary* reveals little that is new. W. Dallimore, for many years the curator of the arboretum at Kew, wrote in 1908 "Edging box. This is a well-known dwarf variety, being used in every garden of any size . . . . for edging purposes." This he called *B. sempervirens suffruticosa.*

Much later the new *Garden Dictionary* of the Royal Horticultural Society, issued in 1958, states that the variety *suffruticosa* is dwarf, and so does the late Alfred Rehder in his *Manual of Cultivated Trees and Shrubs,* who calls it the edging box and adds "Known for centuries and much used for edgings of flower beds".

All of which points to the inescapable fact that our tall, "Old English Box" cannot be *Buxus sempervirens suffruticosa*. What its true designation should be awaits a taxonomic study of the genus. It is obvious that *Buxus sempervirens* is a catch-all name for many forms or varieties now included within it. Perhaps only a cytological and genetic revision of the genus will disclose the correct name for Old English Box. Such a study is far outside the scope of this note, but well worth the attention of the American Boxwood Society, as there is no modern treatment of the genus.

ELMWOOD
Princess Anne,
Maryland

A Descriptive Study of Varietal Forms in Buxus

THOMAS H. ALPHIN

CYTOGENETIC STUDIES on the boxwoods undertaken at The Blandy Experimental Farm in 1936 necessitated the establishment of a system of describing and keying the various forms studied. As is the case in many groups of cultivated plants, there is no standard system of identifying definite strains of boxwood, nor is there any adequate standard nomenclature (Dallimore, 1908; Pax 1890). In the case of *Buxus* it is necessary to distinguish the various varieties, since very often strains which are apparently quite similar differ considerably in qualities of the greatest horticultural importance, such as rate of growth and winter-hardiness (White, 1939).

MATERIALS AND METHODS.—Linnaeus recognized only one species of *Buxus, B. sempervirens,* with two varieties: *arborescens,* a tree-like type; and *suffruticosa,* given as synonymous with *B. humilis* Dod. *B. humilis Dod.* is without question identical with the dwarfed plant commonly known as "Dwarf or Edging Box" (Linnaeus, 1753). The chief monographers of *Buxus,* Baillon (1859) and Van Tieghem (1897), took cognizance of the Linnaean classification and added one more Western European species, *B. balearica Lamarck.* These men have been followed in the *Index Kewensis.* Since most of the boxwood now in cultivation in the Occident is European in origin, it probably is either *B. sempervirens* or *B. balearica.* The Blandy Experimental Farm has specimens of the latter species from The Royal Botanic Gardens at Kew and at Edinburgh, and from the Vilmorin collections of Verrieres-le-Buisson, all of which are apparently identical and are quite distinct from all the other *Buxus* forms seen by the author.

Through the facilities afforded by the Library of the United States Department of Agriculture it has been possible to make an extensive study of the literature on the Buxaceae, referring to the original sources for generic, specific and varietal descriptions, as well as studying the principal monographs (Baillon, 1859; Hutchinson, 1912; Mueller, 1869; Record and Garratt, 1925; Rehder, 1927; Rehder and Wilson, 1914; and Van Tieghem, 1897). Specimens in the National Herbarium at Washington, D. C., and a special herbarium collection of *Buxus* species and varieties from Maison Vilmorin were examined. A large collection of living material comprising some types obtained from the Royal Botanic Gardens at Kew and Edinburgh was also studied. This work and, what is more important, the study of specimen plants both at The Blandy Experimental Farm and elsewhere indicated that varietal differentiation in varieties of *Buxus* depends upon a dif-

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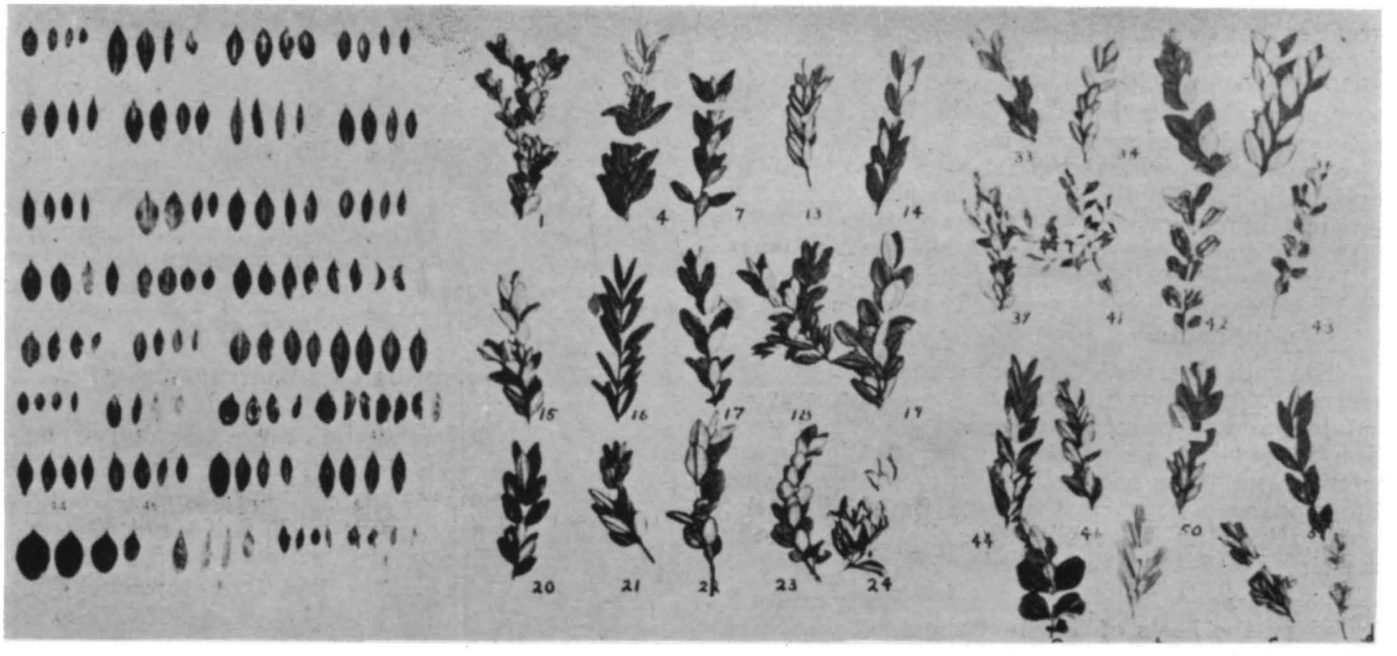

Fig. 1. Variation in leaves and leaf arrangement in types studied. Numbers are B.E.F. numbers; for *a*, read B.E.F. no. 52, for *b*, read B.E.F. no. 53, for *c*, read B.E.F. no. 54, and for *d*, read B.E.F. no. 55.

ference in general appearance, which in turn is a composite formed of combinations of differences in habit of growth, size and color, and is traceable to variations in branching, number of main stems, arrangement of leaves on branches, size, shape and color of leaves, rate of growth, and, at certain seasons, the distribution of inflorescences.

The box collection at The Blandy Experimental Farm includes some seventy forms or strains of which fifty are varieties of *Buxus sempervirens* L. Thirty-one strong, healthy plants, each representing a distinct form, were selected for study. With the exception of three Asiatic species easily distinguished by floral characteristics (Rehder and Wilson, 1914) which have been included for comparison, all of the plants selected were strains of *Buxus sempervirens*. For the most part these plants were obtained from an unlabeled collection and had not been assigned varietal names. In view of the taxonomic confusion in this group Blandy Experimental Farm (B.E.F.) numbers were assigned without using names. The three Asiatic species are B.E.F. nos. 41, 42, and 53, and are thus named in the descriptions.

The ordinary taxonomic characters of each plant were noted on an identification card especially adapted to the box family. As a further aid to the comparative study of leaf and of leaf arrangement, representative specimens of leaves and twigs were collected and mounted together (fig. 1). The method for sampling leaves was as follows: several representative leaves were selected from each plant; four typical leaves of each selection were arranged in approximately descending order of size and mounted on white paper; the resulting mount was compared with the plant and the most representative leaf of the four was measured for length, maximum width, width at one-fourth distance from petiole, width at one-half distance from petiole, and width at three-fourths distance from petiole. These data were recorded on the individual plant's identification card.

Since in boxwood horticultural types depend to a great extent on shape of plant and of leaf and since these are actually the visual expression of the ratio of height to diameter in the case of the plant and length to width in the case of the leaf, then these ratios should be of some use in distinguishing types. The ratios were calculated for each plant and expressed as: H/D, the ratio of height of plant to greatest diameter (height in terms of diameter when diameter equals one); and L/W, the ratio of length of leaf to greatest width of leaf (length in terms of width when width equals one). These data were entered on the cards.

The rate of growth for the current and previous season was measured, an average for one year calculated, and this amount recorded. Although variation in environment and type of growing season would alter these rates, the relative values among the types would remain the same. Some of the data not pertinent to this study were discarded. The remaining data were summarized as table 1.

The three Asiatic species were easily differentiated on the basis of floral characters from *Buxus sempervirens,* the forms of which were divisible into four distinct groups by their habit as expressed in H/D ratios. This division is shown as table 2.

TABLE 2. *Grouping based upon H/D ratios.*

H/D ratio	General habit	B.E.F. no.
Up to 0.75	Prostrate or semi-prostrate.	23,52.
0.75 to 1.4	Spreading to erect.	1,4,7,14,16, 18,20,22, 24,33,36, 39,43,44, 46,50,51, 53,54.
1.4 to 2.0	Arborescent to arboreous, dwarfs.	13,21,34.55.
2.0 to 4.0	Columnar or semi-columnar.	17,19,35.

Variation in growth rate among the plants in the second and largest division of table 2 is sufficient to subdivide this section readily into three subgroups as in table 3.

TABLE 3. *Grouping based upon growth rate.*

Growth rate	Description	B.E.F. no.
Up to 3.5 cm.	Slow.	1,14,39.
4.0 to 9.0 cm.	Medium.	16,24,33,43,46,54.
9.0 cm. or more.	Fast.	4,7,20,22,36,44,50,51.

L/W ratios were somewhat difficult to separate into groups, and varied from leaf to leaf on the same plant within limits too broad to justify their use in separating plants into large groups (fig. 1). This character was found to be very useful in certain of the subdivisions, however. The application of this and other minor characters completed the preparation of the following key for the forms studied.

KEY TO FORMS STUDIED.—This key is intended to cover only the 31 forms described in this paper.

A. Rudiment of the ovary in the male flowers equal or nearly equal in length to the sepals; color, a bright, shiny, yellow-green with no traces of dark pigmentation, never variegated;
  B. Leaves roundish to narrowly lanceolate, apex obtuse to retuse, usually abruptly narrowed at base;
    C. Leaves(L/W 2.3, oblong-ovate to oblanceolate. *B.E.F. no.* 41.
  CC. Leaves wide, L/W 1.7, obovate to ovate. *B.E.F. no.* 42.
  BB. Leaves oblanceolate to ovate-oblong, distinctly emarginate, gradually narrowed at base. *BE.F. no.* 53

AA. Rudiment of the ovary in the male flowers barely half as long as the sepals; color not a bright yellow-green, dark pigmentation sometimes present in leaves; sometimes variegated;
  B. H/D greater than 1.4, sometimes arborescent to arboreous;
    C. H/D greater than 2.2, columnar or semi-columnar;
      D. H/D greater than 2.3, semi-columnar;
        E. Leaves wide (L/W 1.85), recurved, dark green, coarse. *B.E.F. no.* 19.
        EE. Leaves narrow (L/W 2.45), not recurved, medium green, not coarse. *B.E.F. no.* 17
      DD. H/D greater than 4.0, columnar. *B.E.F. no.* 35.
  CC. H/D 2.0 or less, not columnar;
    D. Distinctly treelike, devoid of branches and leaves at base. *B.E.F. no.* 21.

TABLE 1. *Data on each of the* 31 *forms of Buxus.*

		Plant characters				Leaf characters					
B.E.F. no.	Habit	Height dm.	Diameter dm.	Ratio H/D	Growth rate cm. per yr.	Outline	Apex	Color	Length cm.	Width cm.	Ratio L/W
1	Compact	10.0	10.0	1.0	3.5	Oblong-obovate	Obtuse-retuse	Medium green	2.0	1.0	2.0
4	Erect	18.0	15.0	1.2	10.0-15.0	Elliptic-lanceolate	Obtuse-retuse	Dark green	3.2	1.3	2.5
7	Spreading	14.0	18.0	0.78	8.0-12.0	Oblong-elliptic	Obtuse-retuse	Dark green	2.6	1.5	0.78
13	Arborescent	19.5	16.0	1.6	3.5- 7.0	Oblong-elliptic	Acuminate	Medium green	2.2	1.0	2.2
14	Open	14.0	17.0	0.82	2.5	Elliptic	Retuse	Light-medium green	2.55	1.1	2.3
15	Erect	11.0	10.0	1.1	3.0- 8.0	Oblong-elliptic	Obtuse-retuse	Medium green	2.7	1.2	2.25
16	Diffuse	10.5	12.0	0.88	4.0- 6.5	Linear-elliptic	Acute-obtuse	Medium green	2.9	1.0	2.9
17	Semicolumnar	13.0	5.5	2.35	3.0- 6.0	Oblong-elliptic	Acuminate	Medium-dark green	2.6	1.05	2.45
18	Spreading	6.5	6.5	1.0	3.5- 7.5	Oblong-elliptic	Acute-retuse	Dark green	2.5	0.85	2.9
19	Semicolumnar	11.5	5.0	2.3	3.5- 5.5	Ovate-elliptic	Acuminate-obtuse	Dark green	2.8	1.5	1.85
20	Spreading	15.0	15.0	1.0	4.0-12.0	Oblong-elliptic	Retuse-mucronate	Dark green	2.7	1.1	2.45
21	Dwarf tree	10.0	7.0	1.4	3.5- 6.0	Oblong-elliptic	Retuse-obtuse	Medium-dark green	2.1	0.8	2.6
22	Spreading	15.0	14.0	1.05	8.5-11.0	Elliptic	Retuse-obtuse	Dark green	2.6	1.4	1.85
23	Prostrate	7.0	12.0	0.58	3.0	Oblong-ovate	Obtuse-retuse	Light green	2.2	1.1	2.0
24	Erect	12.0	10.0	1.2	5.0- 8.0	Elliptic	Mucronate-obtuse	Yellow variegated	2.6	1.0	2.6
33	Pyramidal	10.0	11.0	0.92	5.0	Elliptic	Mucronate-retuse	Medium green	2.5	1.2	1.05
34	Arborescent	8.0	5.5	1.45	3.5- 4.0	Oblong	Oblong-retuse	Light-medium green	2.2	0.9	2.45
35	Columnar	10.5	2.25	4.4	5.5	Ovate-elliptic	Obtuse	Medium green	2.3	1.4	1.65
36	Spreading	9.0	10.0	0.9	8.0-10.0	Oblong-elliptic	Obtuse	Dark green	3.2	1.2	2.65
39	Spreading	7.5	9.0	0.815	3.0	Elliptic	Acute-obtuse	Light green	1.5	0.8	1.9
41	Dwarf	3.0	3.0	1.0	6.0	Elliptic-spatulate	Obtuse-retuse	Light green	2.3	1.0	2.3
42	Erect	8.0	5.0	1.6	9.0	Elliptic-ovate	Mucronate-obtuse	Light green	2.2	1.3	1.7
43	Low	4.4	5.0	0.8	7.0- 9.0	Irregular-elliptic	Obtuse-retuse	Orange variegated	2.2	1.3	1.7
44	Low	15.0	19.0	0.78	8.0-10.0	Elliptic-lanceolate	Acute-retuse	Dark green	2.7	1.0	2.7
46	Erect	11.5	9.0	1.3	6.0- 7.0	Elliptic	Acute-mucronate	Medium green	2.5	1.1	2.25
50	Erect	10.5	9.5	1.1	8.0-10.0	Oblong-elliptic	Mucronate-retuse	Medium green	2.9	1.3	2.8
51	Low	5.0	6.0	0.84	9.0-12.0	Oblong-elliptic	Acute-mucronate	Medium green	2.8	1.0	2.8
52	Prostrate	3.5	5.0	0.7	2.0- 4.0	Ovate-bullate	Retuse	Dark green	3.2	2.0	1.6
53	Dwarf	3.5	4.0	0.88	5.0- 6.0	Spatulate	Retuse-emarginate	Light green	2.9	1.1	2.6
54	Erect	7.5	7.0	1.05	5.0- 7.5	Elliptic	Acute-obtuse	Dark green	1.7	0.7	2.4
55	Dwarf	2.0	1.0	2.0	3.0- 4.0	Irregular-elliptic	Obtuse	Yellow variegated	1.6	1.0	1.6

DD. Arborescent, branches and leaves at base;
E. Leaves glossy. *B.E.F. no.* 13.
EE. Leaves dull, not glossy. *B.E.F. no.* 34.
DDD. Dwarf shrub, leaves variegated. *B.E.F. no.* 55.
BB. H/D 0.75 to 1.4, spreading to erect shrubs;
C. Growth slow, 2.25 to 3.5 cm. per year;
D. Habit open, leaves elliptic;
E. Leaves very small, 1.5 cm. long by 0.8 wide; semidiffuse habit. *B.E.F. no.* 39.
EE. Leaves medium-sized, 2.5 cm. long by 1.1 cm. wide; very loose habit. *B.E.F. no.* 14.
DD. Habit very compact, leaves oblong to obovate. *B.E.F. no.* 1.
CC. Growth medium, 4.0 to 9.0 cm. per year;
D. Leaves variegated;
E. Variegations marginal. *B.E.F. no.* 43.
EE. Variegations striated. *B.E.F. no.* 24.
DD. Leaves not variegated;
E. Habit various, growth rate irregular;
F. Habit very loose, leaves elongate, linear elliptic, L/W 2.9. *B.E.F. no.* 16.
FF. Habit slightly diffuse to compact;
G. Leaves very small (1.7 cm. long by 0.7 cm. wide), dark green, not glaucous when young. *B.E.F. no.* 54.
GG. Leaves medium sized (2.5 cm. long by 1.1 wide), medium green, glaucous when young. *B.E.F. no.* 46.
EE. Habit pyramidal with very regular, even, growth rate, 5.0 cm. per year. *B.E.F. no.* 33.
CCC. Growth rapid to very rapid, 9 cm. or more per year;
D. Leaves long, 3.0 cm. or more;
E. Habit erect, H/D 1.4. *B.E.F. no.* 4.
EE. Habit spreading, H/D 0.9. *B.E.F. no.* 36.
DD. Leaves short to medium-long, not over 2.9 cm.;
E. Leaves recurved;
F. Leaves medium-wide (L/W 2.45), branches short. *B.E.F. no.* 20.
FF. Leaves very wide (L/W 1.85) branches long. *B.E.F. no.* 22
EE. Leaves not recurved;
F. Leaves narrow (L/W greater than 2.4);
G. Leaves dark green. *B.E.F. no.* 44.
GG. Leaves light to medium green. *B.E.F. no.* 51.
FF. Leaves wide (L/W less than 2.4);
G. Leaves dark green. *B.E.F. no.* 7.
GG. Leaves light to medium green. *B.E.F. no.* 50.
BBB. H/D less than 0.75, semi-prostrate shrubs;
C. Leaves large, 3.0 cm. or more long, bullate. *B.E.F. no.* 52.
CC. Leaves small, 2.4 cm. or less, not bullate. *B.E.F. no.* 23.

DESCRIPTION OF FORMS.—Each plant in the group studied was photographed (plates I and II) together with a scale marked in decimeters and bearing the proper B.E.F. number. For greater detail a Wratten K-2 Yellow Filter was used, and for uniformity in perspective all photographs were made with the camera placed at a height equal to one-half the height of the plant. Short descriptions of each form follow:

B.E.F. no. 1.—Form distinguished by very slow growth, *ca.* 3.5 cm. per year; absence of flowers; and compact habit. Forms a dense shrub having several upright main stems ending in many small branches so numerous as to prevent, by shading, the growth of leaves towads the center of the plant. Leaves rather appressed; always decussate; not forming frond-like branches; small (2 cm. long by 1 cm. wide); oblong to obovate with well-rounded apex; and of a medium light-green color, especially in spring and early summer. The tufted terminal growth is responsible for the hummocky appearance of the plants. This is the form commonly known as "Slow-growing English Box." H/D 1.0; L/W 2.0.

B.E.F. no. 4.—Form distinguished by rapid growth (10 to 15 cm. per year); large (3.2 cm. long by 1.3 cm. wide), dark, lanceolate to long-elliptic leaves; fir-like habit due to semi-upright branches, slightly pendulous towards the tips and frond-like appearance of the branches caused by the recurved, decussate leaves arranging themselves in a single plane. Forms a few scattered flowers, only occasionally setting seed. Although not of compact habit, the very dark foliage, almost bluish in winter, gives it a dense appearance. A fine plant for creating tall, dark masses. H/D 1.2; L/W 2.5.

B.E.F. no. 7.—Form distinguished by rapid growth (8 to 12 cm. per year); dark foliage; and spreading habit. Arises from several main stems bearing upright branches which become nearly horizontal as they grow older making a wide (H/D 0.78), shrubby plant. Leaves semi-appressed; mostly decussate, becoming occasionally (especially towards the center of the plant) somewhat frond-like in their arrangement; medium-sized (2.6 cm. long by 1.5 cm. wide); oblong-elliptic; apex obtuse or retuse; dark green. Inflorescences many to plentiful; sets seed readily. Common fast-growing box. H/D 0.78; L/W 1.75.

B.E.F. no. 13.—Form distinguished by arborescent habit (H/D 1.6); rather slow growth (3.5 to 7 cm. per year); upright, closely growing branches; and rather small (2.2 cm. long by 1.0 cm. wide), elliptic, medium green and quite glossy leaves, semi-appressed and always decussate. There is but one main stem, but rapidly growing branches at ground level promise to make it even more shrubby. Inflorescences few, scattered; sets seed readily. H/D 1.6; L/W 2.2.

B.E.F. no. 14.—Form distinguished by slow growth (2.5 cm. per year); and very loose habit. The several main stems bear semi-upright branches whose few twigs and leaves are scattered mostly towards the tips making a very diffuse shrub (H/D 0.82). Leaves medium-sized (2.55 cm. long by 1.1 cm. wide); elliptic; retuse; and semi-appressed to the branches until about the second year when they give them a rather frond-like appearance. Inflorescences few to many, scattered; sets seed readily. In spite of the slow growth, plants of this form will attain a considerable size (2.5 meters or more). As the size increases the habit becomes even more loose making a rather scraggly plant of limited use as an ornamental. H/D 0.82; L/W 2.3.

B.E.F. no. 15.—Form distinguished by rather loose, but upright, habit; medium-sized, medium

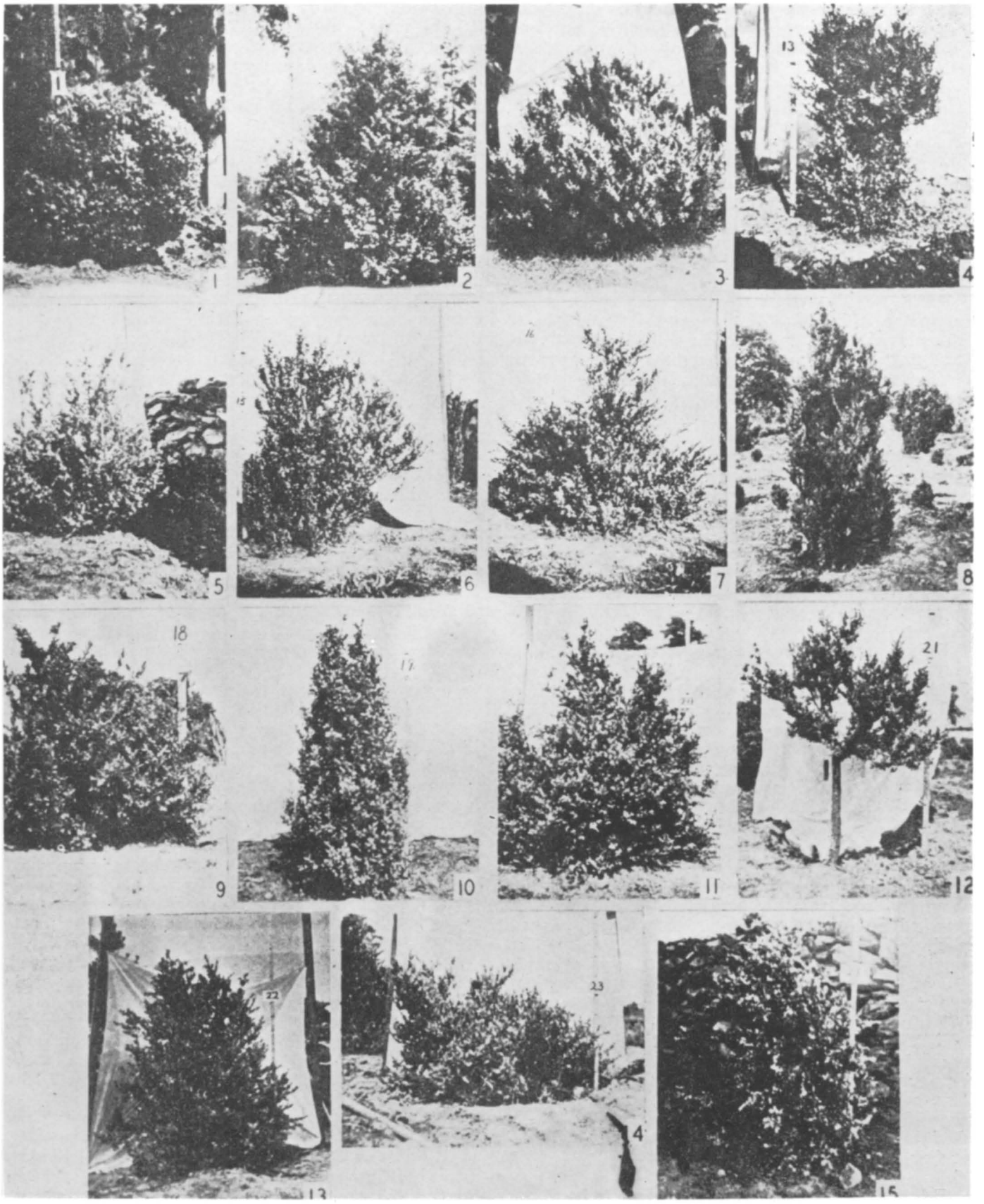

Plate I. Photographs of fifteen of the types studied. 1, *B.E.F. no.* 1; 2, *B.EF. no.* 4; 3, *B.E.F. no.* 7; 4, *B.E.F. no.* 13; 5, *B.E.F. no.* 14; 6, *B.E.F. no.* 15; 7, *B.E.F. no.* 16; 8, *B.E.F. no.* 17; 9, *B.E.F. no.* 18; 10, *B.E.F. no.* 19; 11, *B.E.F. no.* 20; 12, *B.E.F. no.* 21; 13, *B.E.F. no.* 22; 14, *B.E.F. no.* 23; 15, *B.E.F. no.* 24.

green, oblong-elliptic, obtuse to retuse, appressed, always decussate leaves; and medium growth rate (3 to 8 cm. per year). Main stems, six or more with long, erect to semi-erect branches which do not tend to the horizontal with age. Inflorescences many; sets seed readily. H/D 1.1; L/W 2.25.

B.E.F. no. 16.—Form distinguished by a diffuse, shrubby (H/D 0.88) habit; slow to medium growth (4 to 6.5 cm. per year); and spreading, foliose branches. The many elongate (2.9 cm. long to 1 cm. wide), linear-elliptic, acute to obtuse leaves are semi-appressed to horizontal in their arrangement, at first decussate but later producing a frond-like branchlet. Of general habit similar to B.E.F. no. 14, but differentiated by much narrower, longer leaves and less diffuse habit. Inflorescences many; sets seed readily. H/D 0.88; L/W 2.9.

B.E.F. no. 17.—Form distinguished by semi-columnar habit (H/D 2.35); elongate (2.6 cm. long to 1.15 cm. wide), flattened, oblong-elliptic, acuminate, medium green leaves; and upright, closely growing branches with leaves appressed or frond-like in their arrangement. Growth rate 3.5 cm. per year. Inflorescences many, scattered; sets seed readily. H/D 2.35; L/W 2.45.

B.E.F. no. 18.—Form distinguished by stool-like arrangement of main stems; medium growth rate (3.5 to 7.5 cm. per year); and dark, shiny, elongate (2.5 cm. long by 0.85 cm. wide), oblong-elliptic, acute to retuse leaves which become recurved with age. Branches in all directions from main stems, close together, with thickly set (internode 0.75 cm.), horizontal to reflexed leaves. Inflorescences plentiful, scattered; sets seed very readily. H/D 1.0; L/W 2.9.

B.E.F. no. 19.—Form distinguished by its semi-columnar habit (H/D 2.3); medium growth rate (3.5 to 5.5 cm. per year); with large (2.8 cm. long by 1.5 cm. wide), coarse, recurved, convex, dark, shiny leaves; and upright, rather coarse branches with leaves closely together (internode 0.6 cm.) and reflexed. Differentiated from B.E.F. no. 17 by the character of its leaves. Inflorescences many; sets seed readily. H/D 2.3; L/W 1.85.

B.E.F. no. 20.—Form distinguished by a rather diffuse, shrubby habit; several semi-erect main stems; and dark, glossy, convex, oblong-elliptic, retuse to mucronate, medium-large (2.7 cm. long to 1.1 cm. wide), broad, coarse leaves. The leaves are arranged, always decussate, horizontally to reflexed, on short, horizontal side branches with irregular growth rates (4 to 12 cm. per year). The plant might be described as a coarse, scrubby shrub. Inflorescences very plentiful, scattered; sets seed very readily. H/D 1.0; L/W 2.45.

B.E.F. no. 21.—Form distinguished by its dwarfed, arboreous habit; slow growth (3.5 to 6 cm. per year); small (2.1 cm. long by 0.8 cm. wide), dark, convex, oblong-elliptic, obtuse or retuse leaves; and short twisted branches. Leaves are appressed with internodes 0.6 to 0.7 cm. long. Inflorescences few, scattered; sets seed readily. H/D 1.4; L/W 2.6.

B.E.F. no. 22.—Form distinguished from B.E.F. no. 20, which it closely resembles, by a more diffuse habit; regular growth over the whole plant (8.5 to 11 cm. per year); and wider (L/W 1.85 as against 2.45), flatter, retuse or obtuse (never mucronate) leaves. The main stems are erect with rather long, coarse side branches Inflorescences plentiful, scattered; sets seed readily. H/D 1.07; L/W 1.85.

B.E.F. no. 23.—Form distinguished by a semi-prostrate, spreading habit; small (2.2 cm. long by 1.0 cm. wide), oblong to obovate, obtuse to retuse, well-rounded, closely growing (internodes 0.25 to 0.4 cm.), glaucous leaves; and very slow growth rate (3 cm. per year). Inflorescences absent to few; sets seed readily. H/D 0.58; L/W 2.2.

B.E.F. no. 24.—Form distinguished by striately variegated (yellow and dark green) leaves, often solid yellow at the tips of the branches and becoming darker with age; medium fast growth (5 to 8 cm. per year), sometimes much more rapid in certain parts of the plant (up to 13 cm.); and rather diffuse habit. The leaves are rather elongate (2.6 cm. long to 1.0 cm. wide), elliptic, obtuse to mucronate, recurved, appressed, becoming semi-frond-like in their arrangement when older. Inflorescences plentiful, scattered; sets seed readily and discharges them with more than usual force (1 to 1.5 meters from plant). H/D 1.2; L/W 2.6.

B.E.F. no. 33.—Form distinguished by pyramidal habit; upright branchlets with a very regular, even growth rate (5 cm. per year); leaves medium-sized (2.5 cm. long by 1.2 cm. wide), elliptic, retuse to mucronate, revolute, strongly appressed to the branchlets. Plant color light-medium green, often appearing much lighter due to the exposed undersurface of the appresed, younger leaves. The leaves become less appressed and more decussate when older. Inflorescences very few, scattered; sets seed regularly. H/D 0.92; L/W 2.0.

B.E.F. no. 34.—Form distinguished by arborescent habit; small (2.2 cm. long by 0.9 cm. wide), oblong-elliptic, obtuse to retuse, medium green leaves; generally dwarfed appearance; and slow growth (3.5 to 4 cm. per year). Branches upright with closely growing (internodes 0.5 cm.) leaves, appressed and for the most part decussate. Inflorescences plentiful, scattered; sets seed readily. H/D 1.45; L/W 2.45.

B.E.F. no. 35.—Form distinguished by extremely columnar habit (H/D 4.4); a short main stem with long, completely erect branches giving an appearance not unlike an inverted horse's tail; predominantly upward, slow growth (5.5 cm. per year); and medium green, ellipto-ovate, obtuse, medium-sized (2.3 cm. long by 1.4 cm. wide) leaves. Leaves strongly decussate and semi-appressed on the long straight branches. Inflorescences very few, scattered; sets seed regularly. H/D 4.4; L/W 1.65.

B.E.F. no. 36.—Form distinguished by scattered, irregular, fairly fast growth (8 to 10 cm. per year); short branches well covered with leaves throughout their length (internode 0.6 to 1.0 cm.); and dark, always decussate, curved, coarse, large (3.2 cm. long by 1.2 cm. wide), very elongate (L/W 2.65), shiny leaves. Easily differentiated from B.E.F. no. 18 by its larger, coarser leaves. Inflorescences many to plentiful, scattered; sets seed readily. H/D 0.9; L/W 2.65.

B.E.F. no. 39.—Form distinguished by slow growth (3 cm. per year); and very small (1.5 cm. long by 0.8 cm. wide), lanceolate to elliptic, obtuse to acute, glaucous, light green leaves. Branches semi-erect to erect at tips, leaves always decussate, closely growing (internodes 0.3 to 0.5 cm.), Habit semi-diffuse. Inflorescences many; sets seed readily; H/D 0.815; L/W 1.9.

B.E.F. no. 41.—Form distinguished by very low

Plate II. Photographs of last sixteen types studied. 16, *B.E.F. no.* 33; 17, *B.E.F. no.* 34; 18, *B.E.F. no.* 35; 19, *B.E.F. no.* 36; 20, *B.E.F. no.* 39; 21; *B.E.F. no.* 41; 22, *B.E.F. no.* 42; 23, *B.E.F. no.* 43; 24, *B.E.F. no.* 44; 25, *B.E.F. no.* 46; 26, *B.E.F. no.* 50; 27, *B.E.F. no.* 51; 28, *B.E.F. no.* 52; 29, *B.E.F. no.* 53; 30, *B.E.F. no.* 54; 31, *B.E.F. no.* 55.

habit (3 dm. high); elliptic to spatulate, medium to small (2.3 cm. long by 1.0 cm. wide), obtuse to retuse, light green leaves; and general absence of dark pigmentation. The rate of growth is fairly high (6 cm. per year), but after the plant reaches the height of about 3 dm. the growth becomes more laterally directed, forming a clumped, low-growing plant well suited for edging. Inflorescences absent in plants studied. Now being introduced into horticulture as *Buxus microphylla koreana* Nakai. H/D 1.0; L/W 2.3.

B.E.F. no. 42.—Form distinguished by generally light pigmentation; very loose habit; and bright, shining, green to yellowish-green, ovate medium-sized (2.2 cm. long by 1.3 cm wide) leaves. Growth rate is about 9 cm. per year. Branches loose with very long internodes (1.75 cm.), and frond-like with leaves tending to overlap. Inflorescences absent in plants studied. This is the *Buxus japonica* of the trade. H/D 1.6; L/W 1.7.

B.E.F. no. 43.—Form distinguished by marginately variegated leaves (orange and medium dark green); medium fast growth (7 to 9 cm. per year); and stool-like habit. The very erect stems bear small leaves (2.2 cm. long by 1.3 cm. wide), elliptic and somewhat oblique, margins irregular, obtuse to retuse, which are well distributed (internode 1 cm.) along their length. Inflorescences none. Found in the trade as *Buxus sempervirens marginata.* H/D 0.8; L/W 1.7.

B.E.F. no. 44.—This plant is supposedly a scion from the same parent as B.E.F. no. 7, but is readily distinguishable from the latter by a much more compact habit and much more narrow (L/W 2.7 as against L/W 1.75), elliptic to lanceolate, retuse to acute, dark green leaves. The growth rate is 8 to 10 cm. per year (8 to 12 cm. for B.E.F. no. 7) and in various other features it resembles the latter. For these reasons, and especially in consideration of its supposed origin, it is inserted tentatively as a different type. Cuttings have been struck from both plants and the appearance of the new plants should be an indication of the true state of affairs. H/D 0.78; L/W 2.7.

B.E.F. no. 46.—Form distinguished by semi-pyramidal, close-growing habit; medium fast growth rate (6 to 7 cm. per year); and erect stems well covered (internodes 0.6 cm.) with semi-appressed, always decussate leaves. The leaves are elliptic, acute to mucronate, medium green, and glaucous when young. Inflorescences many, clumped; sets seed readily. H/D 1.3; L/W 2.2.

B.E.F. no. 50.—Form distinguished by rapid growth (8 to 10 cm. per year); thickly branched stems well supplied (internodes 0.8 cm.) with medium-large (2.9 cm. long by 1.3 cm. wide), elliptic to semi-lanceolate, light green leaves which are semi-appressed and partially frond-like in their arrangement; and absence of inflorescences. H/D 1.1; L/W 2.25.

B.E.F. no. 51.—Form distinguished by a stool-like cluster of stems (perhaps induced by pruning or killing back); rapid growth (9 to 12 cm. per year); erect, somewhat suffruticose branches with long internodes (1 to 2 cm); and large, elongate (2.8 cm. long by 1.0 cm. wide), medium green, oblong to elliptic, acute to mucronate, appressed leaves. No inflorescences. H/D 0.84; L/W 2.8.

B.E.F. no. 52.—Form distinguished by large (3.2 cm. long by 2.0 cm. wide), ovate, retuse, dark green, bullate leaves. This one character is most pronounced and definitely establishes the plant as a distinct form. This particular specimen has not been in a good environment and its semi-procumbent habit and slow growth (2 to 4 cm. per year) may not be characteristic. No flowers observed. This is the *Buxus semprervirens bullata or Buxus bullata* of the trade. H/D 0.7; L/W 1.6.

B.E.F. no. 53.—Form distinguished by elongate, spatulate to oblanceolate, retuse to emarginate, light green leaves; low habit; and lack of dark pigmentation throughout the plant. The leaves with notched apex and spatulate shape are apparently characteristic of type and restricted to it. Inflorescences observed, very few. This form, although known for many years in China, has not been introduced commercially in this country. The plant studied was received from the Federal Plant Introduction service and is *Buxus Harlandi* Hance, F.P.I. no 23012. H/D 0.88; L/W 2.5.

B.E.F. no. 54.—Form distinguished by very small (1.7 cm. long by 0.7 cm. wide), narrow elliptic, acute to obtuse, very dark green leaves; erect branches; and relatively close-set (internode 4 to 6 cm), semi-appressed, always decussate leaves. The plants studied were at Boyce, Virginia, but not a part of the Farm's collection; cuttings made from these have given us several vigorous, healthy young plants which have identical characters. The very small leaves, neat habit and medium slow growth of this form make it horticulturally valuable. H/D 1.05; L/W 2.4.

B.E.F. no. 55.—Form distinguished by yellow and dark green variegated leaves, with wide yellow margins; slow growth (3 to 4 cm. per year); dwarfed habit; and suffruticose stems. The leaves are elliptic, obtuse and somewhat oblique, small (1.6 cm. long and 1.0 cm. wide), and arranged semi-appressed with internodes of about 0.6 cm. This form is known to nurserymen as *Buxus suffruticosa aurea* and represents a truly suffruticose, dwarf variety. Inflorescences lacking. H/D 2.0; L/W 1.6.

Discussion.—With this group of forms as a nucleus a large collection of definitely typed boxwood is being assembled at The Blandy Experimental Farm. A number of the forms described were a part of a fine private collection of boxwood acquired some years ago while others have been obtained through the usual commercial sources. In addition we acquired cuttings struck from recognized named varieties in the collections of The Royal Botanic Gardens at Kew and at Edinburgh, and the Etablissement de Recherches, Maison Vilmorin-Andrieux at Verrieres-le-Buisson. From these cuttings young plants comprising some 37 established strains have been grown, and these will be incorporated into the B.E.F. strain collection as soon as practicable. It is hoped in this way to establish at The Blandy Experimental Farm a representative collection of accurately standardized types of boxwood as a permanent, living, reference library for this group of plants. Herbarium specimens of the 31 varieties

studied have been deposited in the Bailey Hortorium at Cornell University.

SUMMARY

An attempt to devise an adequate system of identification for the various forms of *Buxus* growing at The Blandy Experimental Farm suggested the use of measurements of plants and leaves in the form of ratios; height of plant in terms of its diameter, and length of leaf in terms of width. The application of these mathematical relationships to 31 forms, including four species, indicates that this method may be useful as a simple and accurate expression of the differences among varieties and species of the genus.

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The Boxwood Question Box

Although admiring boxwood and having several varieties in my garden, I am uninformed concerning it. Is the beautiful Virginia box, of which Gunston Hall has a superb allee, *Buxus sempervirens suffruticosa?* I was told so some years ago, but it does not seem possible, since *Buxus sempervirens suffruticosa* is a dwarf edging box. We call the Virginia form "Billowing Box" in Seattle and Portland, the older plantings being perhaps thirty years old and about three feet tall.

MRS. JOHN THEODORE TENNESON
Seattle, Washington
(Regent of Gunston Hall in Virginia).

Ans. Mrs. Tenneson, what a question for a lady to ask. Between us, some of the experts are rather embarrassed about this situation. They blame it on the taxonomists; and the taxonomists say it is none of their affair.

The trouble appears to be that the terms *suffruticosa,* dwarf box, "English" box, which some times in England is called "Italian" box, and you tell us is being dubbed "Billowing Box" in Seattle and Portland is presumed by some authorities really to be *dwarf box.* From my observation I think it is only relatively so: I never have seen any higher than ten feet tall and, though it will grow to 30 inches in its first thirty years, it appears to take considerably longer than a century to reach its maximum mature height. If our experts could live a little longer they might find that all "dwarf" *suffruticosa* under favorable conditions can attain nine or ten feet.

Other authorities suspect that there may be only some varieties that grow this tall. They intimate that the taxonomists are confused. And the taxonomists — also in a whisper and behind their sheltering hands — say that it is not up to them to identify and describe such specimens but only to register them, if the proper data is filed and it is attested they are being grown in cultivation. There is a most important article in this issue bearing on the names and descriptions of cultivars.

After several millenia, during which the learned and great have been dickering around with different names, we hope our society may assemble statistics on the sizes, ages, and other characteristics of these varieties and present the facts within the next year or so. Space in this column always will be open for such information and, of course, for other matters of interest to the members. J.C.N.

Dr. Norman Taylor's important article in this April issue also bears directly on Mrs. Tenneson's pertinent question.

BUXUS SPECIES DISTRIBUTION, REFERENCES AND SYNONYMY

Based on Index Kewensis

WALTER S. FLORY

The majority of our cultivated types of boxwood belong to the species *Buxus sempervirens L.,* which is rather widely spread through southern Europe, northern Africa, and western Asia. Varieties of *B. microphylla* Sieb. & Zucc., from Japan, China and Korea are also widely known and grown. Little is known about the genus *Buxus* from a genetic standpoint. Our best taxonomic sources indicate that approximately eighty other less well known species of boxwood occur, scattered in various parts of the world.

A very few of the lesser known taxa of boxwood have been found to be well adapted and attractively grown in temperate Europe and America, but just have not become commonly grown. Most of the species of *Buxus,* however, are native to tropical or semitropical regions, and thus are of doubtful hardiness in more temperate areas. Boxwood fanciers, however, should know — or at least be aware of — the wealth of species belonging to this genus. Some of the different and desirable foliage characters might, upon testing, prove of unexpected hardiness. Others might hybridize with some of our cultivated types to give hardy segregates furnishing exotic characters new to this old garden ornamental. There is truly a wealth of available species for use as source materials by potential breeders of boxwood.

In this connection it is of interest to note an observation of Dr. Ann Wylie of the University of Manchester, England, regarding roses (Journal of the Royal Horticultural Society, Volumes 79 and 80, 1954 and 1955). Dr. Wylie points out that there are 120 species of roses. Only six or eight of these species have been used in developing the hundreds of varieties of commercial roses available to us. "There is probably general agreement that the 95 per cent of *Rosa* species so far untouched by the hybridist deserve attention." Much has been done in developing superior varieties of roses from natural species, but actually — so far as possibilities go — the surface has scarcely been scratched. An essentially similar statement may be made with reference to boxwood.

Our best source of species lists of boxwood, as of other seed plants, is found in the monumental INDEX KEWENSIS. The two original volumes of the INDEX were made possible by a gift of money from Charles Darwin and were published by the Royal Botanic Gardens at Kew, England, 1893-1895. Supplements, published by the same institution, have since appeared quite regularly at intervals of about five years. INDEX KEWENSIS lists the generic names of binomials (genus and species) which have been described, gives references to the sources of the original publications, and usually tells in what part of the world the plants occur naturally.

Several different registers of *Buxus* taxa have been arranged, and are presented below, for the information of members of the American Boxwood Society. These have been compiled by combining into single lists information on *Buxus* found in the original volumes of INDEX KEWENSIS, with that in Supplements I through XII, the latter covering the period from 1951 through 1955.

The enumerations which follow deal with: (1) Recognized species of *Buxus;* (2) Taxa considered originally as valid *Buxus* species, but now as synonyms; (3) Geographical distribution of known *Buxus* species; (4) Taxa described as species, but now considered as types of *Buxus sempervirens;* and (5) Alphabetical arrangement of synonymous names for *Buxus* species other than *B. sempervirens.*

The first two lists give the same information as found in INDEX KEWENSIS and its Supplements, using exactly the same abbreviations for journals, etc., as found in those publications. Added to the original citation is the reference to the volume of the INDEX. Thus under *acuminata,* (I,363) refers to the first original volume, page 363. Following *aneura,* (VII, 34) refers to Supplement VII, page 34 — where the citation occurs. After *bahamensis,* (i, 68) refers to Supplement I, page 68; thus i is used to distinguish Supplement I from the first original volume which is indicated by Roman numeral I on these lists.

The third list merely arranges species alphabetically, under geographical areas — also given in alphabetical order. This list is followed by a summary indicating the number of *Buxus* species reported for each listed geographical area.

The last two lists are merely alphabetical arrangements of names believed to really be synonymous with the indicated species. These arrangements permit rapid checking for probable or suspected synonymy.

1. Species of Buxus

acuminata, Muell. Arg. in DC. Prod. xvi. I. 15.—Cuba. (I, 363)

aneura, Urb. in Fedde, Repert. xxi. 214 (1925).—Cuba. (VII, 34)

australis, A. Cunn. ex Steud. Nom. ed. II. i. 242—Austral. (I, 363)

austro-vunnanensis, Hatusima in Journ. Dept. Agric. Kyushu Imp. Univ., Ser. 6, vi. 261-342 (1942); cf. Jap. Journ. Bot. xii. Abstr. p. (38) (1943). —China (Yunnan). (XII, 26)

bahamensis, Baker, in Hook. Icon. pl. xix. (1889) t. 1806.—Ins. Baham. (i, 68)

balearica, Lam. Encyc. i. 511.—Ins. Balear. (I, 363)

Bartlettii, Standley in Publ. Field Mus. Nat. Hist., Chicago, Bot. Ser., xi. 134 (1932).—Brit. Honduras. (IX, 43)

benguellensis, Gilg, in Engl. Jahrb. xxviii. 115.—Afr. trop. (II, 31)

Bodineri, Léveillé in Fedde, Repert. xi. 549 (1913). —China (Kweichau). (V, 41)

brevipes, Urb. Symb. Antill. v. 401 (1908).—Cuba. (IV, 32)

calophylla, Pax in Engl. Jahrb. xxxix. 632 (1907). —Abyss. (IV, 32)

cephalantha, Léveillé & Vaniot in Fedde, Repert. Nov. Sp. iii. 21 (1906).—China. (IV, 32)

citrifolia, Spreng. Syst. iii. 847.—Am. austr. (I, 363)

cochinchinensis, Pierre ex. Gagnep. in Bull. Soc. Bot. France, 1921, lxviii. 481 (1922).—Cochinch. (VIII, 34)

Conzattii, Standley in Publ. Field Mus. Nat. Hist.,

Chicago, Bot. Ser., xi. 163 (1936).—Mexico. (X, 36)

crassifolia, Urb. Symb. Antill. ix. 175 (1923), in obs.: Tricera crassifolia.—Cuba. (VII, 34)

cubana, Baill. Monog. Bux. 71.—Cuba. (I, 363)

Ekmanii, Urb. Symb. Antill. ix. 171 (1923).—Cuba. (VII, 34)

excisa, Urb. Symb. Antill. ix. 172 (1923).—Cuba. (VII, 34)

flaviramea, (Britton) Howard in Journ. Arn. Arb. xxviii. 126 (1947): Tricera flaviramea.—Cuba. (XI, 38)

Fortunei, Carr. in Rev. Hortic. (1870-71) 519.—China. (I, 363)

glomerata, Muell. Arg. in DC. Prod. xvi. I. 17.—Cuba. (I, 363)

gonoclada, Muell. Arg. in DC. Prod. xvi. I. 16.—Cuba. (I, 363)

hainanensis, Merrill in Lingnan Sc. Journ. xiv. 25 (1935).—China (Hainan). (IX, 43)

Harlandi, Hance, in Journ. Linn. Soc. xiii. (1873) 123.—China. (I, 363)

hebecarpa, Hatusima, in Journ. Dept. Agric. Kyushu Imp. Univ., Ser. 6, vi. 261-342 (1942); cf. Jap. Journ. Bot. xii. Abstr. p. (38) (1943).—China (Szechuan). (XII, 26)

Henryi, Mayr, Fremdl. Wald- u. Parkbaume Eur. 451 (1906).—China. (IV, 32)

heterophylla, Urb. Symb. Antill. ix. 174 (1923).—Cuba. (VII, 34)

Hildebrandtii, Baill. Adansonia, xi. (1873-76) 268.—Afr. trop. (I, 363)

hirta, (Hutchinson) Mathou in Trav. Lab. For. Toulouse, Tome I. iii. Art. II, 25 (1940): B. benguellensis var. hirta.—(Afr. tropics?) (XI, 38)

holttumiana, Hatusima in Journ. Dept. Agric. Kyushu Imp. Univ., Ser. 6, vi. 261-342 (1942); cf. Jap. Journ. Bot. xii. Abstr. p. (38) (1943).—Penins. Mal. (XII, 26)

ichagensis, Hatusima in Journ. Dept. Agric. Kyushu Imp. Univ., Ser. 6, vi. 261-342 (1942); cf. Jap. Journ. Bot. xii. Abstr. p. (38) (1943).—China (Hupeh). (XII, 26)

imbricata, Urb. Symb. Antill. ix. 176 (1923).—Cuba. (VII, 34)

intermedia, Hatusima, in Journ. Dept. Agric. Kyushu Imp. Univ., Ser. 6, vi. 261-342 (1942); cf. Jap. Journ. Bot. xii. Abstr. p. (38) (1943).—China (Yunnan). (XII, 26)

intermedia, Kanehira, Formosan Trees, ed. rev., 359 (1936), anglice et japonice.—Formosa.* (X, 36)

japonica, Muell. Arg. in DC. Prod. xvi. I. 20.—Japon. (I, 363)

laevigata, Spreng. Syst. iii. 847.—Jamaic. (I, 363)

lancifolia, T. S. Brandegee in Univ. Calif. Publ. Bot. iv. 273 (1912).—Mexico. (V, 41)

latistyle, Gagnep. in Bull. Soc. Bot. France, 1921, lxviii. 482 (1922).—Indo-China (Laos; Anam). (VII, 34)

liukiuensis, Makino, in Bot. Mag. Tokyo, xvi. 179.—Ins. Liukiu. (III, 30)

Loheri, Merrill in Philipp. Journ. Sc., Bot. 1914, ix. 311.—Ins. Philipp. (Luzon). (V, 41)

longifolia, Boiss. Diagn. Ser. I. xii. 107.—Syria. (I, 363)

Macowani, Oliver, in Hook. Icon. pl. xvi. (1886) t. 1518.—Afr. austr. (i, 68)

macrophylla, Fawcett & Rendle, Fl. Jamaica, v. 3 (1926): Tricera macrophylla.—Jamaica. (VIII, 35)

madagascarica, Baill. Monog. Bux. 65.—Madag. (I, 363)

malayana, Ridley in Kew Bull. 1926, 475.—Penins. Mal. (VIII, 35)

marginalis, Urb. Symb. Antill. ix. 172 (1923), in obs.: Tricera marginalis.—Cuba. (VII, 34)

megistophylla, Léveillé, Fl. Kouy-Tchéou, 160 (1914-15).—China (Kweichau). (V, 41)

mexicana, T. S. Brandegee in Univ. Calif. Publ. Bot. iii. 382 (1909).—Mexic. (IV, 32)

Muelleriana, Urb. Symb. Antill. v. 400 (1908).—Cuba. (IV, 32)

Myrica, Léveillé in Fedde, Repert. xi. 549 (1913).—China (Kweichau). (V, 41)

Myrica, Léveillé; Rehder in Journ. Arn. Arb. 1933, xiv. 236, descr. ampl.—China (Kweichau). (XI, 43)

nitidus, H. Hallier in Meded. Herb. Leid., No. 37, 16 (1918): Austrobuxus nitidus.—Sumatra. (VI, 33)

nyasica, Hutchinson in Kew Bull. 1912, 55; et in Dyer, Fl. Trop. Afr. vi. I. 609.—Nyasaland. (V, 41)

obovata, Urb. Symb. Antill. ix. 175 (1923).—Cuba. (VII, 34)

olivacea, Urb. Symb. Antill. ix. 172 (1923).—Cuba. (VII, 34)

pachyphylla, Merrill in Philipp. Journal. Sc., Bot. 1914, ix. 310.—Ins. Philipp. (Luzon). (V, 41)

papillosa, C. K. Schneider, Ill. Handb. Laubholzk. ii. 139 (1907).—Ind. or. (IV, 32)

pedicellata, Hutchinson in Kew Bull. 1912, 54: Buxanthus pedicellatus.—Afr. trop. (V, 41)

pilosula, Urb. Symb. Antill. ix. 173 (1923).—Cuba. (VII, 34)

pubescens, Greenm. in Proc. Amer. Acad. xxxiii. 481.—Mexic. (II, 31)

pubifolia, Merrill in Journ. Arn. Arb. xxiii. 174 (1942).—Indo-China (Anam). (XI, 38)

pubiramea, Merrill & Chun in Sunyatsenia, v. 104 (1940).—China (Hainan). (XI, 38)

pulchella, Baill. Monog. Bux. 68.—Jamaic. (I, 363)

Purdieana, Baill. Monog. Bux. 70 (1859).—Jamaic. (I, 363)

retusa, Muell. Arg. in DC. Prod. xvi. I. 16.—Cuba. (I, 363)

revoluta, (Britton) Alain in Contrib. Ocas. Mus. Hist. Nat. Col. 'de la Salle', Habana, No. 12, 2 (1953): Tricera revoluta.—Cuba. (XII, 26)

rheedioides, Urb. in Fedde, Repert. xxi. 214 (1925).—Cuba. (VII, 34)

riparia, (Makino) Makino in Journ. Jap. Mot. vii. 14 (1931): B. sempervirens var. riparia. (IX, 43)

rivularis, Merrill in Philipp. Journ, Sc., Bot. 1914, ix. 309.—Ins. Philipp. (Luzon). (V, 41)

Rolfei, Vidal, Pl. vasc. Filip. (1886) 233.—Ins. Philipp. (i, 68)

rotundifolia, (Britton) Alain in Contrib. Ocas. Mus. Hist. Nat. Col. 'de la Salle', Habana, No. 12, 2 (1953): Tricera rotundifolia.—Cuba. (XII, 26)

rugulosa, Hatusima in Journ. Dept. Agric. Kyushu Imp. Univ., Ser. 6, vi. 261-342 (1942); cf. Jap. Journ. Bot. xii. Abstr. p. (38) (1943).—China (Yunnan). (XII, 26)

rupicola, Ridley in Journ. As. Soc. Straits, lix. 166 (1911).—Penins. Mal. (V, 41)

sempervirens, Linn. Sp. Pl. 983.—Europ.; Oriens; As. temp. (I, 363)
Shaferi, Urb. Symb. Antill. ix. 175 (1923), in obs.: Tricera Shaferi.—Cuba. (VII, 34)
stenophylla, Hance, in Journ. Bot. vi. (1868) 331.—China. (I, 363)
subcolumnaris, Muell. Arg. in DC. Prod. xvi. I. 14.—Ind. occ. (I, 363)
vaccinioides, Urb. Symb. Antill. ix. 176 (1923), in obs.: Tricera vaccinioides.—Cuba. (VII, 34)
Vahlii, Baill. Monog. Bux. 67.—Ind. occ. (I, 363)
Wrightii, Muell. Arg. in DC. Prod. xvi. I. 17.—Cuba. (I, 363)

As suggested earlier, the author and reference source of the original description of a species follows immediately after a species name in the preceding list. In most cases the date of original publication appears along with the reference. In 19 cases, above, the date of publication is missing. In several instances the publication dates are not immediately available as this is being written. By referring, however, to "Source Material Upon Boxwood" which appeared on pages 23 and 24 of the January 1962 issue of this volume, references are found, with dates, for the original descriptions of a dozen of the species for which dates are missing above. Thus Baillon's "Monographie des Buxacees . . . " in which were described *B. madagascarica, B. pulchella,* and *B. Vahlii,* appeared in 1859 (reference No. 9, page 23). The above list tells us that seven species were first described by Muller in de Candolle's "Prodromus"; reference number 40, on page 24, gives the publication date of this work as 1869. Likewise, by referring to page 23 (January, 1962) it is seen that Lamarck's work (reference No. 25), in which *B. balearica* was described, appeared in 1783. Linneaus (No. 28) first described *B. sempervirens,* in "Species Plantarum" in 1753. Additional search will reveal the dates of the original descriptions of the other seven species.

2. Names Originally Applied as Buxus Species: Now Considered as Synonyms of Other Species of Buxus, or of Species of Related Genera.

angustifolia, Mill. Gard. Dict. ed. VIII. n. 2=*sempervirens.* (I, 363)
aquartiana, Rich. ex Baill. Monog. Bux. 69=*citrifolia.* (I, 363)
arborescens, Mill. Gard. Dict. ed. VIII. n. 1; Lam. Fl. Fr. ii. 203=*sempervirens.* (I, 363)
argentea, Hort. ex Steud. Nom. ed. II. i. 242=*sempervirens.* (I, 363)
aurea, Hort. ex Steud. Nom. ed. II. i. 242=*sempervirens.* (I, 363)
californica, Hort. ex Baill. Monog. Bux. 66=*Simmondsia californica?* (I, 363)
caucasica, Hort. ex C. Koch, Dendrol. ii. II. 476=*sempervirens.* (I, 363)
chinensis, Hort. ex Dippel, Handb. Laubholzk. iii. (1893) 80=*longifolia, Boiss.* (i, 68)
chinensis, Link, Enum. Hort. Berol. ii. 386=*Simmondsia californica.* (I, 363)
cordifolia, Spreng. Syst. iii. 847=*Tricera cordifolia.* (I, 363)
coriacea, Spreng. Syst. iv. Cur. Post. 314=*Sarcococca pruniformis.* (I, 363)
crispa, Hort. ex C. Koch, Dendrol. ii. II. 476=*sempervirens.* (I, 363)
cruciata, Rich. ex Baill. Monog. Bux., 67=*Vahlii.* (I, 363)
cucullata, Hort. ex C. Koch, Dendrol. ii. II. 476=*sempervirens.* (I, 363)
dioica, Forsk. Fl. Aegypt. Arab. 159=*Myrsine bottensis.* (I, 363)
elegantissima, Hort. ex C. Koch, Dendrol. ii. II. 477=*sempervirens.* (I, 363)
haleppica, Hort. ex C. Koch, Dendrol. ii. II. 477=*longifolia.* (I, 363)
Handsworthii, Hort. ex C. Koch, Dendrol. ii. II. 476=*sempervirens.* (I, 363)
macrophylla, Hort. ex Dippel, Handb. Laubholzk. iii. (1893) 80=*sempervirens, Linn.* (i, 68)
marginata, Hort. ex Steud. Nom. ed. II. i. 242=*sempervirens.* (I, 363)
microphylla, Sieb & Zucc. in Abh. Akad. Muench. iv. II. (1846) 142=*japonica.* (I, 363)
mucronata, Hort. ex Baill. Monog. Bux. 62=*sempervirens.* (I, 363)
myrtifolia, Lam. Encyc. i. 511=*sempervirens.* I, 363)
nana, Hort. ex Journ. Imp. Nikita Gard. iii. Addend., 20 (1909), in syn.: B. sempervirens var. nana Hort. (X, 36)
obcordata-variegata, Fortune, in Gard. Chron. (1861) 735=*microphylla.* (I, 363)
ovalifolia, Siebold, ex C. Koch, Dendrol. ii. II. 479=*microphylla.* (I, 363)
rosmarinifolia, Hort. ex Baill. Monog. Bux. 62=*sempervirens.* (I, 363)
rotundifolia, Hort. ex C. Koch, Dendrol, ii. II. 479=*microphylla.* (I, 363)
salicifolia, Hort. ex C. Koch, Dendrol. ii. II. 476=*sempervirens.* (I, 363)
saligna, D. Don, Prod. Fl. Nep. 63=*Sarcococca pruniformis.* (I, 363)
sempervirens, Thunb. Fl. Jap. 77=*japonica.* (I, 363)
suffruticosa, Mill. Gard. Dict. ed. VIII. n. 3=*sempervirens.* (I, 363)
tenuifolia, Hort. ex Baill. Monog. Bux. 61=*sempervirens.* (I, 363)
variegata, Hort. ex Steud. Nom. ed. II. i. 242=*sempervirens.* (I, 363)
virens, Thunb. Fl. Jap. 77=*microphylla.* (I, 363)
vulgaris, Bub. Fl. Pyren. i. 117=*sempervirens.* (II, 31)
Wallichiana, Baill. Monog. Bux. 63=*sempervirens.* (I, 363)

3. Geographic Distribution of Recognized Buxus Species

Africa
  Abyssinia
    B. calophylla
  Madagascar
    B. madagascarica
  Nyasaland
    B. nyasica
  South Africa
    B. Macowani
  Tropical Africa
    B. benguellensis
    B. Hildebrandtii
    B. hirta
    B. pedicellata
America
  Bahama Islands
    B. bahamensis
  British Honduras

- *B. Bartlettii*
- Cuba
  - *B. acuminata*
  - *B. aneura*
  - *B. brevipes*
  - *B. crassifolia*
  - *B. cubana*
  - *B. Ekmanii*
  - *B. excisa*
  - *B. flaviramea*
  - *B. glomerata*
  - *B. gonoclada*
  - *B. heterophylla*
  - *B. imbricata*
  - *B. marginalis*
  - *B. Muelleriana*
  - *B. obovata*
  - *B. olivacea*
  - *B. pilosula*
  - *B. retusa*
  - *B. revoluta*
  - *B. rheedioides*
  - *B. rotundifolia*
  - *B. Shaferi*
  - *B. vaccinoides*
  - *B. Wrightii*
- Jamaica
  - *B. laevigata*
  - *B. macrophylla*
  - *B. pulchella*
  - *B. Purdieana*
- Mexico
  - *B. Conzattii*
  - *B. lancifolia*
  - *B. mexicana*
  - *B. pubescens*
- South America
  - *B. citrifolia*

Asia
- China
  - *B. cephalantha*
  - *B. Fortunei*
  - *B. Harlandi*
  - *B. Henryi*
  - *B. stenophylla*
- Hainan
  - *B. hainanensis*
  - *B. pubiramea*
- Hupeh
  - *B. ichagensis*
- Kweichau
  - *B. Bodineri*
  - *B. megistophylla*
  - *B. Myrica*
- Szechuan
  - *B. austro-yunnanensis*
  - *B. hebecarpa*
  - *B. intermedia Hatus*
- Yunnan
  - *B. rugulosa*

Cochinchina
- *B. cochinchinensis*

Formosa
- *B. intermedia* Kaneh.

Indochina
- Anan
  - *B. pubifolia*
- Laos and Anan
  - *B. latistyla*

India
- East India
  - *B. papillosa*
- West India
  - *B. pulchella*
  - *B. subcolumnaris*
  - *B. Vahlii*

Japan
- *B. japonica*

Liukiu
- *B. liukiuensis*

Malaya
- *B. holttumiana*
- *B. malayana*
- *B. rupicola*

Philippines
- *B. Loheri* (Luzon)
- *B. pachyphylla* (Luzon)
- *B. rivularis* (Luzon)
- *B. Rolfei*

Sumatra
- *B. nitidus*

Syria
- *B. longifolia*

Australia
- *B. australis*

Europe
- *B. sempervirens* (also n. Afr. & w. Asia)
- Baleric Islands
  - *B. balearica*

Numbers of *Buxus* Species by Geographic Areas.

- Africa (8)
  - Abyssinia (1)
  - Madagascar (1)
  - Nyasaland (1)
  - South Africa (1)
  - Tropical Africa (4)
- America (35)
  - Bahama Islands (1)
  - British Honduras (1)
  - Cuba (24)
  - Jamaica (4)
  - Mexico (4)
  - South America (1)
- Asia (34)
  - China (15)
  - Cochinchina (1)
  - Formosa (1)
  - Indochina (2)
  - India (4)
  - Japan (1)
  - Liukia (1)
  - Malaya (3)
  - Philippines (4)
  - Sumatra (1)
  - Syria (1)
- Australia (1)
- Europe (2)

Total number of authentically recognized species is 80.

4. Synonyms of Buxus sempervirens Linn.

- *B. angustifolia* Miller
- *B. arborescens* Miller
- *B. argentea* Hort. ex Steud.
- *B. aurea* Hort. ex Steud.
- *B. caucasica* Hort. ex C. Koch

B. crispa Hort. ex C. Koch
B. cucullata Hort. ex C. Koch
B. elegantissima Hort ex C. Koch
B. Handsworthii Hort. ex C. Koch
B. macrophylla Hort. ex Dippel
B. marginata Hort. ex Steud.
B. mucronata Hort. ex Baill.
B. myrtifolia Lam.
B. nana Hort.
B. rosmarinifolia Hort. ex Baill.
B. salicifolia Hort. ex C. Koch
B. suffruticosa Miller
B. tenuifolia Hort. ex Baill.
B. variegata Hort. ex Steud.
B. vulgaris Bub.
B. Wallichiana Baill.

5. Other Synonyms; Equivalent Binomials, with the More Recently Recognized Names to the Right.

Buxus aquartiana Rich. ex Baill.	*Buxus citrifolia* Spreng.
B. microphylla Sieb. & Zucc.	*B. japonica* Muell.
B. sempervirens Thunb.	*B. japonica* Muell.
B. chinensis Hort. ex Dippel	*B. longifolia* Boiss.
B. haleppica Hort. ex C. Koch	*B. longifolia* Boiss.
B. obcordata-variegata For.	*B. microphylla* S. & Z.
B. ovalifolia Siebold	*B. microphylla* S. & Z.
B. rotundifolia Hort. ex C. Koch	*B. microphylla* S. & Z.
B. virens Thunb.	*B. microphylla* S. & Z.
B. cruciata Rich. ex Baill.	*B. Vahlii* Baill.
B. dioica Forsk.	*Myrsine bottensis*
B. coriacea Spreng.	*Sarcococca pruniformis* Lindl.
B. saligna D. Don	*S. pruniformis* Lindl.
B. californica Hort. ex Baill.	*Simmondsia californica Nutt.?*
B. chinensis Link	*S. californica* Nutt.
B. cordifolia Spreng.	*Tricera cordifolia*

Summary

The more than 100 names applied to different taxa (species or varieties) of boxwood (*Buxus*), and listed in INDEX KEWENSIS and its Supplements, have been arranged into several registers to more clearly point out certain facts.

A first enumeration includes about 80 taxa believed to represent authentic species of *Buxus*. About 37 other names, presented as a second group, were once applied to taxa believed to be separate and authentic, but are now considered as being synonymous with other (indicated) species of either *Buxus* or of closely related genera. In each of these lists the individual citations are almost exactly as presented in the INDEX. These citations include the reference to the original description of each taxon named. In the first list dates of descriptions, and also geographical distributions, are included. A cross reference has been arranged to facilitate locating the original citation in the INDEX.

A third register lists *Buxus* species in an alphabetical geographical arrangement. This, with a summary giving numbers of species by areas, is aimed at quickly giving an idea of the distribution of *Buxus* over the world. It is believed that this section is arranged so as to rapidly disclose such distribution, whether the objective is pin-pointing a given species, or the consideration of large blocks of *Buxus* taxa.

The twenty or so names now recognized as representing types of variants which fall within the scope of Linnaeus' *B. sempervirens* are grouped in a fourth register. This is the species, and at least some of these represent the types and names, of our most commonly grown boxwood. Hence, here are the names most frequently encountered by the boxwood fanciers. A fifth, and final, list presents synonymous names encountered in connection with other boxwood taxa.

The lists offered here may be of little service to most boxwood lovers. They will furnish an idea, however, of the genetic variabilities and of the wide dispersion of the plants of this genus. For those interested in reference sources, in distributions, and in synonymy — there should be some, perhaps considerable, advantage in having the data on *Buxus* from thirteen volumes combined in single lists, broken down in some instances to deal with separate factors.

THE BLANDY EXPERIMENTAL FARM

Boyce, Virginia

Inquiries have been received as to the source of Wilt-Pruf. Articles in the January 1962 Boxwood Bulletin by Dr. J. B. Wilson and by Mr. A. R. Eaton both mention the use of Wilt-Pruf, "an anti-transpirant," to prevent "wind-burning" and "winter burn" of boxwood.

Ans.: Mr. Eaton writes that Wilt-Pruf is produced by Nursery Speciality Products, Inc., of 67 W. 44th St., New York 36, N. Y. (It may possibly be available at your nursery supply store). Mr. Eaton writes further, "Wilt-Pruf is very similar to Dowwax. The latter, however, is a waxy substance and Wilt-Pruf is more of a plastic. Plant-shield and Phylac are plastic materials similar to Wilt-Pruf which are also popular products."

Naming and Registering Cultivated Plants

By Richard A. Howard

The International Code of Nomenclature for Cultivated Plants is an attempt to prepare a precise, stable, and internationally acceptable system for the naming of plants under cultivation. The Code was drawn up by a special commission of the International Union of Biological Sciences in 1958 and has received general acceptance.

One provision of this special code is the recognition of cultivar names (fancy names), for "an assemblage of cultivated individuals which are distinguished by any characters (morphological, physiological, cytological, chemical, or others) significant for the purposes of agriculture, forestry, or horticulture, and which, when reproduced (sexually or asexually), retain their distinguishing features." Such taxa have usually been considered as varieties or forms in the past. The Code now requires that, after January 1, 1959, such fancy names must have a definite structure, be markedly different from the scientific name of a Latin forma, and that they should be distinguished in print by single quotation marks or the abbreviation "cv." and follow prescribed rules of botanical and horticultural priority regarding their use and publication. Thus firm rules are now established to be followed in the naming of new varieties of cultivated plants.

An Appendix to the Code recommends the compilation and publication by interested groups of lists of cultivar names in categories of cultivated plants which are of significance to horticulture, forestry, or agriculture. Such lists when compiled, will form the basis for future registration of distinctive cultivated plants under equally distinctive names. The lists should enable one to determine the validity of existing names which are to be regarded as cultivar names, establish the uniqueness or identity of plants with cultivar names, and clearly indicate names which have been used previously within a genus and, therefore, may not be used again. Only a few such lists exist and none has been compiled in the United States since the adoption of the Code for the Nomenclature of Cultivated Plants by the Botanical and Horticultural Congresses.

The Arnold Arboretum staff, under the sponsorship of the American Association of Botanic Gardens and Arboretums, has been designated for a two year period as the National Registration Authority for all groups of woody ornamental plants not otherwise represented by special societies. Staff members are engaged in preparing lists of cultivar names for genera or species of interest to them.

Furthermore, the staff is accepting for National Registration those plant names submitted by nurserymen and others in groups for which no registration lists exist. For such groups a rapid though admittedly preliminary survey of existing names is made and a list compiled. At irregular intervals future issues of *Arnoldia* [a continuation of the *Bulletin of Popular Information* of the Arnold Arboretum, of Harvard University] will include the lists of cultivar names prepared by staff members and others for various genera of ornamental woody plants.

The purpose of this article is to point out for other compilers some of the problems encountered in the preparation of such lists and to the general reader the proper use and value of such lists.

The Compilation of Registration Lists

For groups not represented by societies the preparation of a list of ALL cultivar names can involve considerable bibliographic work and can be a serious challenge to the horticultural taxonomist. Only rarely have we found a monographer or specialist with even an incomplete list already prepared. For most groups it is necessary to start at the beginning, for the Code calls for the application of the principle of priority, the retroactive application of the rules, and a starting place in Philip Miller's *Gardener's Dictionary,* ed. 6, 1752, if no later list has been accepted.

The basic reference we have found most useful is Alfred Rehder's *Bibliography of Cultivated Plants.* The Arnold Arboretum maintains the card file of references on which this work was based. This file, which contains many cultivar references that Rehder did not include in his publication, has been kept current, as far as possible, particularly with woody ornamental plants.

The staff of the Arnold Arboretum will assist any compiler of cultivar lists with the references available in this file. The Royal Horticultural Society's *Dictionary of Gardening,* and Bean's *Trees and Shrubs of the British Isles* have proved to be of great value in this work. Among other modern treatments the work of Boom of Wageningen (e.g., Ned. Dendr., Benaming, Geschiedenis, etc.) and Krussman's *Handbuch der Laubgeholze,* being published in parts, contain lists of cultivars recognized and in many cases described for the first time. For names used in American horticulture the editions of *Hortus* are useful. Current offerings of American nurserymen can be found in the several editions of *Plant Buyers Guide,* although it must be acknowledged that all these names are without description or bibliographic references, and extensive correspondence is necessary to determine the origin of many names. We appreciate the interest and cooperation we have received from the nurserymen whom we have contacted.

According to the suggestions of the Code, registration lists should include the names of all the cultivars currently in cultivation, giving for each name the particulars required in the registration of a new cultivar, e.g., the names of the owner of the parental stock, the originator, and the individual who described the plant; the year of registration of the parentage of the plant; any particulars regarding the testing or any awards it may have received as well as a description of the plant. Further, the registration authority is requested to include all the cultivars, which, although no longer cultivated are of historical importance as ancestors of existing cultivars, and finally, all known synonymy of the group. No existing registration list of cultivar names contains this information in full.

Our goal in preparing lists is based on a taxonomic interest and will to the best of our ability:

1. List all of the cultivar names which can be properly assigned to the genus.

2. Indicate the earliest bibliographic reference where a description can be found.
3. Signify the validity of the reference according to the Code of Nomenclature.
4. Indicate synonymy where possible.
5. Note which cultivars are currently in botanical gardens or available through commercial sources.
6. Indicate briefly the distinguishing characteristics used in describing the cultivar.
7. Record the date and place of origin of the cultivar when possible.

It is suggested that for easiest reference two separate lists be prepared, one to be an alphabetical list of all the names properly considered as cultivars whether so described originally or not, and a second list to place the cultivars in the proper species or other category where possible, recording at the same time the bibliographic reference and other data mentioned above. The first list of cultivar names will allow a quick decision by the originator of a new plant who wishes to register it, whether or not the name has been used before. The second list will be of greatest use for diagnostic and other taxonomic purposes.

What Names Should Go into a List

The definition of a cultivar under the Code is broad. *Basically it is any plant under cultivation which can be distinguished morphologically, physiologically, chemically, or cytologically and be propagated to retain its distinctive features.* Color, hardiness, taste, or chromosome numbers may be used as the basis of distinctiveness, yet we know that color forms may depend on soil or other environmental factors; hardiness may be a matter of microclimates; chromosome counts are subject to error and while some can be checked many cannot, and chemical difference as expressed in odor or taste may vary with the environment.

Nevertheless, a name submitted for registration and based on one of these tenuous characteristics must be accepted and considered. The case of older cultivar names is no different. The horticultural judgment of a worker in the 18th century must also be accepted, since the rules are retroactive. The Registration Authority is not responsible for the decision of whether the cultivar is new or different, only whether or not the name submitted is legitimate under the Code. "The customer is always right" and a name submitted in proper form must be accepted.

A horticultural taxonomist working as a registration authority can and should express his judgment. The Code currently suggests that "testing" of cultivars be employed and the particulars reported. Unless the Registration Authority expresses an opinion in print, the way is clear for repeated description of the same cultivar with only a change of name. The equation of older cultivars with plants bearing more modern names is difficult, but it is often possible and should be attempted.

The Bibliographic Reference

Cultivar names in registration lists are not required to carry the names of the original author or the author of any transfer for cultivar names in existence before January 1, 1959. There are advantages and disadvantages to this practice. It is already evident that taxa now recognized as cultivars were previously described as botanical varieties or forms. If the transfer of these names to a cultivar status were to be regarded as a distinction and bear the authors name, the way would be open for the change of literally thousands of names of cultivated plants. The disadvantage is equally clear. Without the author's name the place of publication of the basionym and its description or typification remains obscure.

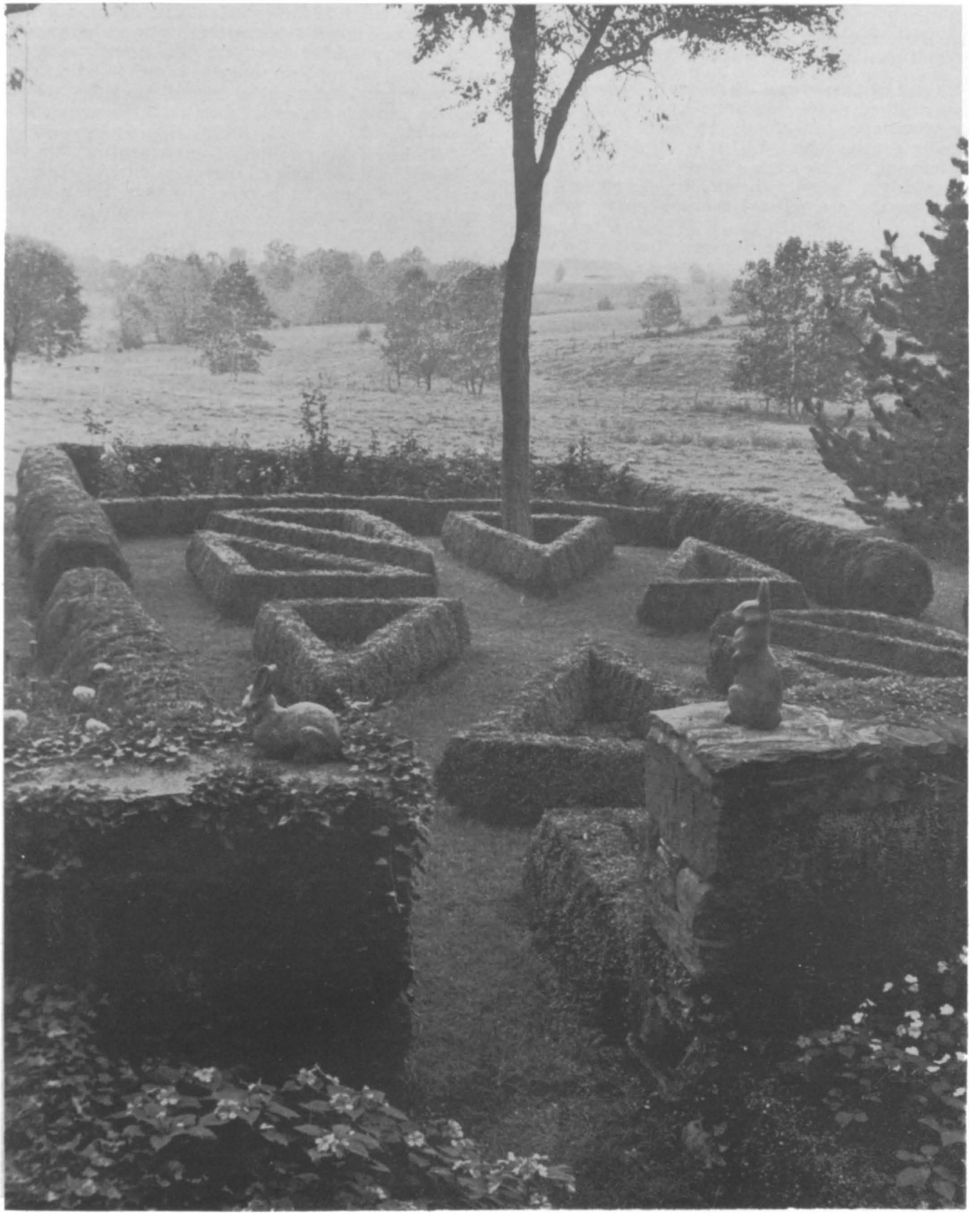
We intend to offer where possible the oldest reference available containing the epithet now used as a cultivar name which also describes the plant. If the place of publication of the transfer of this basionym to cultivar status is known, this will be retained in the files of the Registration Authority but will not be published. If the Code is changed in the future, these references will be at hand.

For cultivar names registered after January 1, 1959, the Code makes no specific suggestions regarding the form of publication of registration lists but calls for information on the describer and data on the characteristics of the plant. At a recent meeting of an international committee on plant registration and nomenclature it was decided that registration is publication for purpose of priority. The question of how such names are to be cited in technical horticultural literature remains unanswered.

There are additional problems involving the questions of valid publication and authorship. The Code indicates in Articles 24-27 the requirements for publication. To be validly published the cultivar name is to be in a publication multiplied by any mechanical or graphical process and distributed to the public. Since January 1, 1959, the publication must be dated, at least to the year. It can be in any language. Only handwritten material, even though mechanically reproduced, and newspapers are excluded. Therefore, in the preparation of the registration lists of cultivar names ALL nursery catalogues prior to January 1, 1959 must be considered and since that date the majority of catalogues which are dated to the year. This presents a tremendous task to the compiler who must attempt to procure or survey catalogues from all countries in order to have an International Registration List based on the principle of priority recognized by the Code.

Rehder and other horticultural taxonomists have accepted nursery lists, even price lists as the source of cultivar names. These references must be re-examined by the compiler of registration lists. Names which are commonly known with the following abbreviation "hort." have often been validly described by Rehder and Bailey in familiar horticultural encyclopedias but equally validly described under the present rules at an earlier date in nursery catalogues. The amount of bibliographic research required to do a careful job in the preparation of either a National or International Registration list under the present rules must not be under-estimated.

An additional difficulty comes in the encounter and acceptance of names described by anonymous authors in uncredited publications. "Spath" is commonly cited as the authority for names used in catalogues through several generations of Spath ownership of a nursery. Whether or not a particular Spath actually published the description of a new cultivar is as difficult to determine as the author of a current catalogue of an existing nursery. A cultivar name validly described and published only a few years ago in the catalogue of an imaginary and authorless Johnny Jump Up Garden Center must be considered



BOXWOOD AT HEDGELAND

This garden, designed, planted, and maintained by the owners, Mr. and Mrs. Philip F. Hilbert, is a rich source of ideas for using boxwood in garden design — and reflects sound cultural practice and pruning techniques. Just one section of the parterre-garden shows typical contrast of foliage and form — sparing but effective use of flowering plants. The rolling pastures, woodland areas, and even the mountains beyond are like an extension of the garden itself — a Ha-Ha keeps out the farm animals but does not obstruct the view. It is encouraging to know that only fifteen years ago this "garden" consisted of two old Virginia cedars and a few locust seedlings. Other than a few large screening plants of American box purchased by the owners all of the box bushes (American and English) have been raised from cuttings by Mrs. Hilbert. (A Birchfield Photograph)

and listed. It appears that anonymous authorship should be accepted, if a useable reference to the place of publication of a cultivar name can be cited.

Legitimate and Illegitimate Names

A cultivar name is legitimate, if it conforms with the provisions of the Code. The cultivar name theoretically can be rejected, if it is illegitimate by not conforming to the Code. Three examples of categories originally termed "illegitimate names" were found in the preliminary registration work which we did.

A name could be considered illegitimate under the Code as originally adopted in 1958 (but thereafter altered in 1961), if that name did not carry a description upon publication*. For names created since January 1, 1959 the rejection of invalid names appeared simple, unless one considered the possibility of the same name being validly published elsewhere. It is not unusual to find names widely used in books on horticulture, handlists of botanical gardens, and even in scientific publications which have not been legitimately published. We suggested that all of these names be included in the registration lists but designated as *nomina nuda,* thereby calling attention to the name. It was hoped the users of registration lists would call attention to places of valid publication for such names as they encountered them.

A second category of illegitimate names are those transfers of true botanical varieties or forms to cultivar status. In several groups which have been studied recently modern authors have listed as cultivars native wild plants which are not known in cultivation. We do not believe that every plant in cultivation deserves a cultivar name nor do we subscribe to the hypothesis of a typical cultivar with segregated cultivars appropriately named.

The third category of illegitimate cultivar names encountered are those which are validly published since January 1, 1959 but do not conform to the rules. The rules of horticultural nomenclature are new and errors will be made. It appears desirable to be lenient until the rules are well known by suggesting changes to current authors and listing the illegitimate name as such in a registration list designating as well the legitimate substitute.

Duplication of Cultivar Names

The Code suggests in Article 19 that "within a genus or hybrid genus the same cultivar name must not be used more than once without permission from the official registration authority, if such exists, and only when one or more of the following conditions obtain: a. the cultivars belong to subdivisions of a genus which are so markedly different as to provide wholly different groups; b. the first cultivar is no longer known to be in cultivation." Therefore, with no registration for most genera of woody ornamental plants a cultivar name cannot be used a second time in a genus.

From January 1, 1959 onwards this presents no real difficulty for newly described cultivars. However, the wisdom of allowing the repetition of a name when a plant is thought to be out of cultivation is questionable for two reasons: botanical gardens tend to maintain varieties long after they have passed from commercial favor; and the difficulty of citation when names must bear "sensu" citations of equal status.

Prior to 1959 many duplications of cultivar names exist in such descriptive names as *variegata, fastigiata, pendula, rubra, etc.* The current rules do not permit the modern usage of names in latin form. They do provide for the change of a name when an earlier name is an exact duplicate (Recommendation 33A).

We have no intention of implementing this option and will continue to recognize duplicate names within one genus fully expecting that future horticultural congresses will accept committee recommendations to apply the no-duplication rule at the specific level. The Registration lists which we publish will contain many duplicate names and often several repetitions of a name within the genus but not within the species.

Some Hybrids in Cultivation

Botanical gardens and arboreta maintain collections of species which by their proximity to one another and their genetic relationship may cross spontaneously or be crossed by a horticulturist. In the genus *Cornus* for example there are five hybrids described by Rehder which originated in botanical gardens and for which the parent species are suggested. Rehder considered these hybrids as species and so described them. The plants are not outstanding in quality and no breeder has seen fit to duplicate the cross. However, the plants have been propagated vegetatively and distributed to other arboreta. These plants fit the description of a cultivar in its broadest sense, i.e., they originated in cultivation and in fact are known only in cultivation. It does not seem appropriate to include such examples in a list of cultivar names at the present time.

The Code provides a means of handling such taxa as "groups" or "grex", if the cross is repeated with different results or if selections are made from variations resulting from mutations or sexual propagation of the original plants. It is obvious that many "species" in other genera must be handled in this manner with the cultivar name following the group name as suggested in Article 13.

Patented Plants and Their Names

American registration authorities are faced with another problem regarding cultivar names published in the medium of the Plant Patent Act. Currently a plant patent may be issued to either a named or unnamed plant or even to one designated by a number.

We have records of many patented plants which the originator chose not to distribute. One case has come to our attention where a nursery distributed a plant under one fancy (cultivar) name, which was validly described and published in their catalogue, but they subsequently patented the plant under a different cultivar name.

Plants are available today from commercial sources under both cultivar names. According to the Code and its regulations regarding priority of names, the patented name should be rejected.

Business practices being what they are, the use of the patented name will continue, illegitimate or not. Registration lists should contain all designations included in the registry of plant patents.

The Typification of Cultivars

When accepting a name for registration, it has been our practice to request an herbarium specimen to be considered as the type specimen of the cultivar, and to plant material for propagation or testing

within our area. If the herbarium specimen cannot be supplied, one of the propagants is designated as the plant from which a type specimen is to be collected.

We state that future propagants of these plants will not be distributed without the consent of the person registering the plant.

We recognize there are many inadequacies to type specimens of cultivars when the cultivar is based on characteristics not adequately preserved such as color, odor, hardiness or chromosome number. Nevertheless, the herbarium specimen is better than no specimen at all for future taxonomic work which may involve the assignment of a plant to the proper genus or species.

We have been fortunate to receive excellent cooperation in our requests for herbarium specimens and we suggest all registration authorities make such requests. The Arnold Arboretum is willing to accept such specimens for permanent deposit in its herbarium of cultivated plant specimens and will furnish such material on loan to other qualified scholars.

Summary

The compilation of a list of cultivar names for any genus of ornamental plants represents initially a bibliographic problem of great magnitude. There are obstacles in following literally the Code for the Nomenclature of Cultivated Plants, which suggest that some changes should be made in the Code by future Horticultural and Botanical Congresses. The Registration lists to be of greatest value should be as complete as possible, not only in the cultivar names included but in the data supplied for each entry.

There is a place in this work for the expression of taxonomic judgment and the efforts of horticultural taxonomists in the preparation of such lists is solicited. It is important to note, however, that the registrar will depend on the cooperation of the nurserymen and those persons who introduce and name plants in cultivation. The product produced, a registration list of cultivar names, will be a major contribution to the clarification of our knowledge of a group of cultivated plants and will be of benefit to the plant breeder, the commercial grower, and the amateur, as well as the professional horticulturist.

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*Since this much needed and most welcome paper by Dr. Richard A. Howard, Director of the Arnold Arboretum of Harvard University, first appeared under the title "Concerning the Registration of Cultivar Names" (*Arnoldia,* Vol. 21, No. 1, Jan. 20, 1961), there has been issued a 1961 edition of the Code of Nomenclature for Cultivated Plants, necessitating changes in Dr. Howard's text. At his request, we have attempted to make these few requisite changes under the sub-heading "Legitimate and Illegitimate Names" and trust we correctly have interpreted his wishes. In a recent letter concerning this matter, addressed to Dr. Walter Flory, Curator of the Orland E. White Research Arboretum, Dr. Howard pointed out that article 26 of the Code has been "expanded to state specifically 'For names published before 1 January, 1959, a description or a reference to a previously published description is not necessary.' " And he adds "This means that under the new edition of the Code of Nomenclature 'all' cultivar names validly published according to article 24 must be accepted by compilers of registration names, whether the plant can be identified or not."

Constitution of the American Boxwood Society

ARTICLE I — *Name*

The name of this association is The American Boxwood Society.

ARTICLE II — *Organization*

This society is not organized for profit. At the discretion of its Officers and Board of Directors, elected as provided herein, and acting together as a governing body, it may determine at any time hereafter by majority vote to seek and obtain incorporation as a non-stock and non-profit organization under the provisions of Chapter 151 of the Code of Virginia or under the statutes of such other State as may be determined in the future.

The headquarters and principal office of this society, in the State of Virginia, shall be the Orland E. White Research Arboretum, a unit of the University of Virginia's Blandy Experimental Farm, located at Boyce, Virginia.

ARTICLE III — *Purposes*

The objects of this Society are educational. It shall investigate, assemble, record, preserve, and disseminate among its members, and to other selected and suitable individuals, publications, and institutions, pertinent information on the care, propagation, and uses of boxwood, knowledge of its commercial, horticultural, scientific, and other aspects, and appreciation of its unusual place in the gardens, literature, and affections of mankind for more than 3,000 years of recorded history.

It shall encourage and facilitate contacts and the exchange of information between members of the Society, foster the search for new species and varieties of boxwood, aid in their scientific study and classification, lend support to the collection and care of a plantation of all types of boxwood, help in making the use and planting of boxwood popular in areas to which it has not been introduced, and publish and distribute useful and informative articles upon boxwood for the benefit of its members.

It shall collect printed material upon and illustrations of boxwood species and varieties, of significant boxwood collections, and of historic or otherwise notable gardens in this country and abroad displaying boxwood. It shall assemble and make available to members information upon the locations and visiting hours of public arboreta and commercial nurseries where there is boxwood and, where permission is granted, shall provide information upon the introductions necessary or other requisite conditions, under which members may obtain permission, in this country and abroad, to visit private gardens having boxwood but not customarily open to the public.

The Society shall cooperate in particular with those persons and organizations likewise dedicated

to the preservation of what is good and beautiful in the United States and to the improvement and beautification of what is not.

ARTICLE IV — *Membership*

Section 1.

Names of persons proposed or applying for membership after June 1, 1961, shall be submitted to a Membership Committee of three, appointed by the president of the Society. It shall be the duty of this Committee to investigate the suitability of such persons and to vote upon their nomination for consideration by the members at the next meeting. At this meeting the Committee shall present its nominations and members shall cast secret ballots, with three or more blackballs of negative votes precluding election. Thereafter, upon payment of dues, any person thus selected shall become a member.

Section 2.

The classes of membership and respective dues after June 1, 1961, shall be as follows:

Annual	$ 3.
Contributing	$ 10.
Sustaining	$ 25.
Life	$100.
Patron	$500. or more.
Honorary	None

Section 3.

The membership of any person failing to make payment of dues for six months after notification of election shall become null and void.

Section 4.

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

Section 5.

At any annual meeting upon the votes of three-fourths of the members present and voting any member charged with behaviour injurious to the welfare, proper interests, or reputation of the Society or a member may be dropped from the roll.

ARTICLE V — *Officers and Directors*

Section 1.

The officers of the Society shall be a President, Vice-President, Second Vice-President, Secretary, and Treasurer, and the Directors, each elected for one year. The offices of Secretary and Treasurer may be combined by majority vote of the members or of the Officers and Board. Vacancy in any office except that of President, shall be filled by the Officers and Directors, until the next meeting of the Society; but in the event of the death or resignation of the President, the Vice-President and thereafter the Second Vice-President automatically shall serve as President for the unexpired term.

Section 2.

Three Directors shall be elected in 1961 to serve for three years. Thereafter two directors shall be elected at each annual meeting to serve for a term of three years and each President of the Society on retirement from office automatically shall become a member of the Board of Directors for a period of three years.

Section 3.

A President of the Society may not succeed himself in that office but will become eligible for re-election to it after the lapse of a year. Should a former President, serving as a Director, be re-elected to the presidency of the Society, his place as a Director shall be filled for the duration of the unexpired term by ballot of the Officers and Directors.

Section 4.

The Officers and Directors shall meet immediately following the annual meeting and at other times subject to the call of the President.

Section 5.

The Officers and Directors, following the annual meeting, shall choose among themselves an Executive Committee composed of the President, the Secretary, the Treasurer, and two other members, or, if the offices of Secretary and Treasurer be combined, then three other members. Three members of this Executive Committee shall constitute a quorum. This Committee shall meet upon call of the President and shall exercise all powers requisite to transact the business of the Society, save to alter any policy of the Society as formally enunciated by the Society or as specified by the Officers and Directors.

ARTICLE VI — *Nominations and Elections*

Prior to the Annual Meeting, in 1962 and thereafter, the Executive Committee shall choose a Nominating Committee of three members, only one of whom may be an Officer of the Society. This Committee shall present a slate of Officers and Directors to the members at their annual meeting. But nominations made by this Committee do not preclude other nominations from the floor. A majority of the votes shall constitute election.

ARTICLE VII — *Meetings*

Section 1.

An annual meeting of members shall be held in the spring of each year, upon a date selected by the Executive Committee. Meetings of the members shall be held at such other times as called by the Executive Committee, the Officers and Board of Directors, or through a signed petition of one-fifth of the members in good standing.

Section 2.

The order of business at meetings of the members shall be as follows:

Roll Call.
Reading and approval of the minutes.
Reports of Officers and Directors.
Reports of Standing Committees.
Reports of Special Committees.
Unfinished Business.
New Business.

Section 3.

Meetings of the members, the Officers and Directors, and the Committees shall be governed by Robert's Rule of Order Revised.

ARTICLE VIII — *By-Laws*

It shall be the duty of the Officers and Directors

to frame the By-Laws of the Society and to inform the members of them.

ARTICLE IX — *Minutes*

It shall be the duty of the Officers and Directors to hear, correct and approve the minutes of the meetings of members, and of their own body.

ARTICLE X — *Amendments*

Members may enlarge upon, repeal, or amend the constitution of the American Boxwood Society at any annual or other meeting, provided that notice of any proposed change has been sent to all members not less than sixty days prior to the meeting, that a quorum of one half the entire membership is represented in person or by proxy, and that two-thirds of those present and voting or represented by specific proxy favor such suggested change in the constitution.

(This was prepared by our late president, J. Churchill Newcomb, and read at the May 2, 1961 organizational meeting. At that time this was unanimously approved as a set of temporary rules under which the Society could operate, at least until the 1962 meeting. This Constitution is printed here for the thoughtful consideration of members prior to the 1962 Annual Meeting.)

BOXWOOD GARDEN (George Beamish)

One of the most handsome portions of the Governor's Palace gardens is the boxwood garden located near the canal and terraced slope. Box parterres surround beds of perennials — English daisies, tulips, etc. — or grass, and brick walks wind throughout this charming area. Crape myrtle specimens and yaupon holly provide shade and color in the summer and the holly adds more color with berries in the fall. Colonial Williamsburg, Williamsburg, Virginia.

PROGRAM

Annual Meeting — May 1, 1962

The May 1, 1962, program follows:

10:30 A.M. (E.S.T.) Registration begins

10-12 A.M. Observation of Boxwood:
Specimen plants,
Herbarium specimens,
Literature, etc.
Tours of:
Arboretum,
Greenhouses,
Radiation facility, etc.
Renew friendships, and exchange boxwood experiences.

12 Noon. Lunch
(NOTICE: Please write Box 85, Boyce, Virginia, reserving a box lunch — probably again featuring Kentucky fried chicken, if such is desired. The luncheons will probably be $1.50 each.)

1:30 P.M. (E.S.T.) The Formal Program.
Dr. W. Ralph Singleton, Blandy Experimental Farm, presiding.

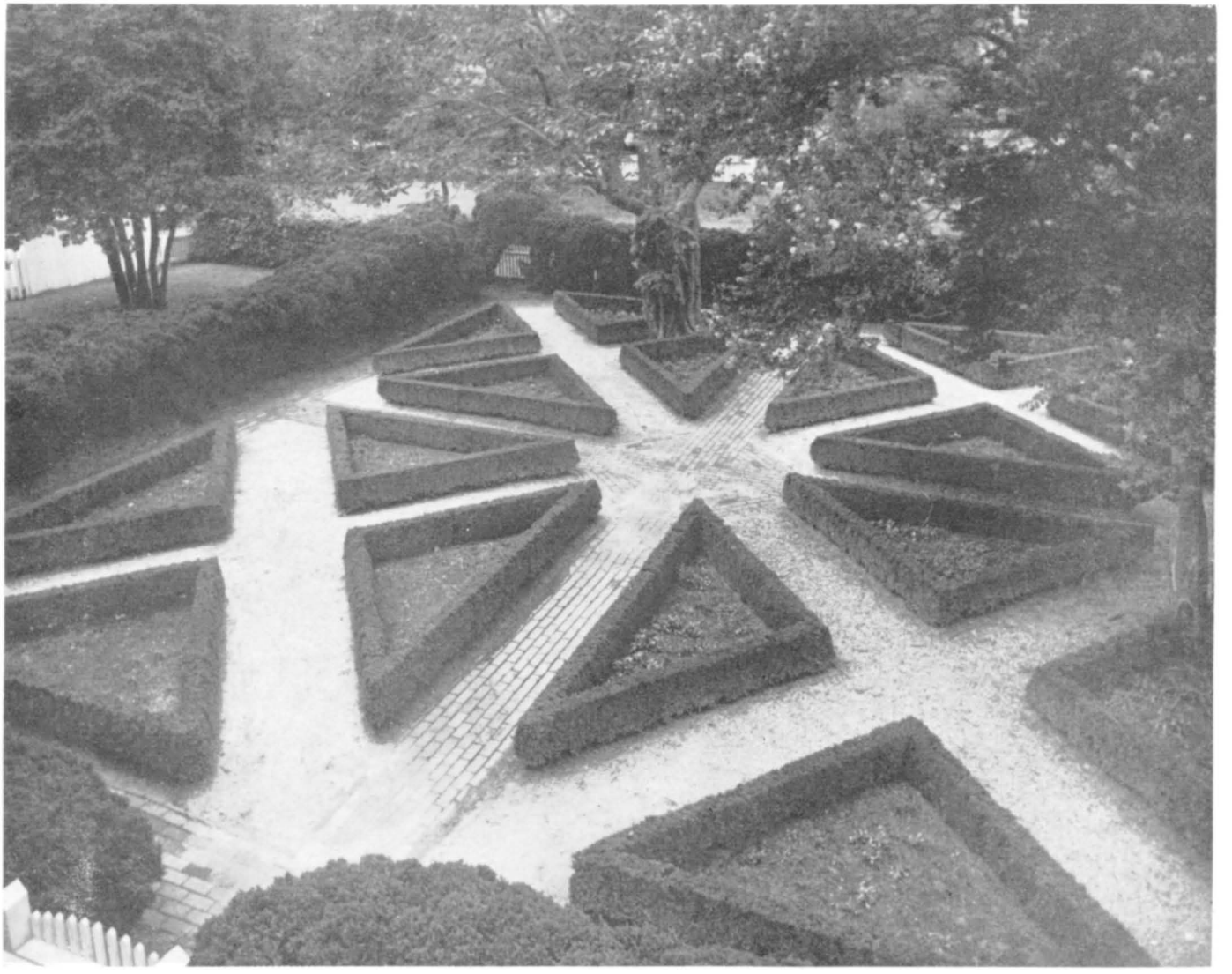
1. J. H. Tinga, Virginia Polytechnic Institute
   "Winter Injury to Boxwood— Some Contributing Factors"
2. C. C. Crabill, Blandy Experimental Farm
   "A Simple But Effective Method of Boxwood Propagation"
3. Karl F. Fischer, Wye Nursery, Queenstown, Maryland
   "Boxwood Culture in Germany and America"
4. J. T. Baldwin, College of William and Mary
   "Boxwood"
5. J. B. Wilson, University of Maryland
   "Boxwood and Nematodes"
6. Business period.
   Election of officers.
   Other business.
7. Adjournment (about 3 P.M.)

All persons interested in any phase of boxwood are invited to this meeting. Members of the Society will welcome all interested non-members as guests, and as prospective members.

Boyce, Virginia will still be on Eastern Standard Time on May 1.

Blandy Experimental Farm is on U. S. Route 50, near Boyce, Virginia, and ten miles east of Winchester, Virginia, city limits.

Please make reservations for box lunches (to Box 85, Boyce, Va.) no later than Saturday, April 28.



CUSTIS-MAUPIN GARDEN (John Crane)

The parterre garden, characteristic of 18th-century Williamsburg, is the most important feature of the garden of the Custis-Maupin house. The British flag pattern, a favorite of the period, is used here with dwarf box marking the outlines of the design. Colonial Williamsburg, Williamsburg, Va.