TALL BEARDED IRIS

(FLEUR-DE-LIS)

A FLOWER OF SONG

WALTER STAGER

New York
State College of Agriculture
At Cornell University
Ithaca, N. Y.

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Tall Bearded Iris

(Fleur-de-Lis)

A Flower of Song

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A Flower of Song

NAMES	CLASSIFICATION	STRUCTURE
PLANTING	CARE	ENEMIES
PROPAGATION	HYBRIDISM	
SHIPPING	USES	

WALTER STAGER

STAGER PLACE

STERLING, ILLINOIS

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Tall Bearded Iris

(Fleur-de-Lis)

A Flower of Song

Forewords

Our Opportunity

We take things as we find,
But do not leave them so;
We're sure to leave behind
Some changes when we go.
And so, while we are here
We constantly should try
To make each change a cheer
To others ere we die.
Do much, perhaps all cannot,
But each one has the power
At least to make some spot
The brighter with a flower.

Walter Stager.

Florists

We smile at florists, we despise their joy,
And think their hearts enamored of a toy:
But are those wiser whom we most admire,
Survey with envy, and pursue with fire?
What's he who sighs for wealth, or fame or power?
Another Florist doting on a flower;
A short liv'd flower; and which has often sprung
From sordid arts.

Young: Love of Fame.

Wisdom in Flowers

God made the flowers to beautify
The earth, and cheer man's careful mood;
And he is happiest who has power
To gather wisdom from a flower,
And wake his heart in every hour
To pleasant gratitude.

Wordsworth.

FIG. II. TALL BEARDED IRISES

1, *Jacquesiana*: S. coppery crimson; F. maroon. 2, *Prosper Laugier*: S. bronzed-red; F. ruby-purple. 3, *Eldorado*: yellowish orange shaded with heliotrope; F. purple with bronze-yellow. 4, *Monsieur*: S. satiny violet; F. purple-crimson with lighter margin. 5, *Loreley*: S. yellow; F. ultramarine, bordered with cream. 6, *Sherwin-Wright*: S. and F. yellow. 7, *Loppio*: S. lavender blue; F. blue-violet. 8, *Parc de Neuilly*: S. and F. plum-purple. 9, *Caprice*: S. and F. rosy red. 10, *Archeveque*: S. purple-violet; F. velvety violet. 11, *Kharput*: S. violet; F. red-purple. 12, *Isoline*: S. silvery lilac; F. purplish old rose.

Fleur-de-Lis

Blue of the skies,
Pink of sunrise,
Red of the sunset-glow,
Purple so bold,
Yellow of gold,
White of the driven snow;
Solid and dashed,
Veined and splashed,
Mottled and reticulated,
Suffused, o'erlaid,
Bordered and rayed—
All colors and shades collated.

Wondrous flower of song and story,
Earthly rival of the rainbow's glory,
Elegant in all its lines
As the pride of tropic climes,
Light and airy as the fleecy cloud
That can scarce the sunbeams shroud,
Hardy, contented where'er it may be,
Sunshine or shadow, in garden or lea,
Fragrant, stately but replete with grace—
Flora's lovers should all give it place.

Walter Stager.

Tall Bearded Iris

(*Fleur-de-Lis*)

A Flower of Song

CHAPTER I

The Iris in Song

THE IRIS has long been a flower of song.
Ever since the early days we find it in the
poet's lays.

Iris, which Drilon water feedes,
And Narons bancke with other weedes.

Nicander: Treacles. (2d Cent. B. C.)
Tr. by John Gerarde.

For whom the fruitage of this strain, my Muse,
And who among the bards hath made this wreath?
Meleager wove it, and by his weaving gives
For keepsake to most noble Diocles.
Here many lilies are of Anyte,

* * * * *

Vine of Simonides, and twisted in
Nossis, thine Iris flower that breathes of Myrrh,

* * * * *

And Hegesippus' maddening grape-cluster
 He set therein, and Persus' scented Flag

* * * * *

And this gracious coronal of song
 Be for all such as love these holy things.

*Meleager: Wreath of Song. (1st Cent. B. C.)
 Tr. by W. M. Hardinge.*

Under so fair a heaven as I describe,
 The four and twenty Elders, two by two,
 Came on incoronate with Flower-de-luce.

Dante: Purgatorio.

Heil moder, heil mayden, heil heavenly queen,

* * * * *

Heil fairer than the Flour-de-lys.

Anon.: Ancient Hymn to the Virgin.

A Friar there was, a wantowne and a merye,

* * * * *

His nekke whit was as a Flour delys.

Chaucer: Canterbury Tales.

Than the riche Floure-de-lice
 Wan thare ful litill prise,
 Fast he fled for ferde.

Minot: Batyl of Banocburn. (14th Century.)

Lo! that spotless creature of grace,
so gentle, so small, so winsomely lithe,
riseth up in her royal array—
a precious thing with pearls bedight.
Favored mortals there might see
choicest pearls of sovereign price,
when all as fresh as a Fleur-de-lys
she came adown that bank.

Anon.: Pearl. (14th Century.)

The Naids and the nymphs extremely overjoyed,
And on the winding banks all busily employed,
Upon this joyous day, some dainty chaplets twine:

* * * * *

Thus having told you how the bridgroom Thames was drest,
I'll show you how the bride fair Iris was invest;

* * * * *

Sweet marjoram, with her like sweet basil rare for smell,
With many a flower, whose name were now too long to tell;
And rarely with the rest, the goodly Fleur-de-lis.

Drayton: Polyolbion.

Bring rich carnations, Flower-de-luces, lilies.

Ben Jonson: Pan's Anniversary.

The Flower-de-luce forth spread his heavenly hue.

Gawain Douglas: Veranl Season.

Then called she [Dame Nature] all Flowers that grew in field,

* * * *

Upon the awful Thistle she beheld,

* * * *

And said, "In field go forth and fend the lave,

* * * *

And let no Nettle vile, and full of vice,
Her fellow to the goodly Fleur-de-lis."

Dunbar: The Thistle and the Rose.

Behold, O man, that toilsome pains dost take,
The flow'rs, the field, and all that pleasant grows,

* * * *

The lily, lady of the flow'ring field,
The Flower-de-luce, her lovely paramour,
Bid thee to them thy fruitless labors yield,
And soon leave off this toilsome weary stoure.

Spenser: Fairy Queen.

The garden like a lady fair was cut,
That lay as if she slumbered in delight,
And to the open skies her eyes did shut;
The azure fields of heaven were 'sembled right
In a large round set with flow'rs of light;
The Flowers-de-Luce and the round sparks of dew
That hung upon their azure leaves, did show
Like twinkling stars that sparkle in the ev'ning blue.

Fletcher: The Garden .

The first course thus serv'd next follow'd on
The faire nobles, ushering Oberon,
Their mighty king, a prince of subtile powre,
Cladd in a sute of speckled gilliflowre,

* * * * *

His cloake was of the velvet flowers, and lynde
With Flowre-de-lices of the choicest kinde.

Wm. Browne: Britannia's Pastorals.

I am the light fantastic queen of flowers;

* * * * *

I weave the silken fringe that, as a vest,
Mantles the Fleur-de-lis in glossy down,
I scatter gold spots on its open breast,
And lift in slender points of dew its crown.
I am the light fantastic queen of flowers,
My bed is in the bosom of a rose
And there I sweetly dream the moonlight hours,
While vermil curtains round my pillows close.

Percival: The Queen of Flowers.

My spaniel, prettiest of his race,

* * * * *

Now wantoned lost in Flags and reeds,
Now starting into sight,
Pursued the swallow o'er the meads,
With scarce a lower flight.

Cowper: Dog and Water Lily.

Iris all hues, roses and jessamines,
Reared high their flourished heads between, and wrought
Mosaic.

Milton: P. L., descrip. Paradise.

And nearer to the river's trembling edge
There grew broad Flag-flowers, purple pranked with white,
And starry river-buds among the sedge,
And floating water lilies broad and bright.

Shelley: The Question.

Through pleasant banks the quiet stream
Went winding pleasantly;

* * * * *

The Flag-flower blossomed on its side,
The willow tresses waived,
The flowing current furrow'd round
The water-lily's floating leaf.

Southey: Thalaba.

Loved Voyager!
When wrapped in fancy, many a boyish day
I tracked his wanderings o'er the watery way,
Roamed round the Aleutian isles in waking dreams,
Or plucked the Fleur-de-lys by Jesso's streams.

Campbell: La Perouse.

And on many a level mead,
And shadowing bluff that made the banks,
We glided winding under ranks
Of Iris, and the golden reed.

Tennyson: In Memoriam.

I have remembered when the winter came,
High in my chamber in the frosty nights,
How in the shimmering noon of summer past
Some unrecorded beam slanted across
The upland pastures where the Johnswort grew;
Or heard, amid the verdure of my mind,
The bee's long smothered hum, on the Blue Flag
Loitering amidst the mead.

Thoreau: Winter.

How fresh were the Flags on the stone-studded ridge
That rudely supported the narrow oak bridge!
And that bridge, oh! how boldly and safely I ran
On the thin plank that now I should timidly scan!

Eliza Cook: Old Mill-Stream.

Lilacs and violets—woodbine and brier,
Pond lilies drifting up from the black mire;
Long files of Iris—bright gladiolus,
Dainty anemones, loved of Æolus.

Wm. C. Langdon: Springtime.

Beautiful lily, dwelling by still rivers,
Or solitary mere,
Or where the sluggish meadow-brook delivers
Its waters to the weir!

Thou laughest at the mill, the whirl and worry
Of spindle and of loom,
And the great wheel that toils amid the hurry
And rushing of the flume.

Born to the purple, born to joy and pleasance.
Thou dost not toil nor spin,
But makest glad and radiant with thy presence
The meadow and the lin.

The wind blows, and uplifts thy drooping banner,
And round thee throng and run
The rushes, the green yeoman of thy manor,
The outlaws of the sun.

The burnished dragon-fly is thine attendant,
And tilts against the field,
And down the listed sunbeam rides resplendent
With steel-blue mail and shield.

Thou art the Iris, fair among the fairest,
Who, armed with golden rod
And winged with the celestial azure, bearest
The message of some God.

Thou art the Muse, who far from crowded cities
Hauntest the sylvan streams,
Playing on pipes of reed the artless ditties,
That come to us as dreams.

O Flower-de-Luce, bloom on, and let the river
Linger to kiss thy feet!
O Flower of song, bloom on, and make forever
The world more fair and sweet.

Longfellow: Flower-de-Luce.

When thou was full in spring, thou little sleepy thing,
The yellow Flags that broider'd thee would stand
Up to their chins in water, and full oft
We pulled them and the other shining flowers,
That are all gone to-day.

Jean Ingelow: Song of Night Watches.

The mellow moonlight, through the deep-blue gloom,
Did all along the dreamy chamber pass,
As though it were a little touched with awe
Of that pale lady, and what else it saw—
Rare flowers: narcissi; Irises, each crowned;

* * * * *

All pinnacled in urns of carven bronze.

Lord Lytton: A Vision.

„ We drifted down, my love and I,
Beneath an azure April sky,
My Love and I, my Love and I,
Just at the hour of noon.

* * * * *

While purple, cool, beneath the blue
Of that hot noontide, bravely smiled,
With bright and iridescent hue,
Whole acres of the Blue Flag flower,
The breathy Iris sweet and wild,
That floral savage unsubdued,
The gipsy April's gipsy child.

Mary A. Townsend: Down the Bayou.

The Iris was yellow, the moon was pale,
In the air it was stiller than snow,
There was even light through the vale,
 But a vaporous sheet
 Clung about my feet,
And I dared no further go.
I had passed the pond, I could see the stile,
The path was plain for more than a mile,
Yet I dared no further go.

The Iris-beds shone in my face, when, whist!
A noiseless music began to blow,
A music that moved through the mist,
 That had not begun,
 Would never be done—
With that music I must go:
And I found myself in the heart of the tune,
Wheeling around to the whirr of the moon,
With the sheets of mist below.

In my hands how warm were the little hands,
Strange little hands that I did not know;
I did not think of the elvan bands,
 Nor of anything
 In that whirling ring—

Here a cock began to crow!
The little hands dropped that had clung so tight,
And I saw again by the pale dawnlight
The Iris-heads in a row.

Michael Field: Iris.

O'er water-daisies and wild waifs of Spring,
There where the Iris rears its gold-crowned sheaf
With flowering rush and sceptred arrow-leaf,
So have I marked Queen Dian, in bright ring
Of cloud above and wave below, take wing
And chase night's gloom, as thou the spirit's grief.

Rossetti: Gracious Moonlight.

I have sown upon the fields
Eyebright and Pimpernel,

* * * * *

King-cup and Fleur-de-lys
Upon the marsh to meet
With Comfrey, Watermint,
Loose-strife and Meadowsweet.

Bridges: The Idle Flowers.

Ah! there's the lily, marble pale,
The bonny broom, the cistus frail;
The rich sweet pea, the Iris blue,
The larkspur with its peacock hue;
All these are fair, yet hold I will
That the Rose of May is fairer still.

Mary Howitt: Rose of May.

In their gowns of crinkled silk,
Golden-banded, ranked in order,
Brilliant as the sunset fire is,
Black as bull's blood, white as milk,
Stand within our garden border
Troops of Iris.

Susan O. Moberly: Japan Iris.

Then in the valley, where the brook went by,
Silvering the ledges that it rippled from—
An isolated slip of fallen sky
Epitomizing heaven in its sum—
An Iris bloomed—blue, as if flower-disguised
The gaze of Spring had there materialized.

* * * * *

But most of all, yea, it were well for me,
Me and my heart, that I forget that flower,
The blue wild Iris, azure Fleur-de-lis,
That she and I together found that hour.
Its recollection can but emphasize
The pain of loss, remindful of her eyes.

Cawein: A Wild Iris.

But no bobolink of mine,
Ever sang o'er mead so fine,
Starred with flames of every hue,
Gold and purple, white and blue;
Painted-cup, anemone,
Jacob's ladder, Fleur-de-lis—

John Burroughs: Lapland Longspur.

High-lying, sea-blown stretches of green turf,
Wind-bitten close, salt-colored by the sea,
Low curve on curve spread far to the cool sky,
And curving over them as long they lie,
 Beds of wild Fleur-de-lys.

Wide-growing, self-sown, stealing near and far,
Breaking the green like islands in the seas;
Great stretches at your feet, and spots that bend
Dwindling over the horizon's end,
 Wild beds of Fleur-de-lys.

The light keen wind streams on across the lifts,
Their wind of western springtime by the sea;
The close turf smiles unmoved, but over her
Is the far-lying rustle and sweet stir
 In beds of Fleur-de-lys.

And here and there across the smooth, low grass
Tall maidens wander thinking of the sea;
And bend, and bend, with light robes blown aside,
For the blue lily flowers that bloom so wide,—
 The beds of Fleur-de-lys.

Charlotte Perkins Gilman: Bed of Fleur-de-lys.

No unresponsive soul had heard
That plaintive note's appealing,
So deeply 'Home, Sweet Home' had stirred
The hidden founts of feeling.

Or Blue or Gray, the soldier sees,
As by the wand of fairy,
The cottage 'neath the live-oak trees,
The cabin by the prairie.

Or cold or warm, his native skies
Bend in their beauty o'er him;
Seen through the tear-mist in his eyes,
His loved ones stand before him.

As fades the Iris after rain
In April's tearful weather,
The vision vanished, as the strain
And daylight died together.

J. R. Thompson: Music in Camp.

Far away under skies of blue,
In the pleasant land beyond the sea,
Bathed with sunlight and washed with dew,
Budded and bloomed the Fleur-de-lis.

Through mists of morning, one by one,
Grandly the perfect leaves unfold,
And the dusky glow of the sinking sun
Flushed and deepened its hues of gold.

She saw him rise o'er the rolling Rhine,
She saw him set in the western sea,
"Where is the empress, garden mine,
Doth rule a realm like the Fleur-de-lis?

"The forest trembles before the breath,
From the island oak to the northern pine,
And the blossoms pale with the hue of death
When my anger rustles the tropic vine.

“The lotus wakes from its slumbers lone,
To waft its homage unto me,
And the spice-groves lay before my throne
The tribute due to the Fleur-de-lis.”

So hailed she vassals far and wide,
Till her glance swept over a hemisphere,
But noted not, in her queenly pride,
A slender sapling growing near.

Slow uprising o’er glade and glen,
Its branches bent in the breezes free,
But its roots were set in the hearts of men,
Who gave their life to the Linden-tree.

“Speak, O seer of the mighty mien!
Answer, sage of the mystic air!
What is the lot of the Linden green?
What is the fate of the Lily fair?”

“Hear’st thou the wail of the winter wake?
Hear’st thou the roar of the angry sea?
Ask not, for heaven’s own thunders break
On the Linden fair and the Fleur-de-lis!”

* * * * *

The storm-clouds fade from the murky air,
Again the freshening breezes blow,
The sunbeams rest on the garden rare,
But the Lily lies buried beneath the snow!

From the ice-locked Rhine to the western sea
Mournfully spreads the wintry pall,
Cold and still is the Fleur-de-lis,
But the Linden threatens to shadow all!

Frowning down on the forest wide,
Darkly loometh his giant form,
Alone he stands in his kingly pride,
And mocks at whirlwind and laughs at storm.

“Speak, O sage of the mystic air!
Answer, seer of the mighty mien!
Must all thy trees of the forest fair
Fall at the feet of the Linden green?”

“Wouldst thou the scroll of the future see?
Thus I divine the fate of all!
A worm is sapping the Linden-tree,
The pride that goeth before a fall.

“For shame may come to the haughty crest,
A storm may sweep from the northern sea,
And winds from the east and winds from the west
May blow in wrath o’er the Linden-tree!

“Here, where the voice of the winter grieves,
The Lily hath lain its regal head;
Bright was the gleam of the golden leaves,
But the Lily was flecked with spots of red.

“Behind the clouds of the battle strife
The glow of resurrection see!
Lo! I proclaim a newer life,
The truer birth of the Fleur-de-lis!”

Thus saith the seer of the mighty mein,
Thus saith the sage of the mystic air,
The sunshine fell from the Linden green
And gilded the grave of the Lily fair.

Dr. Fred Crosby: The Lily and the Linden.

O golden days, O woodland ways,
And sunny meadows, teeming
With treasures rare, most royal fare,
For bard's or lover's dreaming.
O silvery stream, with glint and gleam
Where dipping boughs are laving,
The current lags where sweet Blue Flags
By ripples stirred are laving.

Amid the green, their soft, blue sheen,
With white and purple penciled,
Like bits of sky, where sunbeams lie,
Through leafy branches stenciled.

* * * * *

To Southern skies my fancy flies,
Beneath whose soft beguiling,
What songs I sung, when hope was young,
And all the world was smiling.
O memories dear, that linger near
The meadow, brook and wildwood,
And Blue Flags sweet, that made complete
The sunny days of childhood.

W. B. Hunt: Blue Flags.

Queen of the garden, in splendor unfolding
All your rich beauties unto our beholding,
Scattering freely your largesse untold;
Born in the purple, no rival you're fearing
Proudly your head to the sunshine uprearing
Gorgeous your raiment of purple and gold.

Hail to you Iris, your reign may be fleeting,
 Leal are your subjects who give you glad greeting;
 Blessings attend you upon your bright way;
 Faithful the hearts now your triumph acclaiming
 Loyal the lips your allegiance naming;
 Child of the Rainbow and queen of the May.

W. L. Patteson: Iris.

White Iris, how pure, how lovely,
 Like a virgin
 In her starched lawn fete dress * * *
 Iris, pallid blue, gold veined,
 And as if coloured from dawn chills,
 Or from the yellow-fingered touching
 Of curious starlight * * *
 Purple Iris,
 Streaked with amethystine memories of the night,
 Health-glossed and firm as are those ripe wings
 Of oriental butterflies * * *
 So in my garden
 Undulating ranks of Iris,
 Slimly holding their broad flat blooms
 (Like tripods of incense)
 Aloft-towards the moist spearing
 Of morning sunlight.

Michael Strange: Iris.

My mother let me go with her,
 (I had been good all day),
 To see the Iris flowers that bloom
 In gardens far away.

We walked and walked through hedges green,
Through rice-fields empty still,
To where we saw a garden gate
Beneath the farthest hill.

She pointed out the rows of "flowers";—
I saw no planted things,
But white and purple butterflies
Tied down with silken strings.

They strained and fluttered in the breeze,
So eager to be free;
I begged the man to let them go,
But mother laughed at me.

She said that they could never rise,
Like birds, to heaven so blue.
But even mothers do not know
Some things that children do.

That night, the flowers untied themselves
And softly stole away,
To fly in sunshine round my dreams
Until the break of day.

Mary McNeil Fenellosa: Iris Flowers.

The Iris, grown between my house and the neighbor's
Is just burnishing in its deepest color and glory;
I wish that some one would come to see it,
Before it withers away and returns to the dust.

Tr. from the Japanese.

Irises singing in the pool,
Irises dancing on its edge,
Amethyst bright and April cool
In among the greening sedge;
Pale as evening under the moon,
Purpling up to the roseate dawn,
Fragrant 'neath the delicate noon
Thrilled with pursuit of a leafy faun.

Blue, how heavenly blue are they!
Tiny plashes of scattered skies,
Precious bits of the April day
Azure as Aphrodite's eyes;
Laughing into sweetening air,
Singing and dancing with dainty art,
Virginal laughter free from care,
Emerald robe and golden heart.

Young, how blissfully young they are!
Little naiads unknown to fear,
Young as morn with its blossomy star,
Youthful as hope in the budding year;
Swaying gently for love of life,
Singing softly for love of love,
Leaving free from wintry strife
Water below and heaven above.

Blue as the blue of tempered steel,
Golden with wealth of courage fine,
Now they stand and now they kneel,
Spears upheld in the battle line;
Perils in frost and darkening ill
Dare not bide—and away they flee,
While the Irises dance their fill
Chanting their pæans of victory.

Wallace Rice: Irises.

Oh, the wonderous joys of summer,
As they yearly come to me!
When the Iris is in blossom,
Let me then from care be free
To go out into the garden,
Talk awhile with them and dream—
Oh, my dear and graceful fairies
Very wonderful you seem.

In the morning, all are radiant,
Fair and stately in the sun,
And I hasten out to greet them
Robed in splendor—every one.
How I wish my friends could meet them,
Since their greeting is the same
To either friend or stranger,
As we call them each by name.

Gowned in pearly satin, Fairy—
Sapphires, topaz at her throat,
Much admired—light and airy,
From her sweetest perfumes float.
Dear Celeste, in dainty azure,
Courtied by the White Knight true,
With a green sword he defends her,
Watching her the whole day through.

Jacquesiana—gorgeous fellow—
Standing with a gaudy crowd!
They don't mix much with the others
Who've proclaimed their colors loud.
Caterina,—wonderous beauty—
Side by side with Oriflamme,
Alcazar and Edouard Michel,
Violet Queen and Tamerlan.

*

*

*

*

*

I am happier for their presence,
Groups of lavender and blue,
For their lavish gifts and treasure
And their ways so fine and true—
Gifts of beauty without measure,
Gifts of fragrance, all so rare;
And we thank the One who gives us
Glorious sunshine, flowers fair.

Katherine Fellows: My Iris Friends.

Not all flowers have souls,
But roses, for they are memories of lovers,
And lilies, their prayers,
Azaleas, who give themselves to the winds,
And Irises, beloved of Pindar,

* * * *

And all shadowy wind flowers.

Florence Taber Holt: Flowers.

The joy of guardian angels, the iridescent hues
Of many broken rainbows and ever glist'ning dew.
A thousand varied tints of rose and gold and blue,
As beautiful as friendship that's proven ever true.

Sunbeams imprisoned that fall to earth and grow;
The lovely ling'ring blush of sunset afterglow.
The whiteness of the snows, a gleam of garish gold,
A wave of royal purple, a dash of yellow bold.

A song of the thrush beyond a jeweled lawn;
The voice of silence eloquent, a flush of rosy dawn.
A lazy breeze drifts over, then comes a gentle show'r,
And lo, there springs in magic the rainbow's fairy flow'r.

Grace Hine Dalzell: Spirit of the Iris.

FIG. III. IRIS (Ancient Vase) *

*(Courtesy of Newberry Library, Chicago.) From "Handbook of Legendary Art," by Mrs. Clara Erskine Clement.

CHAPTER II

Origin of Names

THE ORIGIN of the various names of the Iris is as fanciful as the color and form of its flowers.

IRIS.—Pliny wrote, nearly two thousand years ago, that “iris” is Egyptian for “eye”, and that the name “Iris” signifies “Eye of Heaven”.

The word “iris” is Greek for “rainbow”. In classic mythology Iris, the rainbow personified, was one of the minor goddesses, and messenger of the greater divinities, particularly of Juno. In art (as vase-paintings and reliefs, there are no statues of her) she wears a long and full tunic, over this a light garment; wings on the shoulders; bears the herald’s staff in her left hand and sometimes a pitcher (Fig. III, page 64).

Various Iris, Jove’s commands to bear,
Speeds on the wings of winds through liquid air.

Homer: Iliad II (Pope’s tr.).

Meantime, to beauteous Helen, from the skies
The various goddess of the rainbow flies.

Homer: Iliad III (Pope’s tr.).

Jove descending shook the Idæan hills,
 And down their summits pour'd a hundred rills,
 The unkindled lightning in his hand he took,
 And thus the many-colour'd maid bespoke:
 "Iris with haste thy golden wings display,
 To godlike Hector this our word convey—"

* * * * *

He spoke, and Iris at his word obey'd;
 On wings of winds descends the various maid.

Homer: Iliad XI (Pope's tr.).

High Juno from the realms of air,
 Secret, dispatch'd her trusty messenger.
 The various goddess of the showery bow,
 Shot in a whirlwind to the shore below;
 To great Achilles at his ships she came,
 And thus began the many-colored dame:

* * * * *

"Who sends thee goddess, from the ethereal skies?"
 Achilles thus. And Iris thus replies:
 "I come, Pelides! from the queen of Jove,
 The immortal empress of the realms above."

Homer: Iliad XVIII (Pope's tr.).

His wife bewailed him dead; to soothe her woe,
 From heaven descending on her watery bow,
 Iris from Juno hies, with joyful mien,
 To bear this mandate to the widowed queen.

Ovid: Metamorphoses.

Iris. Ceres, most bounteous lady, thy rich leas
 Of wheat, rye, barley, vetches, oats and pease;
 * * * The queen o' the sky
 Whose watery arch, and messenger, am I,
 Bids thee leave these; and with her sovereign grace,
 Here on this grass-plot, in this very place,
 To come and sport: * * *

Ceres. Hail, many-colour'd messenger, that ne'er
 Dost disobey the wife of Jupiter;
 Who, with thy saffron wings, upon my flowers
 Diffusest honey-drops, refreshing showers:
 And with each end of thy blue bow dost crown
 My bosky acres and my unshrubbed down,
 Rich scarf to my proud earth.

Shakespeare: Tempest.

But light-foot Iris brought it yester-eve.

Tennyson: Oenone.

She is generally represented as using the rainbow as her pathway through the air.

While elsewhere thus the war proceeds,
 Saturnian Juno swiftly speeds
 Her Iris from above
 To valiant Turnus:
 And thus the child of Thaumas speaks,
 Heaven's beauty flushing in her cheeks:
 * * * * *
 E'en as she spoke, her wings she spread,
 And skyward on her rainbow fled.

Virgil: Æneid IX (Conington's tr.).

Like as are reared within a tender cloud
 Two parallel and self-same colored bows,
 When Juno to her handmaid gives command.

Dante: Paradiso.

As large, as bright, as color'd as the bow
 Of Iris, when unfading it doth show
 Beyond a silvery shower, was the arch
 Through which this Paphian army took its march
 Into the outer courts of Neptune's state.

Keats: Endymion.

Is it a dream again or is it truth
 This vision fair of Greece inhabited?
 A fairer sight than all fair Iris sees
 Footing her airy arch of colors spun
 From Ida to Olympus, when she stays
 To look on Greece and thinks the sight is fair.

Bridges: Prometheus

And lo! the power that wakes the eventful song
 Hastes hither from Lethean Banks along;

* * * * *

Pensive her look; on radiant wings, that glow
 Like Juno's birds or Iris' flaming bow,
 She sails; * * *

Congenial sister of immortal Fame,
 She shares her power, and Memory is her name.

Falconer: The Shipwreck.

So swift her flight, her passing through the air is sometimes represented as unknown to all but for the brilliant trail left by her many colored robe.

Fell Juno, while before the mound
The games perform their festal round,
Despatches Iris from the sky
And gives her wings of wind to fly.

* * * * *

Adown her bow of myriad dyes,
Unseen of all, the maiden hies.

Virgil: Æneid V (Conington's tr.).

Like fiery clouds, that flush with ruddy glare,
Or Iris, gliding through the purple air;
When loosely girt her dazzling mantle flows,
And 'gainst the sun in arching colors glows.

Flaccus: Argonautics (Elton's tr.).

Another of the duties of Iris was to keep the clouds supplied with water from lakes and streams, that they might let it fall upon the earth in fertilizing showers. Hence in art she sometimes carries a pitcher in her hand.

Forth on his lagging pinions Notus flies;

* * * * *

With his broad hand the impending clouds he strains,
And forth in thunders burst descending rains.
Fair Iris, handmaid of the heavenly Queen,
In party-coloured robe overlooks the scene,
On clouds exhausted pours a fresh supply
And with new waters renovates the sky.

Ovid: Metamorphoses.

Iris there with humid bow
Waters the odorous banks, that blow
Flowers of more mingled hue
Than her purpled scarf can shew.

Milton: Comus.

There's crimson buds, and white and blue—
The very rainbow showers
Have turned to blossoms where they fell,
And sown the earth with flowers.

Hood: Song—O Lady.

The legend runs that under her footsteps on earth
rose the flower that bears her name.

And still before me in the dusky grass,
Iris her many-colored scarf had drawn.

Shelley: Triumph of Life.

Flow'rs over all the field, of every hue
That ever Iris wore, luxuriant grew.

Cowper: Elegy III, tr. from Milton.

Thou knowest not the parching
Of summer's cruel drought;
Thou seest not the marching
Of snows in winter rout;
But thine the emerald sod is,
And flowery cups that brim,
O amaranthine goddess,
Beneath the rainbow rim!

For thee dusk sun-rays pencil
The sloping of the wold,
For thee fair lilies stencil
The ancient cloth of gold.
Of Tyrian hue thy bodice,
Thy crown the dewdrops trim,
O amaranthine goddess,
Beneath the rainbow rim!

The breezes all pursue thee,
Moved by thy virgin pride.
Great Pan himself doth woo thee,
And seek thee for his bride.
The spot where thou hast trod is
A jewel cast to him,
O amaranthine goddess,
Beneath the rainbow rim!

C. E. D. Phelps: Iris.

Anciently her name was given to this genus on account of the bright and varied colors of its flowers.

Nor Iris in her glorious rainbow clothed
So fulgent as the cheerful gardens shine
With their bright offspring, when they're in their bloom.

Columella: De Rustica X.

O beautiful! beautiful flower!
The ward of the sunbeam and shower
In garments of woven delight,
Of the sunset, Aurora and light.
While over thy beauty there plays
Such blending of color and shade,
Such delicate tinting and rays,
Well becoming a heavenly maid.
Ethereal lovely and sweet,
Thy presence we joyously greet.

Thy mother, fair Iris, in beauty supreme,
Took all her rich fabrics of loveliest sheen,
The robes of the rainbow, flower garden of air,
Of bewildering beauty, resplendently fair,
And made for her child such a dazzling dress
No daughter of royalty e'er could possess.

Harrison: The Iris.

FLEUR-DE-LIS.—The golden device which was on the flag of royal France—as far back as, at least, the latter part of the fifth century, when Clovis the First was King of France—until the downfall of Louis Philippe (1848), is claimed by some to have been modeled after the Iris; by some, after the lily; by some, after the Egyptian lotus; by some, after the toad or frog; by others, that it is a mere arbitrary design. At first the figures were scattered over the field—in the twelfth century the field was white—and of no fixed number, but about the middle of the fourteenth century they were reduced to three, the mystical church number—Charles V then definitely

fixing the French King's coat of arms, *Azure, à trois fleurs-de-lis d'or* (three golden Fleurs-de-lis on a blue field). See Fig. IV.

The azure ground with golden Fleurs-de-lis remained the symbol of royalty until the beginning of the fifteenth century, when the white standard of Jeanne d'Arc wrought marvels, and by degrees the custom was introduced of depicting Fleurs-de-lis on white ground.

In Heraldry gold signifies the four kingly virtues: nobility, good-will, charity and magnanimity. Blue is the symbol of chastity, innocence and candor. White, the symbol of light, typifies innocence and purity, joy and glory. White and blue possess particular significance, being the colors ascribed by the Roman Church to the Virgin Mary.

FIG. IV.—STANDARD OF CHARLES VI*

*(Courtesy of Newberry Library, Chicago.) From "Flags of The World," by Edward Hulme.

In Richard Folkard's "Plant Lore, Legends and Lyrics" a legend is related as follows:

"Clotilda, the wife of the war-like King Clovis, had long prayed for the conversion of her husband, and at length Clovis, having led his army against the Huns, and being in imminent danger of defeat, recommended himself to the God of his sainted wife. The tide of battle turned, he obtained a complete victory, and was baptized by St. Remi. On this occasion, owing to a vision of St. Clotilda, the Iris was substituted, in the arms of France, for the three frogs or toads which Clovis had hitherto borne on his shield."

Another legend, related by the same author, is that an angel brought the blue banner, strewn over with golden Fleurs-de-lis, to Clovis after his baptism.

In the writings of James R. Planche, an English writer on heraldry, it is stated that "Clovis" is the Frankish form of the modern "Louis", and that in its origin the Flower-de-luce may be a rebus signifying the "Flower of Louis".*

Tradition has it, also, that when Louis VII of France, surnamed "*Le Pieux*" (the "Pious"), joined the expedition of the Crusaders (1147) he adopted the Iris flower as his emblem, and that hence it came to be known as "Fleurs-de-Löis (Flower de Löis)—Löis being the way the first twelve kings Louis signed their name—subsequently corrupted in English to Flower-de-luce, and later to Flower-de-lis.

It is urged by some writers that Louis VII probably

*Boutell's Heraldry.

selected a white flower as his emblem. But the Fleur-de-lis is *or* (gold) in heraldry, and not *argent* (silver) as it seems would be likely to be the case if a white flower was to be indicated; and from this circumstance it is more generally believed—by those claiming a flower to have been the origin of the emblem—that it is a yellow flower that was selected, the marsh-loving, yellow *Iris pseudacorus*.

It has also been said that Louis VII adopted this device in allusion to his name, Louis Florus.

I cannot give due action to my words,
Except a sword, or scepter, balance it.
A scepter shall it have, have I a soul;
On which I'll toss the Fleur-de-luce of France.

Shakespeare: 2 King Henry VI.

Methought, upon the Neva's flood
A beautiful Ice Palace stood,

* * * * *

A light through all the chambers flam'd,
Astonishing old Father Frost,
Who, bursting into tears, exclaim'd:
"A thaw, by Jove—we're lost, we're lost."

* * * * *

Those Royal Arms, that looked so nice,
Cut in the resplendent ice—

* * * * *

Proud Prussia's double bird of prey
 Tame as a spatch cock, slunk away;
 While—just like France herself, when she
 Proclaims how great her naval skill is—
 Poor Louis' drowning Fleurs-de-lys
 Imagin'd themselves water-lilies.

Thomas Moore: Dissolution of the Holy Alliance.

“Lis” is French for “lily”, and it has been claimed by some that the Iris was called “Fleur-de-lis”, “Flower of the lily”, from resemblance of its flower to that of the lily, though botanically the Iris and the lily are widely separated.

The golden figures on the arms of royal France have sometimes been referred to as the “Lilies of France”, and such use of “Lily” instead of “Iris”, either through ignorance or disregard of the botanical distinction, or because “lis” is French for “lily”, was formerly not uncommon. Thus:

Now by the lips of those you love, fair gentlemen of France,
 Charge for the Golden Lilies; upon them with the lance.

A War Cry of Chivalry.

I would I had some flowers o' the spring, that might
 Become your time of day;
 * * * lilies of all kinds,
 The Flower-de-luce being one! O, these I lack,
 To make you garlands of.

Shakespeare: Winter's Tale.

First to the field the gallant Franks advance,

* * * * *

* * * once by Hugo led,
* * * but his vital thread

Cut short, the flag in whose field-azure flame

The Golden Lilies, they beneath the dread

Clotharius follow.

Tasso: Jerusalem Delivered.

Britain! high favour'd of indulgent Heaven!

* * * * *

This once so celebrated seat of power,

From which escap'd the mighty Caesar triumph'd!

Of Gallic Lilies this Eternal Blast!

Young: Love of Fame.

What flower in meadow-ground or garden grows

That to the towering Lily doth not yield?

* * * * *

Go forth great King! Claim what thy birth bestows;

Conquer the Gallic Lily which thy foes

Dare to usurp.

Wordsworth: Archbishop Chicheley to Henry V.

Upon the pedestal of the statue of Jeanne d'Arc,
"Maid of Orleans," at Rouen, France, *Fleurs-de-lis*
are sculptured, with the inscription:

Lilia virgines tuta sub ense nitent [Beneath the maiden's sword the Lilies safely bloom].

A particularly noticeable illustration of such use of "Lily" is found in Longfellow's poem, "Flower-de-Luce" (see pages 48 and 49).

It is believed by many that the Iris is one of the flowers referred to as "Lilies of the field", in Scripture:

Consider the lilies of the field,
how they grow; they toil not,
neither do they spin;
And yet I say unto you, that
Solomon in all his glory was not
arrayed like one of these.

Matthew VI: 28-29.

Observe the rising lily's snowy grace,
Observe the various vegetable race;
They neither toil, nor spin, but careless grow,
Yet see how warm they blush! how bright they glow!
What regal vestments can with them compare!
What king so shining! or what queen so fair!

Young: Verses 28-29 of Matthew VI, paraphrased.

Further as to the name "Lily", see under *Use of Name and Figure* in Chapter III.

According to another account the name “Fleur-de-lis” owes its origin to the circumstance that, according to the account, a ford over the river Lys in Flanders was indicated to a French King, when hard pressed by his enemies, by the abundance of a yellow flowered water-loving species of Iris on the low marshy bank—Fleur-de-Lys, Flower of the river Lys.

Some find the origin of the name in “delice”, French for “delight”—Fleur-delice, Flower of delight.

Strow me the ground with daffodowndillies,
And cowslips, and kingcups and loved lilies;
The pretty paunce,
And the chevisaunce,
Shall match with the fair Flow'r delice.

Spenser: Shepherd's Calendar.

Others find its origin in “lueur”, French for “light”—Fluer-de-lueur, Flower of light.

FLAG.—By some it is said that the name “Flag” was given to these plants on account of their flat leaves which sway in the wind. Another version is that the three drooping segments of the flower were called “flags” because like flags they flutter in every breeze, and that from this circumstance the name, in time, was given to the plant itself.

The common Flower-de-luce hath large flaggie leaves.

Gerarde: Herball. (16th Cent.)

The narrow leaved Ieros, his flagges be long and narrowe.

Dodoens: Herball. Tr. by H. Lyte.

Sweetest Iris beareth shortest flagges.

T. Moufet: Silkworms.

Oh beautiful Iris, unfurling your purple and gold,
What victory fling you abroad in the flags you unfold?

* * * * *

Flutter your gonfalons, Iris, the pæan I sing,
Is for victory better than joy or than beauty can bring.

Celia Thaxter: A Thanksgiving.

For I am become as the balmiest, stormiest zephyr
 of spring,
With manifold beads of the marvelous dew and the rain
 to string
On the bended strands of the blossoms, blown
And tossed and tousled and overthrown,
And shifted and whirled, and lifted unfurled
In the victory of the blossoming
Of the Flags of the flowery world.

Riley: Passing of a Zephyr.

Irises in the olden-time gardens were sometimes
known as "Flags".

Some of these lovely Nymphs wore in their flaxen hair
Fine chaplets made of Flags, that fully flow'rd were.

Drayton: Polyolbion.

The next pool they came near unto
Was bare of trees; there only grew
Straight Flags, and lilies just a few.

Mrs. E. .B Browning: Vision of Poets.

But yet from out the little hill
Oozes the slender springlet still.
And shepherd boys repair
To seek the Water-flag and rush,
And rest them by the hazel bush,
And plait their garlands fair.

Scott: Marmion.

Laden barges float
By banks of Myosote;
And scented Flag and golden Flower-de-lys
Delay the loitering boat.

Bridges: The Thames.

From the bridge I lean'd to hear
The milldam rushing down with noise,
And see the minnows everywhere
In crystal eddies glance and poise,
The tall Flag-flowers when they sprung
Below the range of stepping-stones,
Or those three chestnuts near, that hung
In masses thick with milky cones.

Tennyson: The Miller's Daughter.

Oh Darkling River! * * *
* * * The dweller by thy side,
Who moored his little boat upon thy beach,
Though all the waters that upbore it then
Have slid away o'er night, shall find, at morn,
Thy channel filled with waters freshly drawn
From distant cliffs, and hollows where the rill
Comes up amid the Water-flags.

Bryant: Night Journey of a River.

How graceful climb those shadows on my hill!
I fancy these pure waters and the Flags
Know me, as does my dog; we sympathize.

Emerson: Hamatreya

All night long he sailed upon it,
Sailed upon that sluggish water,
Covered with its mould of ages,
Black with rotting water-rushes
Rank with Flags and leaves of lilies.

* * * * *
Then once more Cheemaum he patted,
To his birch canoe said "Onward!"
And it stirred in all its fibres,
And with one great bound of triumph
Leaped across the water lilies,
Leaped through tangled Flags and rushes,
And upon the beach before them
Dry-shod landed Hiawatha.

Longfellow: Hiawatha.

Where waves the bulrush as the waters glide,
And yellow Flag-flowers deck the sunny side.

Scott.

Apollo, resting at the rim of morn
Upon the mountain, there espies a shrine
To Artemis, ruinous and forlorn.
He speaks. Pillars and altar rise and shine
Glorious as of yore. Thereat, for fear
It fall to grief again, his smiling power
Would give it worship due, virginal cheer
Befitting. So the neighboring brook's Flag-flower
At word becomes meet priestess for the fane,
Lithe-Limbed, with azure eyes and tresses bright,
And upraised hands to adore the Heavenly Twain.
The Lad Divine in fair-surprised delight
Kisses her, brow and bosom, and is gone
As she and every slope blush sweet with dawn.

Wallace Rice: The God's Kiss.

VARIOUS NAMES.—The Iris has been called “Poor Man’s Orchid”, and “Orchid of the North”, from its being both cheap and hardy and possessing diversity, delicacy and richness of color and elegance of form.

More than 250 years ago its bright and varied colors suggested to Joseph Pitton de Tournefort, an eminent French botanist, the name “Rainbow Flower”.

It has sometimes been called “Dagger-Flower”, a name suggested by the shape of its leaves.

Ruskin refers to the Iris as the Flower of Chivalry—"with a sword for its leaf, and a lily for its heart."

In Gerarde's "Herball" (1597) it is stated that in French it is called "Flambe", and *Iris florentina* (a white flower much used in church decoration) "Flambe blanche" (White Torch).

CHAPTER III

Use of Name and Figure

THE IRIS has been an inspiration not alone to the poet but also to the artist and the artisan. Its magic has touched the heart and the head. It has served to express alike the feelings of the lowly and the conceptions of the most gifted.

FLOWER LANGUAGE.—Named for the celestial messenger, in flower-language the Iris signifies “a message”, or “a messenger”; sometimes, “ardor”, or “my compliments”.

To France, sweet Suffolk: let me hear from thee;
For whereso'er thou art in this world's globe,
I'll have an Iris that shall find thee out.

Shakespeare: 2 King Henry VI.

METAPHOR.—The Fleur-de-lis being an emblem of royalty, the name “Fleur-de-lis” was sometimes used for “Our Saviour”.

Of lily, of rose of ryse,
Of primrose, and of Fleur-de-lys,
Of all the flowers at my devise,
That Flower of Jesse* yet bears the price,
As most of heal
To slake our sorrows every deal.

Carol, sung about 1426.

For his love that bought us all dear,
Listen, lordlings, that be here,
And I will tell you in fere
Whereof came the Fleur-de-lys.
On Christmas night, when it was cold,
Our Lady lay among beasts bold,
And there she bare Jesu, Joseph told,
And thereof came the Fleur-de-lys.
Sing we all for time it is;
Mary has borne the Fleur-de-lys.

Carol, sung about 1500.

In allusion to the French standard, "Fleur-de-lis" was sometimes used for "The Kingship of France"—as when the kings of France were allies of the papacy:

'Tis a goodly match as match can be,
To marry the Church and the Fleur-de-lis;
Should either mate a straying go,
Then each—too late—will own 'twas so.

Anon.

*Our Saviour, of the root of Jesse.

In like allusion the King of France was sometimes called "The Lily". The Dauphin, as the eldest son of the King was styled, was often affectionately called the "Lily of France".

Gracious my lord and prince of mickle dread,
Flower of the Lily, Royal progeny,
Francois Villon, whom dule and teen have led
To the blind strokes of Fate to bend the knee,
Sues by this humble writing unto thee.

Villon: Request to Duc De Bourbon. (15th Cent.)

It is said that in the time of Philip the Fair, Charles VIII and Louis XII, France was commonly called "Lilium" and her citizens "Liliarts".

The name "Flower-de-Luce" has sometimes been applied to the citizens of France—as when the English King, having asked the French Princess to marry him, says to her:

What sayest thou, Flower-de-Luce?

Shakespeare: King Henry V.

So, too, the name "Flower-de-Luce" has been applied to persons in some way connected with French interests, as in the case of Pope Boniface VIII:

To hide with direr guilt
Past ill and future, lo! the Flower-de-luce
Enters Alagna; in his Vicar Christ
Himself a captive, and his mockery
Acted again.

Dante: Purgatory.

SYMBOL. IN GENERAL. — In ancient times, among different peoples (as, Assyrians, Egyptians, Greeks, Persians, Romans) the Fleur-de-lis was a symbol of various significations (as, Eloquence, Fecundity, Power, Success, Wisdom).

RELIGIOUS SYMBOL. —The Fleur-de-lis was early used in art as a symbol of Divine Majesty (as, by placing crowns decorated with the Fleur-de-lis upon the heads of God the Father, of God the Son, and also on the head of the Virgin Mary). Thus in a stained glass window in the cathedral (dating from the 13th century) at Troyes, France, God the Father holding the crucifix wears a tiara of five tiers, each decorated with the Fleur-de-lis.

In olden days in Catholic countries the Fleur-de-lis was held peculiarly sacred to the Virgin Mary. It was constantly repeated in the religious pictures of the early masters (as, the Adorations, the Annunciations, the Immaculate Conceptions), sometimes used as the symbol of spotless purity of the Maid of Nazareth, but more frequently as the attribute of the Queen of Heaven.

There is a story which is related in Rev. H. Fruend's "Flowers and Flower Lore":

“The legend is that of the Knight who, more devout than learned, could never remember more than two words of the Latin prayer which was offered to the Holy Mother. These were *Ave Maria*, and it was in these words that he continually addressed his prayer to Heaven. Night and day his supplication continued, until at last the good old man died and was buried in the chapel yard of the convent, where, as a proof of the acceptance which his brief and earnest prayer had gained at the hands of the Virgin, a plant of Fleur-de-lys sprung up on his grave, which displayed on every flower in golden letters the words *Ave Maria*. This strange sight induced the monks, who had despised him during his lifetime on account of his ignorance, to open his grave. On doing so they were surprised to find that the root of the plant rested on the lips of the holy knight whose body lay mouldering there.”

ENGLISH EMBLEM.—Edward III, claiming the Kingship of France, in 1340 added the Fleur-de-lis to the arms of England.

Behold Third Edward's streamers blazing high
On Gallia's hostile ground! his right withheld,
Awakens vengeance; O imprudent Gauls,
Relying on false hopes thus to incense
The warlike English! * * *
* * * Great Edward thus aveng'd
With Golden Iris his broad shield embossed.

Philips: Cider.

But hark! the portals sound, and pacing forth
With solemn steps and slow,
High potentates, and dames of royal birth,
And mitred fathers in long order go:
Great Edward, with the Lilies on his brow
From haughty Gallia torn,

* * * * *

Gray: Installation Ode.

The badge (a decoration of cognizance) of the Prince of Wales is a plume of three silver ostrich feathers, enfiled by a coronet composed of gold Fleur-de-lis and crosses-patee alternately (Fig. V), with the motto "*Eich dyn*" (your man) substituted for the earlier motto "*Ich dien*" (I serve).

For significance of gold, in Heraldry, see page 73.

For conventional forms of Fleur-de-lis see Fig. IV, page 73, and Fig. VI, page 95.

FIG. V. —BADGE OF PRINCE OF WALES*
(Motto omitted)

*Courtesy of Newberry Library, Chicago.

While England held the French provinces the Fleur-de-lis was frequently allowed to British subjects as a heraldic emblem.

From fair St. Mary's silver wave,
From dreary Gramescleugh's dusky height,
His ready lance Thirlestane brave
Array'd beneath a banner bright.
The treasured Fleur-de-luce he claims,
To wreathe his shield, since royal James,
Encamp't by Fala's mossy wave,
The proud distinction grateful gave,
For faith 'mid feudal jars.

Scott: Lay of Last Minstrel.

Some of the bloodiest battles in history were fought in England's effort to retain the French territory that Edward III had won.

Poitiers and Cressy tell,
When most their pride did swell,
Under our swords they fell:
No less our skill is,
Than when our grandsyre greate,
Claiming the regal seate,
In many a warlike feate
Lop'd the French Lilies.

Drayton: Ballad of Agincourt.

Later, France recovered all the provinces that England had wrested from her, though it was not until

long after, about the beginning of the nineteenth century, that the Fleur-de-lis was removed from England's coat of arms.

Awake, awake, English Nobility!
Let not sloth dim your honors now begot;
Cropped are the Flower-de-luces in your arms;
Of England's coat one half is cut away.

Shakespeare: 1 King Henry VI.

ORNAMENTATION.—All the accounts which assign to the Fleur-de-lis as a device an exclusively French origin, are open to the objection that it seems to be a well established fact that the Fleur-de-lis was a motif in ornament at least as far back as the Etruscans who were a civilized and cultivated people long before the foundation of Rome. At a very early day it was an ornament on the crowns, scepters, thrones, seals, coins, etc., not only of the Frankish but of the Greek, Roman, German, English and Spanish Kings. And it is stated that it occurs in the head-dresses of the Egyptian sphinxes. See also under *Symbol, In General*, page 90.

Later it was much used in the ornamentation of buildings, public works generally, military trappings, clothing, etc. In church architecture and decoration especially, it was constantly occurring.

Some of the conventional forms of the Fleur-de-lis are shown in Fig. VI. See also Fig. IV, page 73. Two forms of cross fleury (a cross having a Fleur-de-lis

at the extremity of each member) are shown in Fig. VII.

FIG. VI.—FLEUR-DE-LIS
CONVENTIONALIZED*

FIG. VII.—FORMS OF
CROSS FLEURY†

They entered now the chancel tall;
The darkened roof rose high aloof
On pillars lofty and light and small:
The key-stone, that locked each ribbed aisle,
Was a Fleur-de-lys, or a quatre-feuille.

Scott: Lay of Last Minstrel.

Charles, dauphin of France:

Thou hast astonish'd with thy high terms;
Only this proof I'll of thy valor make,
In single combat thou shalt buckle with me;
And, if thou vanquishest, thy words are true;
Otherwise, I renounce all confidence.

Joan of Arc:

I am prepar'd: here is my keen edg'd sword,
Deck'd with five Flower-de-luces on each side.

Shakespeare: 1 King Henry VI.

*From Century Dictionary and Cyclopedia.

†A. From Webster's International Dictionary.

B. From Encyclopedia Britannica.

From his steed's shoulder, loin and breast,
 Silk housings swept the ground,
 With Scotland's arms, device and crest,
 Embroidered round and round.
 The double treasure might you see,
 First by Achaius borne,
 The thistle and the Fleur-de-lis,
 And gallant unicorn.

Scott: Marmion.

Never a knight a fairer face than he,
 Robed in rich rayment of a noble blue,
 And flowered with Fleur-de-lys of golden hue.

*Anon.: Morte Arthure. (14th Cent.)
 Tr. by Jessie L. Weston.*

Raise me a dais of silk and down;

* * * * *

Work it in gold and silver grapes,
 In leaves and silver Fleurs-de-lys;
 Because the birthday of my life
 Is come, my love is come to me.

Christina Rossetti: A Birthday.

At the time of the French Revolution, because of the idea of royalty associated with the Fleur-de-lis, many buildings, monuments and works of art, on

which it appeared as an ornament, were ruthlessly injured or destroyed. But when Napoleon Bonaparte became Emperor he encouraged the use of the Fleur-de-lis in ornamentation, saying it was under the Fleur-de-lis the French soldiers had so often marched to victory.

For a' that an' a' that,
Guns, guillotines, and a' that,
The Fleur-de-lis, that lost her right,
Is queen again for a' that.

Scott: For A' That An' A' That.

By virtue of a decree of Napoleon III in 1852 against factious or treasonable emblems, it was forbidden to introduce the Fleur-de-lis in jewelry, tapestry or any other decorative way, he doubtless fearing it might occasion comparison between himself and his predecessors.

COMPASS.—A Fleur-de-lis is on the north pole of the mariner's compass. It seems to be generally conceded by the authorities that Flavio Gioja, a Neapolitan mariner, born near the end of the thirteenth century, contributed to perfect the instrument, and that the Fleur-de-lis instead of an N was chosen by him to mark the north part of the compass (Fig.

VIII), in honor of Charles D'Anjou, King of Naples, who was of French descent, brother of Louis IX, King of France.

FIG. VIII.—MARINER'S COMPASS*

TRADE-MARKS AND SIGN-BOARDS.—Some of the early paper-makers used the Fleur-de-lis as a water-mark or device to distinguish the paper of their manufacture, each adopting a different outline of the flower. “*Les Filigranes*”, by C. M. Briquet, contains numerous plates showing many of the forms used.

As early as, at least, 1505, printers and publishers began to use the Fleur-de-lis as a trade-mark. Sometimes merely a simple, crude outline of a portion of the flower was adopted, but the marks of some publishers were quite elaborate and artistic. “Early

*From the American Cyclopaedia.

Dutch, German, and English Printers' Marks", by J. Ph. Berjeau, "Printers' Marks", by W. Roberts, and "Printers' and Publishers' Devices in England and Scotland", by Ronald B. McKerrow, contain a large number of illustrations of such devices.

Trades-people sometimes used the flower as a sign. In the volume last above referred to, mention is made of the "Device of George Gibbs, Bookseller, 1613-33, who traded at the Flower-de-Luce in St. Paul's Church yard".

PUBLICATION-NAME.—Periodicals have been published in this country and abroad, some bearing the title "The Iris", and others the title "Fleur-de-lis": "The Iris", at the University of Buffalo, Buffalo, New York; "La Fleur-de-Lys", Lunel, France; "Fleur de Lys de L'ouest", Paris, France; "Fleur de Lis", St. Louis University, St. Louis, Missouri.

In the 1921-1922 Holiday Number of the last mentioned publication the lineage of its name is charmingly traced in most graceful lines:

The sainted Louis leads his knights of France
To wrest from tyranny of Paynim band
The Saviour's tomb and all the Holy land:
His royal standard heads their brave advance,
Inspiring courage,—steadyng each lance.
Their eager souls await their lord's command.
Beneath his Fleur de Lis, on Syria's strand;—
They hail the snowy folds with loving glance.

Not fated, they, to win the prize they seek!
Yet, noble souls may triumph,—though they fail!
St. Louis, like his Master,—bold, yet meek,—
Knows not defeat, where craven's heart would quail.
Unstained his snowy flag,—God's warrior he!
Still gleaming bright, his golden Fleur de Lis!

* * * * *

New worlds beyond the ocean's wide expanse,
Allure the hearts of youth, aspiring, free,
To conquest, fame and wealth and Liberty.
Again the chivalry, the flower of France,
Leap forth to battle, braving odds of chance
In wilds unknown;—they cross the heaving sea;—
Again the snowy flag and Fleur de Lis
Enkindle ardor for the high romance!

All buoyantly they dare the frozen North;—
New France is builded under alien sky!
Now calls the golden West, and faring forth,
Within its woods and hills their fate they try.
The West is won! they raise for all to see,
St. Louis' flag of snow and Fleur de Lis!

* * * * *

Once more, Religion calls a new crusade
'Gainst Error's pagan hosts, whose victims be
Men's souls enslaved to Pride, and Vanity
And fleshly lusts, that shamefully degrade
Th' immortal spirit. Lo! Again displayed,
And high over Learning's stronghold, floating free,
The snowy flag bestrewn with Fleur de Lis,
And 'neath its folds St. Louis' sons arrayed!

Well-armed with Learning, Constancy and Truth;
Their hearts aglow with ardor, strong and brave,—
Their brows all radiant with the flush of youth,
Their God to serve and fellow-man to save!
Full-panoplied in Faith and Loyalty,
They guard the snowy flag* and Fleur de Lis.

Joseph A. Murphy, S. J.: Fleur-de-Lis.

*As to color see pages 72 and 73.

CHAPTER IV

Classification

THE CLASSIFICATION of Irises has been according to their rootstocks, and then into sections, species and varieties. Of those which have fleshy rootstocks, one section is Pogoniris, Bearded Irises—"pogon" being Greek for "beard". A few Irises of the same class, as to rootstocks, that includes the section Pogoniris, are bearded but also have such other distinctive characteristics that they have not been included in the Pogoniris section but have been placed in other sections (as, *Oncocyclus*, *Regelia*).

Only Irises usually included under the classificatory name of "Pogoniris Section" will be herein considered, and only such of the taller growing species of these as have to a considerable extent come into commerce—the bearded species usually included in the general term "Dwarf Irises" being excluded.

THE NAME "GERMAN" IRISES has been given to a group of species of the bearded Irises, and it came about in this way:

Linnæus (b. 1707, d. 1778), the great Swedish naturalist, regarded as the father of modern systematic botany, in considering the subject of botanical nomenclature settled upon the plan of giving each known plant two names—a genus-name consisting of a single word, and a species-name consisting of

a single word expressing some obvious character of the species. In 1753 he published on this plan his "Species Plantarum," which is the basis of the present universally accepted binomial nomenclature. In this great work, under the heading IRIS, as genus-name, he described one form of Iris, adopting "germanica" as the species-name, as follows:

"germanica. 2. Iris corollis barbatis, caule foliis longiore multifloro [Iris with the corollas bearded, stem longer than the leaves, many flowered]. Hort. cliff. 18. Hort. ups. 16. Mat. med. 24 [earlier publications by Linnæus]. Roy. lugdb. 17 [Royen's Flora Leydensis, published in 1740].

"Iris vulgaris germanica, s. sylvestris, Bauh. pin. 30 [the common german Iris, or the woods-inhabiting Iris of Bauhin's Pinax, Pinax Theatre Botanic, published in 1623].

"Iris hortensis latifolia. Bauh. pin. 31 [the broad-leaved Iris of gardens, mentioned in Bauhin's Pinax].

"Habitat in Germanicæ Eeditis [it is found in the higher districts of Germany]."

It appears from his description that Linnæus thus established the species, in the present accepted nomenclature, from earlier authors, principally from Caspar Bauhin, and that he took from him the location also. In subsequent publications he substituted "altiore", taller, for "longiore", longer, and he added to the above definition:

"floribus inferioribus pedunculatis. Petala inferiora plana; interiora integerrima, nec emarginata [with the lower flowers stalked. Lower petals flat; inner ones entire, not notched at apex]."

In "Species Plantarum" Linnæus included some other species [as he regarded them] of *Iris*, which he described, in part, as having the corollas bearded, and in subsequent editions he added a few others which also he so described in part; and each of several of the latter (*Iris florentina*, *Iris sambucina* and *Iris squalens*) he described, in respect to beard and stem, in the same words ("Iris corallis barbatis, caule foliis altiore") of his description of beard and stem of *Iris germanica*, and then added that it was *like Iris germanica* ("Simillima *I. germanicæ*") except in several particulars which he specified, but he gave *southern Europe* as the habitat.

In *Iris germanica* the beard is confined to the midrib of the falls, and, *Linnæus having likened to Iris germanica some other species so bearded*, in time this species came to be regarded as the type of many species of tall bearded Irises (tall as compared with *Iris pumila* and other dwarf species) in which the beard is confined to the midrib, and so the name "German", derived from the name of the species named "*germanica*", was applied to all of them as a group, without any regard to the matter of habitat. So it seems to be quite apparent that when "German" was first applied to the members of the *germanica* group it was understood as indicating merely *resemblance in matters of form* to the species *germanica*, and that in time the meaning became perverted.

"German", as the term is now understood, as applied to the so-called group of Irises, is a misnomer. No species included in the group has ever been known

to be native to Germany—not even any of the varieties of the species botanically called “*germanica*”. Of late there has been a growing inclination to substitute some other name for this group. “*Germanica*” will probably be retained as the name of the species so established by Linnæus, for it is strictly a botanical name, and such names are not changed lightly—rarely, if ever, for merely sentimental reasons; but for the retention of “German”, as applied to the group, there seems to be little reason, especially in view of the number of species included in the group and the name being inaccurate and misleading as to each of them. “French Irises” has been suggested as a substitute, but there are so very few species native to France that “French” seems to be but little more appropriate than “German”. “Liberty Irises” has been suggested, but the Iris for centuries was the emblem of *imperial* France. “Victory Irises” has been proposed, but Louis VII, who is supposed by some to have adopted the Iris as his emblem in the expedition of the Crusaders (see page 74) did not therein achieve victory, and in Europe the “Lilies of France” sometimes went down in defeat. “Flag Irises” and “Bearded Flag Irises” also have been proposed, but not only is “Flag Irises” now generally understood to include both tall and dwarf bearded species and some beardless species, but “Flags” has come to be the common name for the marsh loving species (see pages 81-84), and it is also given indiscriminately to plants of similar foliage, calamus (*Acorus*) and the cat-tail reed (*Typha*).

Can bulrushes but by the river grow?
Can flags there flourish where no waters flow?

Job VIII: II, versified by G. Sandys.

Spawn, weeds and filth, a leprous scum,
Made the running rivulet thick and dumb,
And at its outlet flags huge as stakes
Dammed it up with roots knotted like water-snakes.

Shelley: The Sensitive Plant.

TALL BEARDED IRISES.—As the beard of *Iris germanica* is the principal characteristic that causes this species to be regarded as the type of tall species similarly bearded, "Tall Bearded Irises" seems to be an appropriate substitute for "German Irises", especially as it conforms to Linnæus' plan of naming plants (adopting a name expressing an obvious characteristic).

Linnæus' description of *Iris germanica* is not full enough to enable one to take any particular form of *Iris germanica* as the type, and it does not appear that he left any herbarium-specimen of it. In the Linnean herbarium, which is now in the possession of the Linnean Society of London, there is only one sheet of *Iris germanica*, and the only memorandum on the sheet is, "*germanica*, H. U. 1777",* which means that the specimen was derived from the garden of Upsala in the year 1777. The writing is that of Linnæus' son (himself a botanist),* and during all of

*Information received through courtesy of Mr. J. Drayton Jackson, General Secretary of the Linnean Society of London.

1777 Linnæus was quite incapable of mental or physical exertion, and therefore that specimen cannot be taken as the type of the species. It seems that, owing to the absence of more definite information, modern monographers have taken the common blue form as a type, as that is the prevailing character of the species;* but, as a name for that variety, for the reason just mentioned either “Vulgaris” or “Common Blue Flag” is preferable to “Germanica” or “Typica”.

SPECIES.—Some of the forms of the section *Pogoniris*, Tall Bearded Irises, which have long been treated as species probably are not distinct species. In the opinion of some modern Iris-authorities,† based on characteristics of plants from seeds, most of these forms, not including a few lately introduced from Syria and Asia Minor, originated (either from cross-fertilization or as sports) from two or, at most, three, wild forms: *Iris pallida*, *Iris variegata*, and, possibly, *Iris sambucina*. For instance, it is now thought that *Iris germanica* probably originated in southern Europe, from one parent from central Europe and another from a warmer country.‡ They are all, however, of such ancient origin—some of them have been described as species since even before the time Linnæus published his “Species Plantarum”—that for convenience of description of types they will be herein referred to under their old and familiar species-names, with this

*Information received through courtesy of Professor L. H. Bailey, of Cornell University.

†Sir Michael Foster, and Dr. W. R. Dykes.

‡Information received through courtesy of Dr. W. R. Dykes.

cautionary statement that some of them (pointed out in foot-note, this page) are not given specific rank in the "Check List" of The American Iris Society, but are therein listed merely as varieties.

Generally it is the hybrid varieties of these tall growing species, which are very numerous, which are offered by plantsmen. Most of the varieties of each species are characterized by the same general color-scheme, but in some there is a very marked deviation from it. So numerous have the deviations become that some commercial growers who formerly listed their offerings under a species-classification now list them either under a color-classification or merely alphabetically. (See page 112.)

The most extensive of these species (real, and so-called) as are of most value to the general planter and to any considerable extent have come into commerce and their typical characteristics, are:

- I. *amæna** (pleasing).—Standards of most varieties white; falls usually of some shade of blue or violet, but frequently with more or less white.
- I. *germanica* (of Germany).—Generally shades of blue or purple; early (May) flowering. Florentina, formerly regarded as a species, is now supposed to be an albino form of *germanica*.
- I. *neglecta** (neglected).—Standards usually range from lavender to purple; falls of darker shade.
- I. *pallida* (pale).—Most varieties very tall, strong growers; wide foliage; flowers of the largest. Very

*Not given specific rank in "Check List" of The American Iris Society, as revised December, 1921, but therein listed merely as a variety. For reasons for here giving the old and familiar species-name, see pages 108, 112, 113.

handsome shades, both light and dark, of blue, lavender and purple, and numerous approaches to pink and to red.

- I. *plicata** (pleated).—Standards and falls have a beautiful colored frill-like margin on a white ground.
- I. *squalens** (daubed).—Standards of clouded shades of copper, bronze and fawn; falls darker, of some shade of purple or brown-crimson.
- I. *variegata* (variegated).—Standards of various shades of yellow; falls usually brownish.

Among the principal of the less extensive species, a dozen or so in number, are the following:

- I. *albicans* (whitish).—Standards and falls pure paper white; early and free blooming.
- I. *cengialti* (from Mt. Cengialti).—Standards fine blue-purple, slightly lighter than the falls; falls uniform blue-purple.
- I. *cypriana* (of Cyprus).—Standards paler shade of lilac than the falls; falls pale blue-lilac overlaid with a reddish shade. Flowers very large on very tall stems.
- I. *flavescens** (yellowish).—Standards and falls delicate shades of soft yellow; early and free blooming.
- I. *lurida** (clouded).—Mahogany-red.
- I. *mesopotamica* (from Mesopotamia).—Standards pale blue-purple, of a lighter shade than the falls; falls light blue-purple overlaid with a reddish shade in the central portion. Distinguished from *cypriana* by its broad foliage.

*See foot note, p. 109.

- I. *sambucina** (elder-scented).—Standards sombre purplish yellow; falls mostly shades of purple.
- I. *trojana* (of Troy).—Standards pale blue; falls bright red-purple. Distinguished from *cypriana* by the long, narrow, purple-flushed buds and by the broader foliage.

Of the foregoing so-called species, *albicans* is believed to be an Arabian plant but there is much uncertainty as to its origin. It was found growing in Spain, but it may have been brought there by the Moors—who conquered the country in the eighth century. *Cengialti* was found in the north-eastern part of Italy in the neighborhood of Monte Cengialti. *Cypriana* was found growing in Cyprus. *Germanica* is probably from southern Europe along the shore of the Mediterranean. A number of forms (as, *Amas*, *Kharput*) found in Asia Minor are believed to have been taken there from the northern shore of the Mediterranean, and to be merely varieties of *germanica*. *Mesopotamica* probably comes from Asia Minor or Syria. *Plicata* is thought to be a form (hybrid or sport) of *pallida*, and *pallida* is supposed to be native to the southern part of central Europe bordering on Italy. *Trojana* is probably from the neighborhood of Troy in Asia Minor. *Variegata* comes from central Europe (Austria, Hungary and the Balkan States). The origin of the others is unknown—*amœna* may be a sport of *variegata*, and the others may be hybrids: *pallida* and *variegata* parents of *flavescens*, *neglecta*, *sambucina* and *squalens*; *variegata* one of the parents of *lurida*.

*See foot note, p. 109.

Crossing the tall bearded Irises and the earlier (March-April) blooming dwarf Irises, has resulted in an intermediate race of medium height. No complete record of the crosses seems to have been kept, but, judging from the foliage (the length of time it remains in good condition) it is probable that the dwarf chamæiris, from southern France or northern Italy, and germanica are among the parents of this new race which is now generally called—

- I. *interregna* or I. *intermediate* (blooming between the early dwarf and later tall species).—Flowers large, some unusually so, of various colors; free and early (May) flowering.

A knowledge of the species to which any particular variety belongs, and of the locality in which such species is supposed to have had its origin, is often helpful to a person contemplating purchase. Different plantsmen sometimes give the same name to different varieties, and a purchaser may easily be misled thereby if he does not know the species to which each of such varieties belongs, as frequently only the color of the flower is described, and that only in a general way, and occasionally almost the same description is given of flowers of different varieties—mistakes of this kind will of course be less likely to occur as the “Check List” of the American Iris Society comes into general use. Moreover, some species not only bloom earlier than some others but the foliage of some species remains green for a much longer period than that of some others, a matter that will be referred to further on under *Foliage* and under *What to Plant*.

Again, the number of Iris lovers finding pleasure in endeavoring to produce new varieties by cross-pollination, is constantly increasing. As satisfactory results are likely to be more frequently obtained by using varieties of the same, or of closely allied rather than of widely different species (see under *Hardiness* in Chapter V, and under *Results of Cross-Fertilization* in Chapter X), a knowledge of the species to which they belong will greatly aid in selecting varieties for experiments. Hence Iris catalogs are additionally helpful when they give not only a description of the flowers of the varieties therein listed, but also the species to which they severally belong.

When the species is given, unless both parents are named the species is, usually, that of the seed parent.

CHAPTER V

Some Structural Characteristics

THE STRUCTURE of the Iris, as to most of its parts, is somewhat like that of some other rhizomatous plants.

FIG. IX. — STRUCTURE OF IRIS PLANT

- 1, Rhizome, branch from former rhizome.
- 2, Apex of "1," produced flower-stem in 1918.
- 3, 4, Rhizomes, branches from "1".
- 5, Flower stem from apex of "4" in 1919.
- 6, Flower-stem from apex of "3" in 1919.
- 7, 8, Rhizomes, branches from "4".
- 9, 10, 11, Rhizomes, branches from "4".
- 12, Rhizome, branch from "1" in 1919.
- 13, 14, Roots.

RHIZOME.—All the so-called “Bearded Irises” are rhizomatous, that is, having a creeping rhizome or fleshy rootstock, which, if it has been properly planted (see under *How to Plant*, Chapter VI) grows just beneath the surface of the ground and gradually comes to the surface.

And the coarse bulbs of Iris-flowers he found
Knotted in clumps under the spongy ground.

Shelley: Marenghi.

The rhizome usually branches, more or less according to the variety, the vigor of the plant and the condition of the soil; that is, buds issue from the rhizome, usually from its sides, which in time become

FIG. X. RHIZOME WITH
FLOWER-STEM AND TWO BRANCHES

FIG. XI. SIX BRANCHED
RHIZOME

rhizomes (sometimes called "joints", "branches", or "fingers"). Fig. IX, 3, 4, 7, 8, 9, 10 and 11, page 115, and Figs. X and XI show manner of branching and the usual form of growth.

A branch from a rhizome planted too deep (Fig. XII, A), or—as frequently occurs when rhizomes have become matted—from the under surface of a shallow-planted rhizome (Fig. XII, B), must make a neck-like growth to get near the surface where it can develop, and its development is thereby delayed.

FIG. XII

- A, Rhizome planted deep.
1, Neck-like growth of branch from "A".
B, Rhizome shallow-planted.
2, Neck like growth of branch from under surface of "B".

Sometimes, if the soil was exceedingly poor at the time of planting, or the plant has greatly increased and become matted, and a rhizome is starved, it develops no side-buds but grows straight ahead from year to year. But if conditions subsequently become

more favorable buds sometimes then appear on various portions of the rhizome, even on the growths of the several previous years. Fig. XIII shows such a rhizome. Its annual growth is indicated by rings where the leaves withered away. Notice that for seven years it grew in length without developing a side-bud, and then, conditions having been changed, it produced buds on its growth of each previous year and was preparing to—and did—flower the following year.

FIG. XIII. RHIZOME, STARVED FOR YEARS, UNDER IMPROVED CONDITIONS

Each growing point is called a “toe”. As the joint increases in length the apex turns upwards to produce leaves and flower-stem, and in time this sometimes results in the upper part of the newer rhizomes being brought to the surface of the ground; and after a time, mainly by the action of the rain and wind on the soil, the older rhizomes also sometimes become exposed. When this occurs it is not necessary to re-cover the protruding rhizomes, for by

this time they are usually sufficiently anchored by their roots, and they seem to delight in full exposure to the sun. Like the ostrich's eggs left scattered on the sandy ground—

Adopted by the sun, in blaze of day,
They ripen under his prolific ray.

Young: Paraphrase of Book of Job.

As just stated, some varieties (as, *Caprice*, *Her Majesty*) multiply more rapidly than others (as, *pallida Dalmatica*). As an instance of rapid multiplication: A seed sowed by Mr. J. Marion Shull, Chevy Chase, Md., in October 1915, produced in 1916 a plant (subsequently named "*Virginia Moore*") which in 1917 sent up a flower-stem. In 1918 the clump sent up eighteen flower-stems, and shortly after blooming was divided into over forty separate plants for propagation. These plants in 1919 gave forty bloom-stems and by the spring of 1921 the number of stems ran to two hundred and twenty-five, carrying up to twelve flowers to a stem, and the entire period of bloom was twenty-six days. Shortly after blooming, four hundred plants were taken for distribution. (See also under *Propagation* in Chapter IX.)

In respect to size, the habit of growth of different varieties is not uniform. An ordinary full-grown rhizome of some varieties (as, *pallida Dalmatica*, *Lent A. Williamson*) is four or five times larger than

that of some others (as, the finger-like ones of Victorine).

As to blooming size, see under *Flower-Stem*, page 126, *When to Plant* in Chapter VI, *How to Plant* in same Chapter.

The duration of the rhizome is indefinite—it may extend to several years. It depends largely in each instance upon the demands made by the rhizome's branches, by which it usually is to a great extent absorbed. See Figs. IX and XIII and the statements accompanying them.

Roots.—Shortly after a branch or new rhizome starts it begins to send out roots. They usually grow from the under surface of the rhizome, downward and outward, and if uninjured do not branch, and usually do not to any great extent form rootlets until after they have attained their full length.

When a rhizome is transplanted it is sometimes advisable to shorten its roots (see under *How to Plant* in Chapter VI). If the planting is done while the shortened roots are plump and in good, fresh condition, though they will not afterwards increase in length they will sometimes send out numerous rootlets, mostly from near the end, some of which, having size like branches, will reach as great length as the roots would have attained if the rhizome had not been disturbed. The plant shown in Fig. XIV was transplanted in May, 1921, after each of three of its roots

had been shortened to four inches—none of which then had rootlets—and all its other roots had been removed entirely, and it was again lifted the following August and photographed. At this time all the new roots (those sent out directly from the rhizome after the transplanting) were removed before photographing, to give a better view of the three shortened roots and their new growths.

The roots and their rootlets furnish nourishment from the ground mainly through root-hairs which are developed on them. These begin to come shortly after the root has made its appearance, on its whole surface for a short distance from its extremity. They are so small that they can hardly be seen except by the aid of a magnifier and appear as fine glistening lines. They attain a length of hardly a tenth of an inch, and are very numerous. They are short lived but new ones develop in front of them as the root lengthens. When a rhizome with growing roots is taken up, however carefully, the root-hairs will undoubtedly be destroyed; but if the rhizome is replanted while the roots are yet plump and in such good, fresh condition that they continue alive, new root-hairs will

FIG. XIV.—THREE SHORTENED ROOTS (shortened at 1, 2, and 3) AND THREE MONTHS' ROOTLETS PRODUCED THEREFROM AFTER THE SHORTENING

soon be found on them and on the rootlets they will then send out.

Roots are not as persistent as rhizomes. If the roots of a new branch have perished or been removed it will send out others, but an old rhizome under like circumstances will not, but roots will issue from new branches from it.

FOLIAGE.—The foliage of all varieties is highly decorative. The strong, erect or gracefully drooping leaves are broad and swordlike—

Living swords, innocent of blood,
Never stained with the crimson flood.

* * * through the wave
The dark Flag cut its swift way like a glaive.

Dora Greenwell: A Vision of Green Leaves.

Iris in samite of purple befitting a queen
Summon the aid of your guardian lancers in green,
Fend off that opal-winged dragon-fly, sapphire of sheen,
Assailing with blue-mailed metals
The veiling soft sheaves of your petals.

Anne H. Spicer: Morning Hymn to The Skokie.

The leaves grow directly from the rhizome, from its apex or from buds (incipient branches) from the side of the rhizome, in fan shape—hence a cluster of leaves having a piece of the rhizome attached is some-

times called a "fan"—and, generally, attain a height of 18 to 30 inches, according to the variety, averaging about 24 inches except that the foliage of the intermediates is somewhat more dwarf. Each leaf is folded lengthways in the middle, and the two halves of the lower portion are separated by a new leaf which comes up between them and gradually emerges after attaining a length of several inches, but above that they are adherent and form a solid blade, and so the outside of the leaf corresponds to what is the under side of leaves generally. Each leaf sits saddle-fashion about the base of the leaf next above and on the opposite side (Fig. XV).

The first of each season's leaves of most species ordinarily appear in the spring; but a few (as, especially, the *germanicæ* and the *intermediates*) generally begin to put them forth in the fall, and they attain a length of a few inches before freezing weather, and not only usually survive the winter but during mild winters sometimes make a little growth.

FIG. XV. —SELDLING, FALL 1919; SELDSOWED fall, 1918

The leaves of most varieties are smooth or only very slightly ribbed, but some of the *neglectæ* and

variegatæ (as, Mrs. Neubronner, Sherwin-Wright) are noticeably ribbed.

Almost invariably the leaves are entirely green, but *Foliis Variegatis* has green leaves with a broad band of creamy yellow the whole length of the leaf. A few varieties (as, Loreley, Mithras, Prosper Laugier, Rhein Nixe, Sherwin-Wright) have purplish coloration at the base of the leaves. Young leaves of *Kharput* sometimes have a red edge which fades with age.

* * * gay Green!
Thou smiling Nature's universal robe!
United light and shade! where the light dwells
With growing strength, and ever-new delight.

Thompson: The Seasons.

Usually from about the forepart of August the leaves of most varieties gradually fade and wither, beginning at the tips, and especially if the plant is crowded or has become matted, and the plant will then look shabby unless from time to time the withered portions are cut off; but the leaves should not be wholly removed—except as hereinafter stated under *Subsequent Care* in Chapter VII and under *Enemies* in Chapter VIII—until they have fully performed their office and are entirely withered and will come away with the slightest pull.

Plants growing in partial shade will retain their leaves in good condition later than those growing in full sunshine.

The foliage of species native to countries with mild winters remains fresh and green longer than that of species of countries where the winters are more severe. Thus, *germanica*, which probably originated in southern Europe, is there never entirely leafless, practically ever-green, but the species native to the colder countries of central Europe, which are noted under *Classification*, page 111, there lose their leaves in autumn. The varieties of each of the several species, even when grown elsewhere than in the country of the species' origin, generally retain this characteristic of the species to a marked degree. Here in northern Illinois, which has a trying climate, substantially all the foliage of the *germanicæ* and intermediates—which are about the first to begin the season's growth (see page 123)—remains green until late in the season, and in the case of the *germanicæ* a considerable portion continues green until spring. (See Figs. XLVII, and XLVIII, under *What to Plant* in Chapter VI.) As species, their foliage as a whole furnishes exceptions to the general rule—

As forests change their foliage year by year
Leaves that came first, first fall and disappear.

Horace: Art of Poetry. (Martin's tr.)

FLOWER-STEM.—The flower-stem rises from the apex of the rhizome, from the middle of a fan or cluster

of leaves which set about it saddle-fashion. As it lengthens it produces, successively, modified leaves (called "bracts") in which, in turn, its growing point is enfolded and thus protected until it is sufficiently mature for emerging (Fig. XVI). It emerges somewhat as a new leaf emerges from an older one. See Fig. XV, page 123, and under *Window Gardening* in Chapter XI.

FIG. XVI.—FLOWER-STEM
SHOWING BRACTS

Under some circumstances, in the case of a well-established plant, a rhizome will produce a flower-stem from its apex the next season following its production of a cluster of leaves. Much, however, depends upon the maturity and vigor of the rhizome. Usually when a rhizome is sufficiently mature to produce a bloom-bud, branch-buds also start and they attain considerable size by the time the stalk flowers. (Fig. X, page 116.) A wide thick rhizome is more likely to bloom than a narrow thin one of the same variety. There is also a considerable difference in varieties, both as to the length of time required to produce a blooming rhizome and as to the number of blooming branches it will produce. (See also under *Rhizome*, pages 119 and 120, *Blooming*

in Chapter V, *When to Plant* in Chapter VI, *How to Plant* in same Chapter).

Bloom-buds usually begin forming about the close of summer and their development depends largely on ensuing weather conditions. A protracted drought, especially if followed by an unusually early severe freeze, is likely to result in few bloom-stems the next year. Occasionally, but very rarely, a very severe late freeze kills the rudimentary stalks, especially of the very early blooming varieties, when they are only an inch or so in length and entirely concealed in the enfolding leaves. See Fig. XLV and accompanying explanation, under *Where to Plant* in Chapter VI.

Sometimes a rhizome produces a flower-stem the same or the next year after planting, and then, although apparently in good condition, does not bloom the following year. The planter sometimes regards this as evidence that the plant has become worthless. The explanation probably is, if the weather conditions were favorable (see paragraph next above), that the plant was not strong enough the first year of blooming to develop the flower bud formed the previous year and also to form a new one for the next year; but it will probably bloom regularly thereafter.

The flower-stems of the different varieties, exclusive of the intermediates, vary in height from about twenty inches (as, Kochi) to four feet or more (as, Camelot, Mme. Cheri, Nine Wells, Ring Dove). Ricardi Fonce, as described by its originator (Denis), attains a height of fifty-eight to sixty-six inches, and Conquistador, as described by its originator (Mohr),

attains a height of six feet. The intermediates vary from twelve to twenty inches.

The stems of some varieties are simple and of others they are branched. Some varieties have only short branches—as, *Perfection* (Fig. XVII, this page), *pallida*

FIG. XVII. —*PERFECTION*

FIG. XVIII. —*PALLIDA DALMATICA*

Dalmatica (Fig. XVIII, page 128); others have both short and long, the longest branch of some varieties being almost as long as the stem itself—as, Rhein Nixe (Fig. XIX), Isoline. In some instances (as, Shalimar) the branching begins near the base of the stem, and numerous spreading branches give a candelabrum-like form.

Amid its waving swords, in flaming gold
The Iris towers.

Charlotte Smith.

O'er her tall blades the crested Fleur-de-lis,
Like blue-eyed Pallas, towers erect and
free.

Holmes: Spring.

Mint and Flagleaf swording high
Their blooms to the unthinking eye.

Clare: Shepherd's Calendar.

Tall and clothed in samite.
Chaste and pure,
In smooth armor
Your head held high
In its helmet
Of silver:
Jeanne d'Arc riding
Among the sword blades!

Has Spring for you
Wrought visions,
As it did for her
In a garden?

Pauline B. Barrington: White Iris.

FIG. XIX. RHEIN NIXE

FIG. XX. THE PARTS OF THE IRIS FLOWER
(*Eldorado*, one fall removed.)

1, stem; 2, spathe (two valves); 3, ovary; 4, perianth-tube; 5, junction of stamen with fall (which has been removed); 6, filament; 7, anther; 8, style-branch; 9, stigma; 10, crests; 11, standards; 12, blade; 13, beard; 14, claw; 15, haft; 16, falls; 17, a bud.

FLOWER.—The flower is of somewhat unusual form.

THE SPATHE is a large bract—a leaf-like part, or several such parts, each of which is then a “valve” (Fig. XX, page 130)—which enfolds the flower-bud or a cluster of buds. In some species it is green; in some, it is scarious (having a thin, dry and shriveled appearance, in some species brownish and in others silvery white); in some, partly green and partly scarious; in others, in part flushed with purple and in part scarious.

THE OVARY is at the base of the flower (Fig. XX, 3, page 130,) and contains, in three longitudinal divisions, the ovules or rudimentary seeds. The ovary and its contents are more fully referred to under *Process of Pollination* in Chapter X.

PERIANTH-TUBE.—Above the ovary is a tube (Fig. XX, 4, Page 130) called “perianth-tube,” formed by the uniting of the lower portions of six segments or divisions which above the tube are arranged in two rows of three each. (See pages 143-144.)

THE SEGMENTS are of various shapes, some of which are shown in Fig. XXI.

The upper portion (the expanded part) of each segment is called the “blade” (Fig. XX, 12, page 130). The lower part (the narrower) has generally been called either the “claw” or the

FIG. XXI.—SHAPES OF SEGMENTS*

FIG. XXII. FAIRY

“haft”. The base of the lower segments is so much more frequently referred to than the base of the others that, to abbreviate description, “haft” is coming to be used to designate the former (Fig. XX, 15, page 130) and “claw” the latter (Fig. XX, 14, page 130).

STANDARDS. — The three inner segments or divisions above the perianth-tube, sometimes referred to as “petals”, are usually called “standards” (Fig. XX, 11, page 130). Generally they are nearly erect, but their upper portions are so incurved that sometimes—as, Lohengrin, Fairy (Fig. XXII)—they overlap, and sometimes—as, Iris King (Fig. XXIII, page 133), Edouard Michel (Fig. I, title page), Mon-signor (Fig. XXIV)—the

*Courtesy of the American Iris Society.

tips merely or nearly touch. In some varieties—as, *Parc de Neuilly* (Fig. II, 8, page 38), *Caprice* (Fig. II, 9, page 38 and Fig. LVII in Chapter XI), *Jeanne d'Arc* (Fig. XXV)—they are more wide-standing; in some—as, *Celeste* (Fig. XXVI), *Prosper Laugier* (Fig. II, 2, page 38)—they are yet more wide-spread, and in a few—as, *Dorothea* (Fig. XXVII)—they are almost horizontal.

FIG. XXIII.—IRIS KING

The names by which the American Iris Society designates the usual carriage of the standards of different varieties, are shown in Fig. XXVIII.

It should be borne in mind that the carriage of flowers (standards and falls) of the same variety varies at times more or less with age (both of the flower and the plant) and environment.

FIG. XXIV. MONSIGNOR

FIG. XXV.—JEANNE D'ARC

In every flower that blooms around,
Some pleasing emblem we may trace;

* * * * *

Peace in the olive branch we see,
Hope in the half-shut Iris glows,
In the bright laurel victory,
And lovely woman in the rose.

Chazet: MS.

FIG. XXVI. CELESTE

FIG. XXVII. DOROTHY

There the Iris, timidly,
From its hood of dew,
To the wind that wanders by
Lifts an eye of blue.

Caelestin: Poet, Fool and Faeries.

FIG. XXVIII.—CARRIAGE OF STANDARDS*

FALLS.—The three outer segments or divisions, sometimes referred to as “sepals”, are generally called “falls”. In one variety, in some situations—Penelope (Figs. XXIX and XXX)—they stand almost as erect as the standards; in a few varieties—as, Perfection (Fig. XXXI), Loreley (Fig. XXXII)—they are nearly horizontal; usually they droop gracefully at an angle of about forty-five degrees from the horizontal; in a few varieties—as, Kharput (Fig. XXXIV), Kochi (Fig. XXXV)—they hang nearly parallel to the stem; in a few—as, Isoline (Fig. XXXVI), Tamerlan (Fig. XXXVII)—they hang so close to the stem as to almost hug it. In some varieties—as, Courcy, Florentina (Fig. XXXIII)—the blade is considerably reflexed

*Courtesy of American Iris Society.

from the midrib, and in a few—as, Mme. Chereau (Fig. XXXVIII)—to such an extent that the edges almost meet.

The names by which the American Iris Society designates the carriage of the falls of different varieties, are shown in Fig. XXXIX.

Varieties having their standards quite open and their falls closely approaching the horizontal (as, Queen of May) are sometimes described as “orchid-like” or having an orchid effect; but these as descriptive terms are apt to be misleading—except their charm the Iris and the Orchid rarely have much in common. (See page 84.)

On the upper part of the base of each of the falls, along the midrib, there is a collection of closely set hairs or down, which is called the “beard” (Fig. XX, 13, page 130); hence the name “Bearded Iris”. (See

FIG. XXIX.—PENNELOPE

FIG. XXX. GROUP OF PENNELOPE*

*Courtesy of Mrs. Vibe K. Spicer, Kenilworth, Ill.

FIG. XXXI.—PERFECTION

FIG. XXXII.—LORELLY

FIG. XXXIII.—FLORENTINA

FIG. XXXIV.—KHARPUT

FIG. XXXV.—KOCHI

FIG. XXXVI.—ISOLINE

FIG. XXXVII.—TAMERLAN

FIG. XXXVIII. MME. CHEREAU

under *Classification*, pages 104 and 108). The variety Governor Hughes has an unusually large beard.

On the falls of nearly every variety of the Iris there are conspicuous veins which extend down the haft (Fig. XXIV, page 133 and Fig. XXXII, page 138). These (sometimes called the "signal" or the "signal patch") it is supposed, by some scientists, serve as guide-lines to indicate to visiting insects the way to the nectar pit at the base of the falls (Fig. XL, page

FIG. XXXIX.—CARRIAGE OF FALLS*

144), and thus aid in bringing about the pollination of the flower—a matter that will be more fully referred to under *Process of Pollination* in Chapter X.

PISTIL.—Strictly speaking, the flower has three pistils, but for a considerable part of their length they grow together, forming a single body with members more or less distinct (constituting what is known as a compound pistil) and are therefore generally referred to as “the pistil”.

The pistil consists of ovary—already mentioned (page 131)—style and stigma. The style extends

*Courtesy of American Iris Society.

from the ovary through the perianth-tube (Fig. XX, 4, page 130) and at the top of the tube divides into three petal-like branches commonly referred to as "style-branches" or "stylar branches" (Fig. XX, 8, page 130 and Fig. LV). These branches are sometimes referred to as "stigmas" but "stigma", in the narrowest sense, means only the stigmatic surface of a style-branch (Fig. XX, 9, page 130 and Fig. LVI, st). In a few varieties—as, Eldorado (Fig. XX, 8, page 130)—these style-branches are so conspicuous from their size and color as to give the flower the appearance of being semi-double. See further, about pistil, under *Stamen* in this chapter, *Process of Pollination* in Chapter X.

STAMEN.—As just stated, the flower has, in the usual sense, but one pistil (compound), but it has three stamens—each consisting of filament and anther (Fig. XX, 6 and 7, page 130)—and it is this fact that is referred to in "The Botanic Garden":

The freckled Iris owns a fiercer flame
And three unjealous husbands wed the dame.

Darwin: Loves of the Flowers.

The arrangement of the pistil and stamens, for cross-pollination, is one of the most wonderful in the

whole Floral Kingdom. Each style-branch is opposite one of the falls, and its extremity is two-cleft, the two divisions or ears being called "crests" (Fig. XX, 10, page 130). Just below the crests, on the outside of the style-branch is a transverse lip or movable shelf (in a few varieties but little more than a transverse ridge) and its upper surface is the stigma (Fig. XX, 9, page 130 and Fig. LVI, st). Between the style-branch and the fall, inserted in the base of the latter, is the stamen, which is much shorter than the style-branch and nestles close against it, having at its extremity its anther containing the pollen (see under *Process of Pollination* in Chapter X), turned outward and overhung by the stigmatic lip (Fig. XX, 7 and 9, page 130 and Fig. LVI, an). By this arrangement it is practically impossible for the flower to become pollinated except by external agency, as by bees. See further, about the stamen, under *Process of Pollination* in Chapter X.

NECTAR-PIT.—The nectar of the flower is in a little pit at the top of the perianth-tube, formed by union of the segments and the style-branches. When a bee, alighting on one of the falls, crawls forward between the fall and the stamen, to reach the nectar, its back becomes dusted with pollen from the anther. On backing out it pushes the lip upward and inward, thereby not coming in contact with its upper (the stigmatic) surface. When it enters another flower some of the previously acquired pollen is

FIG. XL.—WILD IRIS (Sectional View)*

almost sure to be scraped off by the overhanging lip and deposited on its upper (the stigmatic) surface. This process of pollination is well shown by Fig. XL. Notice on the right how the bee in backing out, after having become dusted with pollen, presses up the lip and prevents its stigmatic surface from receiving any of the pollen; and notice on the left how the upper surface of the lip scrapes the pollen off the bee's back as the bee crawls into another flower. In Fig. XL the bee is represented—to save another illustration—as entering the same flower the second time, but it rarely does this immediately after its first entrance.

* * * When the summer shines
The bee transports the fertilizing meal
From flower to flower.

Cowper: The Task.

*From "Mysteries of the Flowers", by Herbert W. Faulkner.
Copyright, 1917, by Frederick A. Stokes' Company.

Oh! the droning of the bee!
In his dusty pantaloons
Tumbling in the Fleurs-de-lis;
In the drowsy afternoons
Dreaming in the pink sweet-pea.

Caccein: The Farmsted.

FIG. XLI. —AMAS

SIZE.—The Flowers of all varieties are of good size, and of some they are immense, five to six inches deep with segments one and three-quarters to two or more inches wide—as, *pallida Dalmatica* (Fig. XVIII, page 128), *Isoline* (Fig. XXXVI, page 139), *Kharput* (Fig. XXXIV, page 139), *Amas* (Fig. XLI). See further, about size, under *Blooming* in this chapter.

FRAGRANCE.—Most varieties are more or less fragrant. *Caprice*, *pallida Dalmatica*, *Delicatissima*, *Fairy*, *Florentina* and *Pacquita* are among the most fragrant. *Caprice* and *Fairy* have an especially delicious fragrance.

O faint perfume, no other bloom
Can match, for fine distilling,
Thy essence rare that dulls all care,
And sets my senses thrilling.

W B. Hunt: Blue Flags.

* * * And then we,
Just across the creek, shall see
(Ha! the goatly rascal!) Pan
Hoof it o'er the sloping green,
Mad with his own melody,
Ay, and (bless the beastly man!)
Stamping from the grassy soil
Bruised scents of Fleurs-de-lis,
Boneset, mint, and pennyroyal.

Riley: Our Boyhood Haunts.

The very fragrant varieties are probably much more numerous now than in early times, for three hundred years ago a poet wrote:

The lily and the Flower-de-lis,
For color much contenting,
For that, I them do only prize,
They are but poor in scenting.

Drayton: The Muses Elysium.

Later, another British poet wrote:

Choosing for odour,
The violet were mine—men call her modest,
Because she hides, and when in company
Lacks manners and the assertive style of worth—
While this narcissus here scorns modesty,
Will stand up what she is, tho' something prim:
Her scent a saturation of one tone,
Like her plain symmetry, leaves naught to fancy—
Whereas this Iris—she outvieth man's
Excellent artistry; elaboration
Confounded with simplicity, till none
Can tell which sprang of which. Could I but find
A scented Iris, I should be content:
Yet men would call me proud: Iris is pride.

Bridges: Demeter.

COLOR.—In variety of colors the Iris is hardly equalled and is not surpassed by any other hardy plant, and it rivals even the orchids. In addition to white the colors range through shades of all the colors of the rainbow which—

* * * every hue unfolds,
In fair proportion running from the Red
To where the Violet fades into the sky.

Thompson: The Seasons.

Some of the varieties are of solid color; in some, the standards and falls being of the same, and in

others, of a different color. Some varieties are margined or bordered, and many are more or less mottled, penciled, veined or netted in a variety of colors—

With hues on hues Expression cannot paint.

Thompson: The Seasons.

The beard is generally yellow, (from primrose to orange), sometimes it is wholly or in part white, in a few varieties (as, Blue Boy) it is blue, and occasionally (as, Mme. Gaudichau) the top surface is black.

The style-branches of some varieties are white; of some, yellowish; of some, light purple.

The filaments of the stamens of most varieties are white or cream; of a few, yellowish white; of a few, pale mauve. The anthers are usually cream.

As to color of the spathe, see under *Spathe*, page 131, and as to color of the pollen, see under *Process of Pollination* in Chapter X.

Of the tulip it was written—

For brilliant tints to charm the eye
What plant can with the tulip vie?

Anon.

In tulip time perhaps none, but later it is by the Iris equalled in brilliancy and surpassed in number of tints.

There is no flower that during the last few years has been improved more than the Iris. One who has seen only the early forms can have no conception of the marvels of to-day. If the poets of the past, who sang of the Iris as they knew it, could witness the present glories of the hybridizer's art they surely again would attune their lyres and sing in even nobler strains. And what would Thoreau think if he could witness the gorgeousness of the Iris of our day? Of the Blue Flag of the meadows, that now seems dull by comparison, he said—

“Too showy and gaudy, like some women's bonnets.”

FLUCTUATIONS (FREAKS).—Ordinarily the segments are simple, but sometimes there is a petal-like growth lengthwise along the center of the upper surface of the blade of one or more of the falls, which gives the flower the appearance of being double. Sometimes, but very rarely, a flower has four to six standards and the same number of falls and of stamens (as, occasionally, Gracchus, Kharput, Queen of May). Environment (air, soil, water, light, temperature) or cultivation, is usually held to account for such multiplication of parts.

Through culture

*

*

*

The flowers turn double, and the leaves turn flowers.

Browning: Cleon.

Such departures from the normal, though odd, can hardly be considered improvements, as so much of the beauty of the Iris lies in its form.

Sometimes as a result of environment or cultivation a plant produces flowers of an unusual color also. Thus, in the garden of Mrs. Vibe K. Spicer, Kenilworth, Illinois, in the spring of 1921 a plant of *Honorable* produced flowers having, each, one standard and one half of each of the other two standards white, and one fall and one-half of each of the other two clear purple—the plant having in previous years borne flowers of only the normal colors of the variety (standards strong golden yellow, and falls crimson-brown).

Such variations from the normal (color, number of parts, etc.) resulting only from environment, sometimes called “freaks” and sometimes “sports”, are known to scientists as “fluctuations”. Such variations are, at least as a rule, only temporary—they are not likely to appear in subsequent seasons unless the conditions which first produced them again occur. Whether such variations repeatedly occurring under like merely environmental conditions ever become fixed so as to become inheritable (not depending upon environmental conditions for their appearance), is a matter as to which it seems all scientists are not entirely in accord. (See under *Mutations* in Chapter X.)

BLOOMING.—Irises very rarely bloom more than once a year, except in especially favorable localities (as, California). John Foster, Loreley, Mrs. Alan Grey and one or two other varieties have been known to

bloom in the spring and again in the fall, but fall-blooming is not a characteristic of either of them.

As to forcing in winter, see under *Window Gardening* in Chapter XI.

Except as climate is modified by special factors (as, mountains, large bodies of water), the difference in blooming time of the same variety in different latitudes is, roughly speaking, about a week for each one hundred miles of latitude. Here (northern Illinois) a few varieties (as, the intermediates, the germanicæ) begin to bloom a little before the middle of May, and the others from a few days to several weeks later. In ordinary seasons, here, Irises can be relied upon to furnish an abundance of flowers on Decoration Day when flowers are so much wanted and good flowers for out door decorations are usually scarce.

As to occasional injury by late frosts, see under *Flower-Stem*, page 127.

The Blue-flag, waving welcomes from the marsh,
The lily of the pond and of the vale,
The daisy, violet, and butter-cup,
The elder-berry and the bridal wreath,
From garden, grove or roadside—all are cull'd
And weaved in wreaths to deck the soldier's graves.

Raymond: A Life in Song.

It's Iris time! It's Iris time! 'Twixt tulip-days and rose,
The garden walls in Iris time with purple splendor glows.
The leafy spears are on parade, the bugles of the June
Summon each bud and bloom and blade with sturdy marching tune.

Although my garden's humble earth stands for democracy,
The simple flowers of peasant birth make way for royalty,
For King of Iris golden-crowned—and tall and pink and gay—
Her Majesty comes, rosy-gowned (or is it Queen of May?)

Maori Kings and Gypsy Queens are handsome, proud and tanned.
Next comes a troop of Florentines, the tallest in the land.
Penelope's a lovely whirl of blue and gold and white,
Mme. Chereau with fringe and curl, is French, and charming quite.

In red and gold old Honorabile stands proud, presenting arms,
Dalmatica deep pride must feel in her rich purple charms.
Pallida wears a paler hue, of course Canary's yellow.
Alvarez carries royal blue, John Bull's a stout old fellow.

The Quaker Lady mauve and grey, hangs down her peaceful head,
Charles Dickens turns to violet gay, since he is never red.
Aurea's gold, so's Souvenir though streaked with veins of dark,
(For memory is sometimes drear, and sorrow leaves a mark).

Rhein Nixe and the Lorelei (say, must we change their nation?)
Celeste's soft blue is like the sky, Neglecta's poor in station,
But she has champions to fear, Hector the fine, the splendid,
And Agamemnon guards the rear, with him the list is ended.

The earth is sweet in Iris time, fresh green, and birds a-twitter,
Young love that hums its budding rhyme, and beams of sunny
glitter
(And yet what heart can beat carefree while trampled on and
bleeding
The proud pale blooms of Fleur de Lis are crushed by feet un-
heeding?)*

Anne H. Spicer: Iris Time.

*Written June 18, 1917.

In grandmother's garden the Iris blue
Unfurled his banner, his snood leaves drew
And marshalled the slim red Tulips tall,
The Peony's bursting crimson ball,
The Almond wands and the Moss Pinks small,
Buttercups spendthrift of their gold,
Columbines misers of sweets untold,
Gay Sweet Williams, and Four-O'Clocks,
Prodigal sheaves of the cool white Phlox.

Anon.: Grandmother's Garden.

A well-established plant will produce many spikes of bloom, sometimes from 50 to 100 or more. Each stem produces a number of buds, rarely less than four or five, in the case of many varieties nine or more, in a few instances (as, Perfection, Ring Dove) from fifteen to twenty, and E. H. Reynolds has been known to produce three dozen buds on a single spike. See also under *Rhizome*, page 118.

In the description of varieties, "free flowering" and "floriferous" are sometimes used as if they were synonyms. Strictly speaking, however, "free flowering" refers merely to the number of flower-stems produced by a plant, and "floriferous" refers to the number of flowers produced on a single flower-stem. Loreley is an example of free blooming, and Perfection, Ring Dove and E. H. Reynolds (see paragraph above) are examples of exceeding floriferousness. Virginia Moore (see page 119) is an example both of free flowering and of floriferousness.

As a rule, extremely floriferous varieties do not bear the largest flowers. For instance, none of the varieties

just named equal in this respect such varieties as Amas, pallida Dalmatica, Ingeborg, Isoline or Kharput. Among the notable exceptions to the rule are Mlle. Schwartz and Troost.

Generally, the buds on each flower-stem open in succession at intervals of from one to three days. Usually the terminal bud, or one of them if the flower is several-headed, is the first to open, and it is succeeded by the terminal bud on the largest branch. In the case of a few varieties (as, Lohengrin) quite frequently the terminal bud on the longest branch is the first to open and it is succeeded by the terminal bud on the stem.

The life of the individual flower is only from two to four days; but, as there is a succession of flowers on each stem, and some stems are later than others in maturing, and different varieties bloom at different times, by a proper selection the season may be prolonged for six to eight weeks. For example: In the garden of Mr. Shull, at Chevy Chase, Md., a clump of *Tineæ* in normal years has produced flowers for more than a month—and it is a late variety, preceded by many, some of them beginning ten days to two weeks or more earlier. And *Tineæ* is not the latest to begin.

As to blooming size of rhizome and time of first blooming after planting, see under *Rhizome*, page 120; *Flower-Stem*, page 126.

HARDINESS.—The Iris is remarkable for hardiness. There are a few varieties in commerce that do not

do well in all localities. These are mostly crosses from certain species from Asia Minor (as, Caterina, Ori-flamme, Tamerlan). As a rule, however, the Iris is as easy as a weed to grow, as easy as a burdock, dandelion or thistle, and, given a suitable situation, it is one of the longest-lived of all perennials. It is in a class with the Peony and Gas-plant, one of the "live-forevers". (As to occasional injury by late frosts to rudimentary flower-stems of early varieties, see under *Flower-Stem*, page 127.)

Though her form seems so fragile, yet wondrously brave,
Away in the Northland where fierce tempests rave,
She wakes from her sleep in her cradle of snow
And beams on the world with a radiant glow.
Away on the plains in the drought and the heat,
She is cheerfully waiting admirers to greet.
To her fairy presence must ever belong.
The tribute of praise and the rapture of song.

C. S. Harrison: The Iris.

CHAPTER VI

Planting

THE PLANTING of the Iris is a simple matter, as it has but few requirements; but these should be observed.

WHERE TO PLANT.—The Iris is a sun lover and grows most luxuriantly and flowers most abundantly in full exposure to the sun. It will grow well and flower to some extent in partial shade if normal moisture is available, but the quantity of flowers it will produce will usually be in proportion to the amount of sunshine it receives. In dense shade it is usually flowerless. The *germanicæ*, especially *Florentina*, are about the best for shady places. An Iris blooming in the shade usually keeps its flowers in good condition longer than it would in full sunshine.

The Iris does well in a dry situation where most plants would perish of drought, and its ability to withstand heat and drought is one of its most valuable characteristics.

Good drainage is essential. A moist soil suits the Iris admirably if the drainage is *good*, but in the absence of drainage much moisture will cause decay. If the drainage is poor, sloping beds, mounds or, preferably, ridges should be made for the plants. Preferably, if the situation permits, the planting should

be north and south, so as to give the plants the greatest exposure to the sun. If the soil is very heavy it will probably be found beneficial to incorporate with it a considerable proportion of pulverized old mortar or coarsely ground limestone (the kind that farmers spread on their fields). As to use of such materials, see *infra*, pages 160-161. The elevations should be of such height that when the rhizomes are planted their under surface will be above the level of the adjacent ground even after the soil in the elevation has settled. The top of the ridge should be made crowning, rather than sharp, so that the rhizomes will not be washed out by rain (Fig. XLII).

FIG. XLII.—IRISES—RIDGE-PLANTING, FOR DRAINAGE

To make such elevations it may be necessary to obtain soil from some other place, so that the bottom of the furrows will not be lower than the original surface, as it is desirable that water should not stand in the furrows. Moist during the growing season and dry the remainder of the year, is the condition that suits the Iris best.

If thy strong loam superfluous wet retain,
Lead through thy fields the subterranean drain.

Scott: Amœbean Eclogues.

It is not particular as to soil. It will thrive in either heavy or light soil, but the former, if the drainage is *good*, is preferable to the latter. Ordinary good garden loam suits it best. Unless the soil is poor, fertilizers are unnecessary, but if a richer soil is wanted dig in a little bone meal. An exceedingly rich soil is likely to result in rank growth and few flowers. As to the use of manure, see under *Diseases* in Chapter VIII.

Irises like a little lime. Usually there is enough of this element present, but when it is lacking it may be supplied in the form of powdered slacked lime, pulverized old mortar or ground limestone. Ordinarily, half a pint of the former, or a pint of finely ground limestone, or two pints of pulverized mortar or coarsely ground limestone, to a square yard, will be ample. It is better to use the lime prior to planting, or late in the season after growth has about ceased; but it may be supplied during the growing season, without any disturbance of the roots, by saturating the ground with lime water. To any quantity of water add lime, either hydrated or unslacked, at the rate of a pound to two gallons of water, and after standing two weeks the water will be ready for use.

It is thought by many Iris growers that an excess of lime, at least of fresh lime, should be avoided as it may induce rot—a matter that will be referred to

FIG. XLIII.—IRISES PLANTED IN JULY, 1920, ON RIDGES—SOME, OF SOIL (four parts) AND PULVERIZED OLD MORTAR (one part); THE OTHERS, OF SOIL (four parts) AND COARSELY GROUND LIMESTONE (one part).

under *Diseases* in Chapter VIII. Experiments made at Stager Place seem to indicate that there is very little, if any, likelihood of any injury of this character from even a very liberal use of either pulverized old mortar or coarsely ground limestone. In the fore part of July, 1920, a plot was laid off into ridges—some, of soil (four parts) and pulverized old mortar (one part); the others, of soil (four parts) and coarsely ground limestone (one part). The materials in each ridge were thoroughly incorporated by digging and raking,

FIG. XLIV.—THE IRISES IN FIG. XLIII, WITH LIGHT STRAW-COVERING PUT ON IN DECEMBER, 1920, AFTER THE GROUND HAD FROZEN HARD

and plants were set as soon as the ridges were completed (Fig. XLIII).

In December, 1920, after the ground had frozen hard, the plants were given a light covering of straw (Fig. XLIV).

Early in 1921, at the first indication of growth, all the covering was removed. In May the plants—except a few whose rhizomes were very small when planted (second row from right, below), and except the *germanicæ* (first row) whose rudimentary flower-stems probably had been injured by a severe late frost—bloomed as abundantly as *Iris*es transplanted early the previous season ordinarily do (Fig. XLV).

FIG. XLV.—THE IRISES IN FIG. XLIII, IN MAY, 1921

Notwithstanding the excessive heat and unusual drought the ensuing summer, every plant grew vigorously and not one was affected by any disease or trouble of any kind (Fig. XLVI).

The *Iris* is as indifferent to atmosphere as to soil. While of course it thrives best in a reasonably pure atmosphere, and is less sightly with soiled foliage, it does remarkably well in an atmosphere frequently and to a considerable extent charged with dust, smoke or soot.

FIG. XLVI.—THE IRISES IN FIG. XLIII, IN AUGUST, 1921

Where grows? Where grows it not? If vain our toil
We ought to blame the culture, not the soil.

Pope: Essay on Man.

Though usually planted in the garden, the Iris is most admirably adapted to the foreground of the border, with shrubs for a background. (See under *How to Plant* in Chapter VI.)

If I were planting a garden gay
I would have Stocks and the Flower-de-luce
Bordered by banks of Witch-hazel grey,
Sentinelled by a purple Spruce.

Anne H. Spicer: In Praise of Pleasaunt Blossoms.

WHEN TO PLANT.—The Iris can be successfully transplanted any time when the ground is not frozen deep. If planted in the spring, and especially late in the spring, it seldom blooms the same season, and if it does the blooms are not as fine as those it will produce the following season.

As nothing great is born in haste,
Wise nature's time allow.

Young: Love of Fame.

Plantsmen generally recommend August and September as the ideal time for transplanting as then it is nearly dormant, and it will afterwards make a root growth and become fairly well established before the ground freezes, and will be in good condition to bloom the following spring. In fall-planting, the best time is just before the fall rains begin. A better time, however, is just after the plant has ceased blooming—provided the roots are not allowed to become dry—as then a new vigorous growth begins and the new roots are then short and have sent out few, if any, rootlets and are therefore less liable to be injured when the plant is taken up, and the plant will have that much more time to become established and will bloom more freely the following spring.

The Iris is pre-eminently the plant for the renter's garden. With Irises he can quickly make his abode look like a home instead of a mere stopping-place, and whenever he moves he can dig them up and take them with him and know that they will do well in their new home. If he is to move in the winter he can take them up in the fall and store them until spring. For storing, lift them as late as possible, but before the ground is frozen; free them from soil and especially if it is damp; cut off most of the foliage (about two-thirds of each leaf) taking care not to cut into the middle of the plant, where the new leaves

start; cut off the roots, for they would dry up anyhow during storage; put the rhizomes in a dry, shady, airy place for several days (long enough for them to cure or dry but not shrivel); put in a cool dry cellar, on the floor if it is not damp, loosely in a thin layer. They should be looked over occasionally to see that they are not becoming damp as that might result in their molding. If the cellar is not dry it will be well to put them in a box of dry sand or soil, on a shelf; or in a box of dry sand or soil they can be stored in an out-building, or even out of doors if the box is covered so as to exclude snow and rain. Freezing will do but little injury if they thaw gradually.

If the rhizomes are stored, or allowed to become, too moist, decay sometimes results. When it occurs cut the rhizome back to fresh tissue and thoroughly air-cure.

WHAT TO PLANT.—All Irises are beautiful, though some are more beautiful than others. Tastes, however, differ so much that selection of varieties must be largely a matter of individual preference.

The wide difference of tastes is well illustrated in the "Iris Symposium" (see under *Symposium* in Chapter XIV). As especially noticeable instances the various ratings on each of a few of the varieties therein rated are given below. The ratings (on a scale of 10—"10" being perfection not yet attained) are indicated between the horizontal lines, and the number of votes on each rating is indicated between perpendicular lines. All ratings below 5, are indicated by a -5.

	9.5	9	8.5	8	7.5	7	6	5	5
Albert Victor	2	1	4	7	3	2	1	1	
Aymard		1		1	1	1	2		1
Bosniamac		1	1	1		1	2		1
Clio		1	2	3		1			1
Dalmarius		1	1	8	1	7	1	1	
Delicatissima (Millet)		6	2	2	1	1		1	
E. L. Crandall		2	1	6	1	2	1		1
Fairy	1	3	7	2	4	4	1		
Fontarable		1		1	1	5	1	1	
Fro		2	2	5	3	1	4	1	
Leonidas		1	2	5	1	1	3		1
Mary Garden		4	5	2	1	5		1	
Orange Queen		1		1	2	3	1	1	2
Sherwin-Wright		2	2	5	3	3	3	3	1

Albert Victor, by two Iris Experts rated as next to perfection; and by another rated in the discard-list! And almost as great difference of tastes is indicated by the ratings of Fairy.

Blue Flags, yellow Flags, Flags all freckled,
Which will you take? Yellow, blue, speckled?
Take which you will, speckled, blue, yellow,
Each in its way has not a fellow.

Christiana Rossetti: The Months.

Some forms, tho' bright, no mortal man can bear,
Some, none resist, tho' not exceeding fair.

Young: Love of Fame.

There are a few matters besides a preference for special colors, which it will be well to observe. A mass of one color is the most showy, but a number of small groups, each of a different color, are preferable to a large mass of one color.

Variety's the very spice of life
That gives it all its flavor.

Cowper: The Task.

Variety's the source of joy below,
From whence still fresh revolving pleasures flow.

Gray: Epistles.

In massing different colors care should be taken to select such as harmonize. Varieties of the squalens group, for instance, do not, as a general rule, go well with other varieties. It is a striking characteristic of blue that all of its shades go well together. White is generally recommended to separate discordant colors, but while it separates, it also accentuates sharp high colors.

Here also grateful mixture of well match'd
And sorted hues (each giving each relief,
And by contrasted beauty shining more)
Is needful.

Cowper: The Task.

Not chaos-like together crush'd and bruis'd,
But, as the world, harmoniously confus'd:
Where order in variety we see
And where, though all things differ all agree.

Pope: Windsor Forest.

A better way to prevent "clashing" of different colored masses is by separating them with some other kind of plants of taller growth and different flowering period, or with flowering shrubs. This also prevents monotony from the Irises being so long out of bloom.

The finish'd garden to the view
Its vistas opens, and its alleys green.

Thompson: The Seasons.

The finish'd garden opens to the view
Wide stretching vistas.

Young: To Dr. De La Cour, in Ireland.

Light and shadow should be considered. Most Irises look best in full sunlight, but a few (as, those of a bluish color) look equally as well in light shadow.

The point of view should receive attention. Some Irises are very beautiful when seen close at hand, but much less so when seen from a distance, and colors should therefore be chosen which will carry well the distance from which they will usually be seen. The Queen of May, for instance, lavender pink, is fine close

at hand in strong sunlight, but has a duller appearance from a distance. The large flowers of some of the plicatæ, having a ground of white edged with another color, are exceedingly beautiful when near by, but at a distance the border is hardly noticed and the flowers seem to be small white ones. The selfs and simple bi-colors are best for distant effects.

Delicate colors will be effective at a greater distance if they have a solid background to be outlined against. See under *Where to Plant*, page 162.

Profusion bright! and every flower assuming
A more than natural vividness of hue,
From unaffected contrast with gloom
Of sober cypress, and the darker foil
Of yew.

Wordsworth: The Excursion.

It also should be remembered that, as a rule, the most floriferous varieties do not bear the largest flowers (see under *Blooming*, page 153), and choice should therefore be determined to some extent by the planter's preference for size or number.

The principal use intended also deserves a thought. A variety (as, Mrs. H. Darwin, Monsignor) which so crowds the flowers on the stem as to give a bunchy appearance, may be effective in the garden, but stems of a variety with flowers less closely spaced are more desirable for the vase. See also under *Cut Flowers* in Chapter XI.

In the case of some varieties (as, Sweet Lavender) several flowers on a stem (sometimes as high as four) open up almost simultaneously—a spike of Alcazar sometimes has ten flowers out on it at once—and in the case of others they normally develop one at a time in succession. Choice can therefore be made between great display and long blooming time.

In Iris catalogues some varieties are sometimes described as “fine for massing”. This term does not seem to be used in every instance in the same sense, but in most instances what seems to be meant is that the variety so described is especially good for producing a mass of color. In relation to this matter Mr. Sturtevant, the secretary of the American Iris Society, in “The Flower Grower” of November, 1921 says: “The expression ‘fine for massing’, just what does it imply? As I remember its use, it is often tacked onto varieties that are good for nothing else, but, joking aside, there is a distinction in growth and color that makes some varieties particularly fine in a mass, quite aside from their perfection of detail. Dalmatica, Flavescens, Innocenza, Aurea, are clearly of this class; Quaker Lady and Afterglow, in certain color schemes, equally so, but I cannot imagine Eldorado, or even the fine Alcazar, as being increasingly attractive for this purpose. Oriflamme proves too low and large; essentially we need variety of simple coloring, with short branches well near the top of the stalks, and preferably moderate sized blooms of firm substance, the falls held horizontally. This is my ideal, at least, for mass effect.”

Some varieties are sometimes described as “good for cutting”, or as “excellent for cut flowers”. These terms also are not always used in the same sense. Sometimes what is meant is that the varieties so described have long flower-stems which show off the flowers to great advantage; sometimes, that the flowers are especially showy on account of their size or color; sometimes, that the flower-stems are graceful for arranging. In regard to these terms Mr. Sturtevant says in the magazine just referred to:

“A variety that is good for massing would be ‘good for cutting’, one that has unusual charm and delicacy in shape and color in venation, would be fascinating as a single stalk, and, therefore, ‘excellent as a cutting flower’. In this latter class I would immediately place Mme. Chovaut, Pancroft, occasionally Demi-Deuil or Montezuma, all of which derive charm from their details, not from their simplicity of color.”

For foundation planting use some variety of the *germanicæ* (as, Crimson King, Purple King). These do very well even on the shady side, and on the sunny side they fairly revel in the intense heat of the direct and reflected rays beating down on them—a characteristic indicative of the high temperature of the country of their origin. For such a situation these Irises are hardly surpassed by any other plant. During the summer not only does their foliage look well but they have beautiful flowers also, and in the winter a considerable portion of their foliage continues green and more or less erect (Figs. XLVII and XLVIII)—all their beauty:

Fades not with the season
When summer days depart.

Stanton: Summer of the Heart.

Where the house is a frame one on a very low foundation, these Irises are better than most flowering shrubs, for in summer their leaves are long enough to hide the foundation but not long enough to keep the woodwork damp during a long continued rainy season, and during the winter nearly every shrub is leafless. The flowers of these varieties are reddish purple. If white flowers are preferred use Florentina, but its foliage does not last quite as long as that of the varieties first named.

There are Irises for every purse. The old varieties usually sell at fifteen to twenty-five cents a single root;

FIG. XLVII.—PURPLE KING, EARLY MARCH, 1917, NORTHERN ILLINOIS (Stager Place, Sterling). ALL THIS FOLIAGE THEN GREEN

FIG. XLVIII.—CRIMSON KING, EARLY MARCH, 1917, NORTHERN ILLINOIS (Stager Place, Sterling). ALL THIS FOLIAGE THEN GREEN

later introductions, thirty-five to fifty cents; the very latest and finest, one to five dollars, a very few as high as twenty-five to forty dollars and one variety, Taj Mahal, was listed in 1921 at one hundred dollars. (Exceedingly high prices are usually more an indication of scarcity than of phenomenal quality.) Even if a plant should cost as much as one to five dollars, in a few years it will increase (most varieties) to such extent that it can be divided into so many that each will have cost less than ten cents (see under *Rhizome*, page 119)—the initial cost will be but a small price for a section of rainbow which can be seen not for a few minutes only, but all the time during the whole blooming season and throughout the planter's lifetime, and which continues to increase in size as the years go by. (As an aid to choice, see *Symposium*, Chapter XIV.)

HOW TO PLANT.—Cut back the foliage to two to six inches, making the outer (the oldest) leaves the shortest, thus making the cluster spear-shaped instead of fan-shaped. The leaves are cut back to check evaporation until roots get started enough to assimilate food for the new growth. The reason for shaping as suggested will be readily understood when it is considered how the new leaves are produced—a matter referred to under *Foliage*, page 123. Cut away entirely all old, decayed and dried roots, and shorten the others to conveniently manageable length (usually seven or eight inches); if any of the latter have been broken or bruised cut them back to sound, fresh tissue. Sound plump roots under seven or eight inches in length it is not necessary to shorten. For the reason for not shortening sound roots to any greater extent, see *Roots*, page 120. If the planting is done later in the year than September, it will be well to leave the sound roots full length, as additional resistance to heaving.

Having dug the ground at least a spade deep—deeper would be better—and provided for drainage as suggested under *Where to Plant*, page 157, dig a hole a little larger than may be necessary to allow the roots to be spread at full length, and make a mound in the center—steep, that the extremities of the roots may be placed deep in the ground—with the top a little (about the thickness of the rhizome) below the level of the surrounding surface of the mound. Place the rhizome flat on the mound and press it down, and after spreading the roots in a slanting way downward over the mound, in order

that they may the better resist the action of frost, fill the hole—firming well the soil about the rhizome and roots—cover the top of the rhizome with but an inch or so of soil and water enough to thoroughly settle the plant in place. A light cover will conserve moisture and hasten the development of new roots, but too deep a cover will be likely to result in rot and in delay of development of branches subsequently sent out by the rhizome. (See Fig. XII, page 117, and accompanying statement.) If the planting is done in the spring, with dormant stored rhizomes, there will usually be no roots to cover, and the above method can be varied accordingly. As to the rhizomes eventually coming to the surface, see under *Rhizome*, page 118.

After the planting is done, no more water should be given until growth begins, or the rhizome will be likely to decay. (See under *Cultivation* in Chapter VII.)

Such care in planting—except that the rhizome should not be any more deeply covered—is not essential to success, but it will be well repaid by the extra results that will be thus obtained.

If little labor, little are our gains;
Man's fortunes are according to his pains.

Herrick: Hesperides.

Commercial growers adopt more expeditious methods. Thus one in Minnesota:*

*Mr. Willis E. Fryer, in Vol. VII "The Flower Grower", p. 106.

“A shallow trench is dug with a potato fork, and perpendicular on one side. The plants are placed against the perpendicular side, and dirt drawn against them with the hand to hold them in place. The dirt drawn in with the hand is also firmed by striking it with the hand. Then the dirt is raked in with an iron garden rake until the trench is nearly full, and then it is firmed with the foot, but you must firm it against the perpendicular side or the plant will be pushed down too deep. After firming with the foot the balance of the dirt is raked in but not firmed. If clumps of Iris are planted they cannot be planted against the perpendicular side, but a hole has to be dug.” (See, under *Seed* in Chapter IX, this grower’s method of planting seedlings.)

The size of the plants to be used depends upon the effect desired. An Iris clump is illustrated in Fig. IX, page 115. How a clump should be divided for planting to obtain any particular effect, can be made plainer by reference to the illustration of an imaginary clump in the spring (Fig. XLIX).

Each lobe marked “1” (Fig. XLIX) is of the previous year’s growth and then bore leaves; those marked “2” grew a year earlier; “3”, two years earlier and “4” three years earlier than “1”. The larger of the lobes marked “1”, if planted in spring and very early, may bloom the same spring, and if planted late in spring, or in the fall, they should bloom the following spring, provided, in each instance, they are not separated from lobe “2”; but if separated they will not be likely to bloom—except perhaps the largest—until the second

FIG. XLIX.—IRIS CLUMP, SHOWING HOW IT MAY BE DIVIDED*

spring after such separation. (As to blooming size, see under *Rhizome*, page 119, *Flower-Stem*, page 126, *When to Plant*, page 163.)

The lobes marked "2", if separated from "1" (as in Fig. XLIX, D) are only refuse, as are also lobes "3" and "4" whether separated from each other or not, except that if planted—which of course should be done in the case of expensive or scarce varieties—they will probably develop growth buds (as, the one

marked "5" in Fig. XLIX, A and the one marked "12" in Fig. IX, page 115) which will become blooming plants in the course of several years—a matter more fully referred to under *Propagation*. (See also Fig. XIII, page 118, and accompanying explanation.)

To get a uniform effect and an effect of uniform spacing, plants like the single leads in Fig. XLIX, C should be used, and all should be set with the tips pointing in the same direction. To get a mass effect quick, clusters like Fig. XLIX, B should be planted. As a rule it is not well to plant a clump undivided, for the center is too prone to decay. (See under *Transplanting* in Chapter VII.)

*Courtesy of Mr. B. C. Auten, Cartersville, Mo.

If the plants are small, and a mass effect as soon as possible is wanted, they can be planted a foot apart each way (except in the case of such large growing varieties as *pallida Dalmatica*, which should be spaced more generously) and they will soon completely occupy the ground. Ordinarily, however, a greater distance will be found more desirable, as close planting will, in a year or two, result in such crowding as will make transplanting necessary. Irises flower most profusely when well established, and they increase quite rapidly, and it is therefore advisable to set the plants at such a distance apart that division and resetting will not be necessary for a few years—at least two or, better still, three feet apart.

Indulge their width, and add a roomy space,
That their extremest lines may scarce embrace;
Nor this alone to indulge a vain delight,
And make a pleasing prospect for the sight:
But, for the ground itself, this only way,
Can equal vigor to the plants convey,
Which crowded, want the room their branches to display.

Virgil: Georgic II (Dryden's tr.).

The vacant spaces, until required by the Irises themselves, can be utilized with annuals, and for this purpose nothing is better than the gladiolus, which has the same sword-like leaves and will be in bloom after all the Irises are done. The gladiolus itself will look all the better in such setting because of its own sparse foliage. Care should be taken not to shade the

Iris rhizomes completely—which is likely to be the case if low growing trailing plants are used as fillers—as they need the sunshine to ripen them. (See under *Rhizome*, page 116.)

The taller varieties should of course be planted at the rear. Of varieties of the same height the earlier blooming, except those which keep their foilage throughout the entire season, should be planted back of the others. If the Iris bed or border is located where it will be much in evidence when not in bloom, in the extreme front only such varieties should be planted as retain their foliage in good condition for the longest period. These are noted under *Foliage*, page 125.

Just arrangement rarely brought to pass
But by a master's hand disposing well
The gay diversities of leaf and flow'r,
Must lend its aid t' illustrate all their charms,
And dress the regular yet various scene.
Plant behind plant aspiring, in the van
The dwarfish, in the rear retired, but still
Sublime above the rest, the statelier stand.

Cowper: The Task.

To build, to plant, whatever you intend,
* * * *
In all, let nature never be forgot;
But treat the goddess like a modest fair,
Nor overdress, nor leave her wholly bare.

Pope: Moral Essays.

FIG. L. IRISES, ACCORDING TO HEIGHT

A garden, sir,
Wherein all rainbow'd flowers were heaped together.

Kingsley: Saint's Tragedy.

As Irises are out of bloom for so long a period it is better to plant them in groups rather than in large masses, and to plant between the groups something that will bloom after the Irises are through. (See under *Where to Plant*, page 162, *What to Plant*, pages 166-167.)

MARKING LOCATION. -As it will be difficult (at least for the ordinary planter) to distinguish varieties when out of bloom, it will be prudent to place a neat label-stake by each variety at the time of planting. If the name is plainly written with an indelible pencil it will

be legible for a year or more. If the stake is first given a coat of white paint, and the writing is done with an ordinary black soft lead pencil before the paint is quite dry, the writing will continue plain for a much longer period. If the paint is allowed to dry thoroughly, and a second thin coat is then applied and the writing done in an hour or so, both the stake and the writing will last for years.

A more satisfactory label is a metal one with the name embossed. Such a label, aluminum, having a hole in each end, with copper wire suitable for attaching to rod or stake is offered by the Movilla Gardens, Haverford, Pa., at the rate of one dollar for twenty-five. A similar label of zinc is offered by Mr. Hunter Filbert, Holmes, Pa., at three cents each.

Stakes, however, may be pulled up, thrown out by frost, or broken off, and it is therefore advisable to make and preserve a plot of the garden, and mark on it the location and name of each variety. (Blank pages for this purpose follow Chapter XIV.)

CHAPTER VII

Subsequent Care

THE CARE AND ATTENTION required by the Iris, when once established, is less than that of almost any other desirable flowering plant. Even if planted in the sod, if cared for the first year or two it will thereafter not only maintain itself but bloom abundantly and increase without further attention. It is above all others the plant for the lazy man and also for the lady indisposed to any more exertion in the flower garden than is required to gather the blooms. Nevertheless it will well repay whatever care it may receive.

CULTIVATION.—In the spring go over the newly planted beds and remove all covering put on in the fall or winter, and if any of the plants have been heaved push them down again; remove the dead leaves from all the beds, both for sightliness and to get rid of any pests which they may harbor. If the plants are crowded or the clumps are large it will be well to carefully remove, from time to time, the oldest leaves tending to keep the rhizomes too moist, especially in wet weather. For the looks of the plants, all the withered blossoms should be picked off every morning and every flower-stem should be cut out as

soon as its last blossom has faded. Stir the ground occasionally to prevent a crust from forming.

Be mindful, when thou hast entombed the shoot,

* * * * *

With iron teeth of rakes and prongs, to move
The crusted earth, and loosen it above.

Virgil: Georgic II (Dryden's tr.).

If in cultivating soil is heaped about the base of the leaves it should be moved away from them or rot may result. Keep the plants free from grass and weeds, not only for looks but—

Because sweet-flowers are slow and weeds make haste.

Shakespeare: King Richard III.

Now 'tis the spring and weeds are shallow rooted;
Suffer them now, and they'll o'ergrow the garden,
And choke the herbs for want of nourishment.

Shakespeare: 2 King Henry VI.

I will go root away
The noisome weeds, that without profit suck
The soil's fertility from wholesome flowers.

Shakespeare: King Richard II.

All hate the rank society of weeds,
Noisome, and ever greedy to exhaust
The impoverished earth; an overbearing race,
That, like the multitude made faction-mad,
Disturb good order, and degrade true worth.

Cowper: The Task.

Oh, Adam was a gardener, and the God who made him sees
That half a proper gardener's work is done upon his knees.
So, when your work is finished, you can wash your hands and pray
For the Glory of the Garden, that it may not pass away;
And the Glory of the Garden, it shall never pass away.

Kipling: The Glory of The Garden.

For best results, after growth starts in the spring water should be supplied, in moderation (see under *Diseases* in Chapter VIII), up to and immediately following flowering, unless the soil is naturally moist. And, generally, it will be found beneficial to furnish moisture during the whole of the dry summer season also.

As Hesiod sings, spread water o'er thy field,
And a most just and glad increase 'twill yield.

Denham: Of Justice.

FERTILIZERS.—An annual application of a little lime will be beneficial—half a pint of powderedslacked lime, or double that quantity of pulverized old mortar or

of ground limestone, to a square yard. As to use of lime see under *Where to Plant*, page 159-162.

As to the use of manure, see under *Diseases* in Chapter VIII; and as to the use of fertilizers in general, see under *Where to Plant*, page 159.

A British agriculturist wrote, some four hundred years ago, "Tillage is manure"—meaning, continual cultivation always tends to render available all plant foods contained in the soil. Of the Iris especially it may well be said—

* * *The best compost for the lands
Is the wise master's feet and hands.

Herrick: Hesperides.

TRANSPLANTING.—The Iris requires a year or two to become established, and the finest flowers are obtained from established clumps which therefore should not be disturbed oftener than necessary.

Nature, in her productions slow, aspires
By just degrees to reach perfection's height.

Somerville: The Chase.

As most of the varieties increase quite rapidly, every three to five years, depending upon the extent of increase, the clumps should be divided. Unless this is done the clumps will in time crowd each other, and

the individual plants will become matted into a thick mass, and the center will gradually cease to bloom; some of the rhizomes will become starved (page 118); and the oldest ones will dry up, wither away, not from disease but from exhaustion.

The crowded roots demand enlargement now
And transplantation in an ampler space.

Cowper: The Task.

When this condition exists, if it is not convenient to transplant the ground should be enriched, in the spring, with a top dressing of bone meal. If the same spot is to be used for replanting it will usually be well to first add to the soil a little bone meal.

Well must the ground be digg'd and better dress'd
New soil to make, and meliorate the rest.

Virgil: Georgic II (Dryden's tr.).

Unless many plants are desired the divisions should not be made very small, or there will be but few flowers the first season. Two or three branches or joints to a division, each with a cluster of leaves attached, will usually be found to be most satisfactory. The whole clump may be taken up, divided, and, discarding any old dried up or decayed parts, reset

as described under *How to Plant*, page 173. A better way is to cut the clump into portions as it stands in the ground and remove all but one—disturbing that one as little as possible—reset them, and fill with fresh soil the hole from which they were taken. (As to dividing clumps, see under *How to Plant*, page 175.)

WINTER PROTECTION.—Irises planted in the fall, especially if planted late, and more especially if planted in a heavy soil, should be given a covering of an inch or so of some light material that will not pack and hold moisture—as, loose straw (not chaff)—as soon as the ground freezes—not to protect them from the cold, but to prevent them from being lifted out of the ground by alternate freezing and thawing (Fig. XLIV, page 160).

When winter frosts constrain the field with cold,
The fainty root can take no steady hold.

Virgil: Georgic II (Dryden's tr.).

Straw is sometimes objectionable as a covering because of its liability to contain seed of quackgrass. The tops of gladioli, tomato vines or even Iris leaves, which have been spread out thinly in the sun and dried and then stored under cover, will answer and will be less objectionable on account of weed-seed. If no other more suitable covering can be obtained

a little soil can be used. Whatever covering is used it should be raked off in the spring at the first indication of growth.

Established clumps are sufficiently anchored by their roots and will winter well without protection.

As to winter storage, see under *When to Plant*, page 163.

Fade, flowers, fade; Nature will have it so;
'Tis but what we must in our autumn do!

Waller: Tr. out of French.

Fled is the blasted Verdure of the fields;
And, shrunk into their beds, the flowery Race
Their sunny robes resign.

Thompson: The Seasons.

CHAPTER VIII

Enemies

THE IRIS formerly was regarded as immune from disease and from insect attacks, but, like many other plants after they become subjects of cultivation, during recent years it has become somewhat more liable to them—mainly as the result of improper treatment or of environment. It is still, however, unusually free from serious troubles.

DISEASES.—There are several diseases caused by vegetable parasites, which are not common. Rot is the most serious disease. It has been a subject of considerable study by a number of noted Plant Pathologists* and they have discovered the cause of it, and have ascertained some of the conditions most favorable for its development. This rot is caused by the *Bacillus carotovorus*, which is supposed to be the same bacterium that produces the soft rot in many common vegetables and other plants. Ordinarily it enters through the tender growing tissues of the rhizome at the base of the leaves or through wounds in the body of it. Usually when an Iris plant becomes

*Including the following who courteously have furnished information as to their conclusions from their investigations:

Dr. H. H. Whetzel, Professor at Cornell University.

Dr. L. M. Massey, Assistant Professor at Cornell University.

Dr. E. P. Clinton, Botanist at Conn. Agricultural Experiment Station.

Professor E. M. R. Lamkey, Floricultural Pathologist at University of Illinois.

affected with this disease leaves begin to turn yellow at their tips, brown and wither and finally die. Sometimes the falling of a leaf to the ground, though for greatest part still green and fresh looking, is the first thing that the casual observer notices as an indication that there is anything wrong with the plant. As the disease progresses the rhizome becomes a rotten, slimy mass which has an exceedingly offensive smell.

For sweetest things turn sourest by their deeds;
Lilies that fester smell far worse than weeds.

Shakespeare: Sonnett XCIV.

The disease is usually at its worst after the spring rains (especially if there are many days of cloudy weather), about the time of the Iris' blooming season. It may abate during the hot, dry months of summer, and grow worse after the fall rains. An abnormally rainy season with little sunshine is especially favorable for it. The explanation of this is that though bacteria may be present in the soil during the whole season, they require moisture for their development.

So corn in field, and in the garden flowers
Revive, and raise themselves with moderate showers,
But overcharged with never ceasing rain,
Become too moist.

Waller: Instructions to a Painter.

The ground may be infested with bacteria from various crops, and they may be introduced with plants from infested localities. They live over the winter in the soil in direct communication with diseased rhizomes; possibly they may be able to survive the winter in soil where they are not associated with diseased plant parts, but this does not seem to have been ascertained to a certainty. No spores are known to be formed. Insects (as, flies, ants), snails, splashing rain and flowing water are the chief agents in inoculation.

Excessive moisture is favorable for their development—as when the drainage is so poor that water stands until it soaks away. Manure, also, is apt to encourage growth of the bacteria. The use of fresh barnyard manure, either as a fertilizer or mulch, is sure to result in rot, and even well rotted manure sometimes has the same effect, especially in connection with much moisture. The same result may follow the use of any mulch, depending perhaps upon its thickness—the effect of a mulch being to keep the surface moist. There are, undoubtedly, other conditions, not yet understood, conducive to the disease.

PREVENTION.—In view of the known conditions favorable for rot, as a preventative Irises should be planted only where the drainage is either naturally good, or has been made good—as in one of the ways suggested under *Where to Plant*, pages 157-162—and, if possible, only in ground which has not been recently manured, and in which there has not recently been grown a tuberous crop (as, carrots, parsnips, salsify,

turnips, etc.) or flowers with rootstocks or corms (as, cannas, gladioli, etc.), especially a crop known to have been affected with soft rot.

As a preventative of rot some extensive Iris growers dress the ground, a week to ten days before planting, with superphosphate of lime, acid phosphate—a pound to five square yards—or soak the ground to the depth of six to eight inches with a 4 per cent. formalin solution (about six tablespoonfuls of the usual commercial 40 per cent. solution of formaldehyde to a quart of water), and spray the plants in spring and early summer, at intervals of a month, with some disinfectant— as, for instance, a 1 per cent. solution of formaldehyde (one and a half tablespoonfuls of formaldehyde to a quart of water)—or with a solution of potassium permanganate (a level teaspoonful of the crystals to a quart of water), and then, to counteract acidity in the soil, apply in the fall or winter a light dressing of finely ground limestone or water-slacked lime—half a pint of the latter, or double that quantity of the former to the square yard.

Where a formalin solution is to be applied before planting, as a matter of economy the ground may first be moistened with water to the depth of six to eight inches, and then sufficient solution should be used to saturate the ground with it to that depth. About one and a half gallons of the solution will usually be ample for a square yard. The solution will be more effective if as soon as it is applied the ground is covered with cloths and the covering allowed to remain for several days, to retard evaporation. It is desirable, however, that the ground should be allowed

to become rather dry before planting is done, to avoid all danger of injury by the gas to tender rootlets. Loosening the soil, as with a spading fork, will cause it to dry out more quickly.

REMEDY.—When the disease is found to exist it should receive immediate attention—

Before decay's effacing fingers
Have swept the lines where beauty lingers.

Byron: Giaour.

Several years ago when the disease occurred in many parts of the country—an unusually wet season having followed a severe winter—the following course was pursued at Stager Place (Sterling, Northern Illinois), and with satisfactory results: If the disease is observed at an early stage, and but few plants are affected and but slightly, and the drainage is *good*, remove all leaves which appear to be unhealthy and cut or scrape away (a spoon answers admirably) all the soft parts of the rhizomes, cutting down to and a slight depth into the sound tissue; put on each scraped surface two or three teaspoonfuls of solution, as just mentioned, of potassium permanganate, and with a 1 per cent. solution of formaldehyde spray the affected plants and saturate to the depth of four to six inches the area about them. If the season is wet cultivate often and deep, to promote rapid evaporation, taking as much care as possible to avoid cutting the rhizomes.

If the drainage is poor, or the disease has made considerable progress but has not extended throughout the rhizome—all rhizomes affected almost throughout should be taken up and burned—or many plants are affected, take up all the plants and free them from soil; remove all unhealthy leaves and soft parts of the rhizomes, as above suggested; reduce the foliage and roots as suggested under *How to Plant*, page 173; dip the remainder of each plant, leaves and all, in a solution, as above mentioned, of potassium permanganate, and then replant elsewhere in well drained ground that recently has not been manured or used for tuberous crops. But if such a place is not available heel them in somewhere; change the old bed so the drainage will be good—as, in one of the ways suggested under *Where to Plant*, pages 157-162; apply a solution of formaldehyde, as suggested above for an original planting, and in a week or so take up the heeled-in plants and replant them.

Diseases, desperate grown,
By desperate appliances are reliev'd,
Or not at all.

Shakespeare: Hamlet.

All diseased portions and unhealthy leaves should be burned as soon as removed from the plants, or they may spread the disease. (As to bacteria surviving in the soil, see page 190.) Burning can readily be accomplished even if the leaves are green, but not

wet. Take shavings, dry grass or even crumpled newspapers, and over this material spread the leaves loosely; sprinkle the pile with kerosene, and, from a safe distance, toss on a lighted match.

Lime, wood-ashes, sulphur and bordeaux have frequently been tried as remedies, sometimes applied directly to the affected rhizomes and sometimes to the soil, but they appear to have generally proved to be ineffectual. And, applied directly to the affected parts, some of them seem to aggravate the disease—at Stager Place this was the invariable result of such use of fresh lime.

INSECTS.—There are several insects which sometimes, in some localities, but not generally, are more or less troublesome. The greatest pest is the Iris borer. It injures by boring into the rhizome and eating more or less of it; and sometimes through wounds made by it bacteria enter the rhizome and cause it to rot. It is the larva or caterpillar of the moth *Macronoctua onusta* a genus of the family *Noc-tuidæ*, night flyers.

Dark is the Iris meadow,
 Dark is the ivory tower,
 And lightly the young moth's shadow
 Sleeps on the passion-flower.

Marjorie Pickthall: Serenade.

The filmy shapes that haunt the dusk.

Tennyson: In Memoriam.

In "The Moth Book," by Dr. W. J. Holland, it is stated in reference to *Macronoctua onusta*: "There is only one species of this genus, which occurs in the Southern Atlantic States." However it may have been at one time, its occurrence is not now confined to that district.

On account of its peculiar coloration and its nocturnal habits the parent moth is seldom seen. It has been reared at a few Experimental Stations, and accounts by some of the observers of it there, and their conclusions, have been published,* upon which, in the main, the descriptions following are based.

The moth is almost two inches across the wings. The fore wings are a variable dark purplish brown, and the hind wings are mostly a yellowish brown with purplish brown near the tip. The thorax is thickly covered with purplish brown scales and the abdomen with light brown scales.

One of the antennæ of the specimen from which the accompanying illustration was made (Fig. LI) had been broken off.

The moth appears in the fall, usually September or October, and lives but a short time. It begins to lay its eggs, which are about an eighth of an inch in

*Mr. A. F. Winn: Canadian Entomologist, Vol. 46, page 296.

Dr. Roland Thaxter: Canadian Entomologist, Vol. 23, page 35.

Mr. Arthur Gibson: Canadian Entomologist, Vol. 36, page 355, and 34th Report Ontario Entomological Society, page 49.

Mr. Henry Bird: Journal N. Y. Entomological Society, Vol. X, page 215.

Dr. E. P. Felt: 27th Report N. Y. State Entomologist, page 52, 1912, and 30th Report, page 71.

Dr. W. E. Britton: 18th Report Conn. State Entomologist, page 331.

FIG. LI.—*Macronoctua onusta**

length, shortly after it appears—depositing them, scatteringly, several inches above the ground, some in cracks in the base of old leaves, but most of them between the edges of the overlapping leaves, near the base.

The eggs, probably all of them, remain unhatched until spring—hatching soon after the Iris resumes growth, about the last week in May. The larva begins to feed a little where hatched, and then works down, eating the tender part of the plant, until it reaches the rhizome, and there, or in a contiguous one if it has exhausted the first one, it continues its destructive work by eating, until it completes its larval development, which usually occurs about August. By this time it is a large caterpillar from one and a half to two inches in length and from a quarter to half an inch or more in diameter; body smooth, cylindrical, of a pale flesh color, sometimes of a yellowish cast, with lateral black spots; head a rich chestnut-red, shiny, rounded and flattened in front. The accompanying illustration (Fig. LII) is natural size of the speci-

*Courtesy of Dr. E. P. Felt.

men photographed, which perhaps was not quite full grown.

FIG. LII.—LARVA OF *Macronoctua onusta**

Fig. LIII, from a drawing in which the specimen is magnified, shows more clearly the claw-like feet and the effective jaws.

FIG. LIII.—LARVA OF *Macronoctua onusta* (magnified)†

The larva having completed its larval development leaves the rhizome and three or four inches away buries itself in the ground, to pupate. Here it becomes a shiny, bright brown pupa or chrysalis about one and a half inches long and half an inch in diameter, from which, September or October, the mature insect, the moth, emerges to begin a new cycle.

*Courtesy of Dr. W. E. Britton.

†Courtesy of "Gardeners' Chronicle (of America)."

This dull chrysalis
Cracks into shining wings, and hope ere death
Speeds more and more.

Tennyson: St. Simeon Stylites.

The first evidence of the presence of a larva on a plant is, generally, a small oily-looking spot on an inner leaf, where the eating commenced. As the larva works down through the tender part the plant begins to show yellow leaves, and by the time it reaches the rhizome so much has been eaten that a slight pull will bring away the central leaves.

REMEDY.—Whenever it is discovered that the pest has appeared, remedial steps should be taken at once. When it appears for the first time in a garden its presence will probably not be suspected, by one having had no experience with it, until the inner leaves of some plants have begun to turn yellow, and perhaps not until they have been eaten to such an extent that the whole sheaf has fallen to the ground. By this time the larva is in the base of the sheaf or has just entered the rhizome. It should at once be dug out—a hat pin or a knife will answer the purpose. The injured leaves should all be removed, and the chewed portions of the rhizome scraped clean, and the leaves and scrapings burned. All the other Iris plants should be examined from time to time, and all found to have been attacked should be given like treatment.

Later, precautions should be taken to guard against a new brood the following year in case any of the

larvæ escape detection and reach the moth stage, the egg laying stage. In the case of a small Iris bed, if any eggs are laid they can easily be disposed of: Soon after the first of November remove all debris from the bed; cut off all the leaves, new and old, just above the rhizome—cutting underneath the soil if necessary, even if a few of the buds on the rhizome are thereby destroyed—; remove and burn the debris and leaves. If the bed is of considerable extent this method may not be practicable, but burning it over, using due care not to make too hot a fire, will be just as effectual. After the forepart of November, or early in the spring before growth has started, selecting a day when the bed is comparatively dry, scatter over the bed a little light stuff (as, dry straw or grass) and start a fire on the windward side. The fire will sweep quickly over the bed and destroy the eggs on all the leaves not too wet to burn.

Experiments: Many years ago a single root of Mme. Chereau had been planted in the lawn at Stager Place and left to grow as it might, and it became a matted clump five or six feet in diameter. After a time many of the rhizomes reached the surface, and from time to time those in the inner portions of the clump became mere shells which gradually dried up and disappeared, and their places became occupied by new growths following the same course. Some grass grew scatteringly among the rhizomes. No part of the clump had ever been troubled by insect or disease, but merely as an experiment, to ascertain what the effect would be on the rhizomes, early in 1919, before

growth commenced, a little straw was scattered over the clump and set on fire. The flame swept over the clump in a flash and the straw, leaves and grass were entirely consumed, some of the shells were scorched and slightly burned, but the live rhizomes appeared to have suffered no injury whatever. The following spring growth began at the usual time and the foliage was as abundant and vigorous, and the flower-stems as numerous, large and floriferous as ever before. The experiment was repeated March 3, 1920, and again January 28, 1921, and each time with like result.

If the eggs have not been destroyed in some manner, by spraying about the first day of May, the usual hatching time, many of the larvæ can be destroyed when they begin feeding, before they have entered the plants. Use arsenate of lead and an extract of tobacco (as, black leaf 40)—half a pound of the lead and an eighth of a pint of the tobacco extract to twenty gallons of water. If soap is added—one-fourth of a pound of laundry soap, dissolved, to seven gallons of spray—the spray will stick better. The spraying should be done with a very fine spray nozzle and with strong pressure that will deliver the spray as mist or fog—as, with an Auto Spray—in the sunny hours, so the spray will dry quickly—leaving a film of poison on the leaves—and not form in drops and run off. If the leaves are drenched instead of being made merely fuzzy with the mist practically all of it will run off.

Spraying will be more effective if all debris has first been removed and burned.

It will be well to repeat the spraying several times, at intervals of a day or two, as not all the eggs hatch at the same time. Repeated spraying is advisable from the fact, also, that at best but a small proportion of the spray will adhere to the foliage. A little later the plants should be looked over occasionally for signs of larvæ in the leaves, and, if any are found to have entered, those which have just entered can be killed by pressure and the others should be dug out.

After the garden has been once thoroughly cleared of the pest it is not likely to be troubled by it again unless it is brought in with other plants from some infected source, as the moth is rather local in its work, seldom flying far from where it emerged from the pupal stage.

CHAPTER IX

Propagation

HERE are several methods of propagating the Iris, but only two are of any value.

DIVISION.—Propagation by division is the usual method. A cluster of rhizomes before division (Fig. IX, page 115, and Fig. XLIX, A, page 176) is what is usually meant by the term “clump” in plantsmen’s Iris price-lists. Such a cluster may be divided, by cutting or breaking, into a number of smaller clusters (Fig. XLIX, B, page 176) and each treated as a plant. Each separated cluster may in turn be divided by separation of the individual branches (Fig. XLIX, D, 1, 2, 3, and 4, page 176), and the newer of such branches, marked “1” in Fig. XLIX, D, page 176, are what are usually meant by the term “single roots” in Iris price-lists. The individual rhizomes may be cut into short pieces of an inch or two in length, and each piece planted separately. The pieces, or at least many of them,—even some without either leaves, roots or visible buds, which sometimes develop buds—especially those of the newer branches but sometimes also those of the older ones (respectively 1 and 2, 3, 4, in Fig. XLIX, page 176; and see Fig. IX, page 115) will in time produce as good plants as single roots though a longer time will be required. But, as a general rule,

a small growing point removed from a rhizome will not be likely to continue to grow unless a portion of the rhizome is taken with it.

Stock may be more rapidly increased under glass, and commercial growers sometimes resort to this method in the case of expensive varieties. Thus one grower,* in Bulletin (June, 1920) of American Iris Society:

“The stock is dug late in the season just before the last freeze up. With a sharp, small-bladed knife the roots are divided so that there is one bud and a part of the rhizome and some roots with each one. The blooming bud should have a side shoot with it. These are potted in 3 and 3½ inch pots and wintered in a cool greenhouse and kept somewhat on the dry side until well-established and it is very seldom that we lose one of these plants. By the first of May this makes excellent stock for lining out or selling. Transplanting does not check their growth in the least. From one Lord of June received from Wallace in mid-winter we had five strong plants the following May. From one Shekinah from Miss Sturtevant in August we had six in the spring.” In a letter of March 10, 1921, the same grower wrote: “I took up one of the six Shekinahs mentioned in the Bulletin and now have six nice starters from it growing in the greenhouse * * * I have not used this method very extensively and it is quite likely that there is not much to be gained by it with some varieties.”

*Mr. W. J. Engle, Dayton, Ohio.

As to rate of multiplication, see also under *Rhizome*, page 119.

SEED.—The varieties of the *germanica* group seldom produce seed, and most of the varieties of the other species—mainly by reason of the peculiar relative positions of the anthers and stigmas, a matter more fully referred to under *Flower*, page 142—rarely produce seed unless pollinated by external agency, as by bees (see page 143) or by hand.

The seeds should be gathered as soon as ripe or they may drop from the pod and become lost. They are ripe when the pod yellows and begins to open at the top, but they are ripe enough to gather as soon as they turn brownish when the pod has faded to a yellow-green and slightly shriveled. If ripe take them from the pod and sow at once, in any good garden soil that has been dug and raked fine, thinly in drills three-quarters of an inch deep, firming the soil—as by patting with a block or back of a spade or with the hand. If not quite ripe put the pods in the shade in a dry, airy, warm place for a few days, and then shell and plant.

If it is not convenient to sow the seeds as soon as they are gathered or ripened, they may be put away dry until later in the season. Some planters advise keeping the seed stratified in moist sand until wanted for sowing, but this seems to be hardly necessary.

The seed is usually slow to germinate. Under some conditions it will come up in three weeks, but it will be more likely to lie in the ground until the next spring, and a few seeds may not start for several years.

If it is desired to avoid all possible danger of seedlings appearing in the fall and being injured during the winter, the seed should be sown the latter part of October.

The seedlings should be cared for the same as seedlings in general. They may be transplanted to permanent quarters any time after they are large enough to handle conveniently—the leaves will be four to eight inches long about the middle of June—provided the planting is done in time for them to become established before the ground freezes—say, by the fore part of August. Dig the planting bed deep, and, if necessary, provide for drainage—as suggested under *Planting*, page 157. Thrust a wide butcher-knife into the soil, two or three inches deeper than the length of the roots, and push the handle forward. Drop the plant into the opening thus made, with the roots hanging and spread out, so that the rudimentary rhizome will be about an inch or so below the surface. Now withdraw the knife and thrust it into the soil, an inch or two from the first opening, at such an angle that the point of the knife will strike the bottom of the first opening, and draw towards the plant—thus firming the soil against the roots—and withdraw the knife and fill the second opening. If the knife is not wide enough for the largest plants use the spade for them. Some commercial growers on a large scale, who transplant in August when the plants are large, use a large trowel and firm the soil with their feet. As to the distance apart, see suggestions under *How to Plant*, page 177.

At transplanting time the rootstock gives little indication of its future form, but looks very much like an onion bulb. See illustration of a seedling (Fig. XV) on page 123.

After growth begins water frequently during the growing season. The first winter the plants should be protected with a light cover—as recommended under *Subsequent Care*, page 186—to prevent them from being thrown out by alternate freezing and thawing, as they will not then be very strongly anchored.

Some, if in rich ground and abundantly watered during the growing season and well cared for, will bloom the second spring, but most of them will bloom after the second spring.

Plants obtained by division will of course bear flowers the same as the parent plant, but there is likely to be a great variation in the colors of the seedlings. See under *Origination of Varieties* in Chapter X.

And new creations do the old succeed,
As late and unknown beauties rise from seed.

*Lawrence: Paradise Regained, or The
Art of Gardening. (1728.)*

Persons whose only enjoyment of a flower is in inhaling its perfume or seeing the beauty of its form or color, should buy Iris plants instead of raising them from seed, for they will get flowers sooner and with less trouble.

Patience is a plant
That grows not in all gardens.

Longfellow: Michael Angelo.

But the flower lover who has patience and finds pleasure in anticipation, in addition to setting out plants may well sow a few seeds, for he not only will be quite sure to get from the latter something new but it may also be very fine, and the chance and hope will give zest to his garden work.

'Tis expectation makes a blessing dear;
Heaven were not heaven if we knew what it were.

Suckling: Against Fruition.

Then too, the plant will last his lifetime, and the consciousness of having himself originated it will add to his satisfaction.

A thing of beauty is a joy forever:
Its loveliness increases; it will never
Pass into nothingness; but still will keep
A bower quiet for us, and a sleep
Full of sweet dreams, and health and quiet breathing.

Keats: Endymion.

It is preferable, of course, to use seed that has resulted from careful and judicious pollination by hand—a matter referred to under *Process of Pollination* in Chapter X—but wonderful results have some-

times been obtained from chance seeds. For instance: Innocenza, Queen of May, Victorine, *Violacea Grandiflora* (which have held high rank for more than half a century), *Jacquesiana* and *Mme. Chereau* (which for more than three quarters of a century have been considered among the best varieties) came from chance seeds. *Juniata*, one of Mr. Farr's very fine introductions, was a chance seedling. One of the largest commercial growers of Bearded Irises does not pollinate any of his flowers but sows chance seeds, and he has produced many fine varieties.*

GRAFTING.—One variety may be grafted on another. As a method of producing a new variety there is nothing to it. In 1876 and 1877 experiments were made in the Botanic Garden at Innsbruck: Buds of *Kochi* (Fig. XXXV) were grafted on *Florentina* (Fig. XXXJII), and buds of *Florentina* were grafted on *Kochi*. The former produced unaltered plants of *Kochi*, and the latter, unaltered plants of *Florentina*. The *Iris* seems not to be an exception to the general rule that when two varieties or allied species are grafted together each retains its distinctive characters (characteristics).

It is a matter of common practice to hasten an apple seedling into bearing by cutting it into scions and grafting them on a tree of bearing age. Whether grafting a growing point of a rhizome of non-blooming age will enable the point or bud to produce a rhizome of blooming-size sooner than it otherwise would, is a matter being tried out at Stager Place.

*Mr. Willis E. Fryer, Mantorville, Minnesota.

CHAPTER X

Origination of Varieties

HERE occasionally is found a new variety which probably originated as a sport from another variety (see under *Result of Cross-Fertilization* in this chapter), in which the special character distinguishing it from the parent plant had become fixed (not dependent on environment). Generally, however, new varieties are obtained only by cross-pollination.

CROSS-POLLINATION is the conveyance of pollen from an anther of one plant to a stigma of another, but usually plants of different varieties or species are intended. It is usually practiced not so much for the purpose or with the expectation of obtaining a new character—at least not immediately—as to obtain an augmentation or a desirable combination of characters possessed by the plants used in the operation.

VARIETIES FOR CROSSING.—Varieties differ greatly as regards fertility. Some usually have either no pollen or only sterile pollen, and some having fertile pollen do not usually produce seed. The *germanicæ* and the intermediates, for instance, are much less likely than many others to form seed—at least in many and probably most localities—even when carefully pollinated.

Some varieties will cross well with some, but not with all other varieties. Plants from species closely allied can usually be more easily successfully crossed than others more distantly related. What will answer best under any particular circumstances can be definitely determined only by experiment.

When floriferousness (see under *Blooming*, page 153) is a character especially sought in making a cross, a *trojana* is frequently selected as one parent. When large size of flower is a character especially desired, *Amas* (Fig XLI, page 145) is frequently used as pollen parent.

As just stated, the *germanicæ* are generally seed-sterile. Only very seldom is there an exception; but one exception, *Amas* (a widely known *germanica*) furnished a surprise for flower lovers—a veritable sensation. Mr. E. B. Williamson, Bluffton, Indiana, for several years pollinated many of the flowers of a clump of *Amas*, unsuccessfully. One year (1910) having a good lot of the plant he pollinated every flower with mixed pollen. One pod set and it contained a single seed of enormous size from which came the wonderful *Lent A. Williamson*, one of the finest varieties—some think it is the very finest—ever produced in this country.

PROCESS OF POLLINATION.—Most varieties (see page 205) can be pollinated readily, and will produce good results, if the work is undertaken at the proper time (at maturity of the material used, pollen and stigma) and under proper weather conditions (when the flower is not wet with dew or rain, and no rain

in sight). A rain within several days after the operation will be likely to render the work valueless, and a very wet or a very hot season will sometimes cause failure.

The anther has two lobes, each at maturity of its contents opening lengthwise by a slit in its face—"face" being the surface towards the fall. Each lobe is filled with pollen, a powdery or dust-like substance, usually white or cream-color, consisting of a multitude of minute grains called "pollen-grains", each having a rough surface. The pollen is mature when it is ready to fall out or to be easily removed through the

FIG. XLIV.—STAMENS (Caprice)
A, Stamen from bud just unfolding.
B, Stamen from fully opened flower.

slit, which is indicated by the face of the lobe which appears smooth prior to the maturity of the pollen and more or less rough afterwards. This condition occurs shortly after the tips of the falls begin to unfold. Fig. LIV shows two stamens, greatly enlarged, from different flowers on the same stem. The one on the right (Fig. LIV, A) is from a bud that was just beginning to unfold, and the other (Fig. LIV, B) from a fully opened flower. Notice the smooth surface of the former, and the face of the other covered more or less by the escaping pollen-grains which give it a rough appearance (like a piece of fine sand paper). A microscope will make the matter clear.

The stigma is mature (ready to receive the pollen) when its stigmatic surface is in such condition that when touched with pollen-grains they readily adhere to it. At this time the stigmatic surface is covered with papillæ—which give it a velvety appearance—which may easily be seen with a microscope. At this time, in the case of a variety having a movable lip on the style-branch (see page 215), the upper edge of the lip drops and exposes its upper (the stigmatic) surface. This condition occurs several hours after the tips of the falls have begun to unroll—when the standards are partially expanded. Fig. LV. shows two style-branches from different flowers on the same stem. The one on the right is from a bud that was just beginning to unfold, and the other from a fully opened flower. On the former notice the lip standing erect, pressing against the crests and concealing the stigmatic surface (Fig. LV, A, 1). On the other notice

how the lip has dropped and exposes the stigmatic surface (Fig. LV, B, 2).

FIG. LV.—STYLE-BRANCHES
A, Style-branch from bud just unfolding;
1, Stigmatic lip erect.
B, Style-branch from fully opened flower;
2, Stigmatic lip dropped.

Explanation of the process of pollination will be more readily understood, by one having no previous knowledge of the subject, after an examination of the plan of an Iris flower (Fig. XX, page 130), and the illustration of a bee pollinating a flower (Fig. XL, page 144).

The operator should have a pair of stout tweezers, a camel-hair brush—a soft feather will do—and a small dish for the anthers and their pollen—a watch-glass or an individual butter-dish will answer admirably. A pen-knife or a small fine-pointed scissors will do instead of tweezers, but tweezers will be found to be more convenient. Having selected the flower to be pollinated (usually called “seed parent” or “pod-parent”), as soon as the tips of the falls begin to unroll

prepare it for the operation. Get the tip of a fall between the fingers of the tweezers and carefully slip them down the fall and break it off below the blade. Repeat the operation on the other falls. Next get the filament of a stamen between the fingers of the tweezers, carefully part the stamen from the style-branch against which it presses, and break it off below its anther. In like manner remove the other stamens.

In the course of an hour or two return to the flower, and, if the standards have become partially expanded and the stigmatic surface of the lips is exposed—probably middle forenoon of the first day of bloom gives the best opportunity for pollination—remove the standards with the tweezers in the same manner as the falls. Some break off each fall and standard at its base, but the style-branches are then more likely to be injured by strong winds. The removal of the standards is not necessary, but it will facilitate pollination. The appearance of the flower after the removal of the falls and standards (in case they have been entirely removed) is shown *infra* in Fig. LVI. Now proceed with a flower of the variety that is desired as the other parent (usually called “pollen parent”). Select one that has partially opened and thus indicates maturity of the pollen, and—using the tweezers as before—after carefully removing the falls break off the stamens—which, if the pollen is mature will appear as in Fig. LIV, B, page 213—and place them in the dish provided for that purpose. If the pollen is mature some of it will fall out of the anthers into the dish and the balance may be jarred or brushed out. Returning with the dish to the prepared flower,

with the brush pick up the pollen and dab it on the stigmatic surfaces until they are well powdered. As previously stated (page 131), the ovary has three divisions, each containing ovules. Each division is connected with a separate style-branch (the one standing immediately above it) and to ensure the development of the ovules in each division the stigmatic surface of each style-branch should be carefully pollinated.

When a brush is used to apply the pollen of any variety it should be thoroughly cleaned before it is used with the pollen of a different variety, if it is desired to preserve an accurate record of the subsequent crosses.

The pollination having been finished, some advise covering the flower with a small, light, paper bag; and this may be desirable to keep the record of the cross absolutely correct, but it is hardly necessary—it is so extremely unlikely that a stigma after having been pollinated will be affected by any other pollen that may reach it.

The active life of an Iris bloom is so short (presumably shorter when pollinated than when not), and it is so easy to see any pollen that may have been deposited on the stigma before arrival of the operator, and it is so generally understood that it is the first pollen that arrives that gets results, that a more expeditious course is frequently adopted where the operator will be satisfied with a reasonable (a little short of absolute) certainty as to the parentage of resulting seeds: When the flower of the plant desired

for pod parent has opened sufficiently for pollination (a matter referred to above), if its stigmas are clean (without pollen) pollen is applied to them, without removal either of stamens, falls, or standards.

Experts sometimes do not use a brush, but with a pen-knife transfer the pollen from the anther to the stigma. Some, with tweezers or even with the fingers pick up the anthers, one at a time, and wipe them gently on the stigmatic surfaces until the pollen rubs off.

Sometimes the pollen which it is desired to use is

FIG. LVI.—IRIS STYLE-BRANCHES*

Sty, Style-branch.

st, Stigmatic lip.

e, Entrance to pollen-duct.

an, Anther.

pd, Cross-section of style-branch, showing pollen-duct, enlarged.

*Courtesy of Mr. J. Marion Shull, Chevy Chase, Md.

mature before the seed parent is ready for it. In such a case the anthers can be kept in a small phial until wanted, as the pollen will retain its vitality for three or four days; but the sooner the pollen is used after its maturity the better.

Each style-branch is provided with a pollen-duct. This duct is made by the two overlapping flaps along the upper or ventral side of the style-branch, appearing to the eye simply as a raised midrib. Well down toward the ovary the edges of these flaps coalesce, but the duct still remains distinct and open all the way to that cell of the ovary (Fig. XX, 3, page 130) with which the style-branch is connected (the one immediately below it). This arrangement is well shown in Fig. LVI.

When a pollen-grain touches the mature stigmatic surface (Fig. LVI, st) it develops a tube which extends down through the stigma and style—through the pollen-duct (Fig. LVI, e and pd)—and through this tube the contents of the pollen-grain reach the ovule (Fig. XX, 3, page 130) and fertilization ensues and the ovule becomes a seed.

He * * * in its case,
Russet and rude, folds up the tender germ
Uninjured, with inimitable art,
And, ere one flow'ry season fades and dies,
Designs the blooming wonders of the next.

Cowper: The Task.

If the material used is in the proper condition, the work properly done and the weather conditions right, fertilization will take place between one and two days after pollination (early withering of the flower is sometimes a sign of incipient fertilization), and in the course of two weeks or less the ovary will begin to look like a seed-pod. The pod will be full length (from two to three inches, according to the variety) in about a month, and the seed will be ripe in two to three months after pollination.

There is a woodland witch who lies
With bloom-bright limbs and beam-bright eyes,
Among our Water-flags, that rank
The slow brook's heron-haunted bank:
The dragon-flies, in brass and blue,
Are signs she works her sorcery through;
Weird, wizard characters she weaves
Her spells by under forest leaves,—
These wait her work, like imps, upon
The gray Flag-pods.

Cavein: The Wood Witch.

RESULTS OF CROSS-FERTILIZATION.—“Like begets like” is an old saying, but in the case of the Iris the “like” sometimes may not be that of either parent but of some other ancestor; for, as already stated (page 108), almost every Iris now in commerce is itself a hybrid from an unknown number of ancestors—a mosaic of characters of many different ancestors.

A hybrid may be inferior to the parents in foliage, flower, constitution or in all respects; or it may be slightly or greatly superior to them in some or all respects. Hybrids from varieties of the same species are, as a rule, uncommonly vigorous, especially if the varieties are not very closely related; but hybrids from very different species are sometimes weak. See under *Hardiness*, page 155.

Each seed in the first generation (result of first crossing) is likely to produce a plant differing in one or more respects not only from each of its parents but also from all other plants from seeds from the same pod.*

Hybrids sometimes display in the first generation, in the case of parents with contrasting characters (as, tallness and dwarfness, white flowers and colored flowers), some characters of one parent exclusively. Characters not at first appearing but remaining latent in the hybrid sometimes appear in subsequent generations—cases of atavism (breeding back). Some hybrids display side by side some characters of both parents. Thus in the flowers of certain varieties the colors of both parents are sometimes developed in streaks or patches, as in Victorine. In the Botanic Gardens at Innsbruck a hybrid from Florentina (see Fig. XXXIII, page 138), and Kochi (see Fig. XXXV, page 139), produced flowers having some segments

*Explanation of theories as to how this is brought about, may be found in "Plant-Breeding" (1915, reprinted 1920) by L. H. Bailey and A. W. Gilbert; "Plant Anatomy" (1916) by William Chase Stevens; "Mendalism" (1919) by Reginald Crundall Punnett.

the shape and color (deep violet) of Kochi and the other segments the shape and color (milk-white) of Florentina. At Stager Place a chance seed of Parc de Neuilly (see Fig. II, page 38), planted in 1919, produced a plant in 1920 which in 1921 produced two flower stems. One stem bore five white flowers, each greatly resembling Florentina (see Fig. XXXIII, page 138) in shape of segments. The other stem bore seven flowers, each greatly resembling Parc de Neuilly in color (plum-purple) and shape of segments. Sometimes a character is intensified (as, tallness in Virginia Moore). Generally, however, it seems that a hybrid may well be expected to develop in a blended condition at least some of the characters of each parent.

Where a character not shown by a parent appears in a plant, usually it is but a recurrence of a character of a distant ancestor, which theretofore for generations had remained latent; sometimes it is merely a temporary variation of a pre-existing character, resulting from environment or cultivation (see under *Fluctuations*, page 149). Occasionally, however, not often, it is hardly to be accounted for except by regarding it as a new character, or at least as an inheritable variation of a pre-existing character, resulting from some cause—which no one has yet been able either to determine or explain—operating in the development of the germ of the seed from which the plant was produced, or in the vegetative parts of the plant (as a bud on the rhizome). Such occasional plants are called, in ordinary language, “sports”, but to scientists they are known as “mutations”. For

instance, it is now thought that *amoëna* and *plicata*, long classified as species, may be sports, the one from *variegata* and the other from *pallida*.

Crossing a hybrid with either of its parents (with the same plant or with any plant produced from such parent by division) increases the likelihood of obtaining a plant having characters of that parent; and the likelihood is increased, almost to a certainty, by repeated crosses in successive generations with such parent—provided crossing has not resulted in sterility, which sometimes occurs and especially where the parents are of species not closely allied (see page 212). So, also, by crossing a seedling with another vigorous seedling of the same cross, the desired character of either parent of the seedlings may sometimes be obtained in combination with characters of the other parent.

* * * As flies the father-dust,
The varied colors run; and while they break
On the charmed eye, the exulting Florist marks,
With secret pride, the wonders of his hand.

Thompson: The Seasons.

Oft expectation falls, and most oft there
Where most it promises; and oft it hits
Where hope is coldest, and despair most sits.

Shakespeare: All's Well That Ends Well.

CHAPTER XI

Use of Plant and Flower

THE USEFULNESS of the Iris extends to all its parts—rhizome, foliage and flower.

PLANTING IN GENERAL.—Its usefulness is not confined to the home grounds. By reason of its hardiness, fewness of its requirements, and its suffering but little from dust, smoke or soot, the varieties which retain their foliage throughout the season (which are noted under *Foliage*, page 125, *What to Plant*, page 170), are ideal plants for factory and depot grounds and public parks; and such of these varieties as bear white flowers are unexcelled for cemetery decoration. For the same reasons, and also from the fact that they bloom early in the season, before the schools close, all varieties are especially valuable for embellishing school grounds.

Road-side planting is coming into favor, and for this purpose there are few better plants than the Iris. Though of ample increase it would never become troublesome. The standard varieties—all of them beautiful—are so cheap that every land-owner can afford generous planting along his highway frontage. The flowers are so large that they could be clearly seen even from the swiftly moving autos; an abund-

ance of the especially fragrant varieties would scent the air as does the later blooming clover; long stretches of the nearly evergreen varieties would be a most welcome sight to the winter-traveler. May the time be not far distant when plans for beautifying Lincoln Highway, and other like important lines of travel, will include planting the Iris.

All things of beauty are not theirs alone
Who hold the fee; but unto him no less
Who can enjoy, than unto them who own,
Are sweetest uses given to possess.
For Heaven is bountiful; and suffers none
To make monopoly of ought that's fair.

Saxe: The Beautiful.

WINDOW GARDENING.—The Iris is sometimes used as an indoor plant, and the early blooming varieties with comparatively short and upright foliage—as, Kochi, (Fig. XXXV, page 139), Kharput, (Fig. XXXIV, page 139), are the best for that purpose.

Treated as follows, plants have produced in ordinary living rooms (not too warm) as many and as fine flowers in February and March as they ordinarily do in the garden in May and June: From the last of August to October, after growth for the season has practically ceased, lift clusters of last year's rhizomes with well developed present year's branches attached,

leaving on them what soil will adhere; put each cluster in a large pot (preferably a one-half or two-thirds pot) six to eight inches or more in diameter according to the size of the cluster, well provided with drainage (soil made light, as with coarse sand, fine gravel or pulverized old mortar); leave the plants out of doors until they have had a freeze, and when the weather becomes severe put them in a cool, dry cellar or room where the frost will come out gradually; the latter part of December bring the pots into a room where they will have some sunshine and some, but not much, heat; after growth has started, about the middle of January, put the plants in a sunny window in the living room; water occasionally (allowing the soil to become dry before watering again) until the leaves have attained nearly their normal length, and then largely but not entirely withhold water, that the plants may mature their growth; spray, if insects appear, with a soap solution (a few shavings of ivory soap dissolved in boiling water which should afterwards stand until cool).

In the spring, after the plants have flowered the pots can be plunged in some well drained part of the garden, and, being provided with an abundance of water and occasionally fed with bone meal during the growing season, they may be left there until freezing weather in the fall. Flowers have been obtained several years in succession, without repotting, by repeating above treatment.

Another method is as follows: Early in the spring pot two year old rhizomes with their last year's

branches attached; plunge them in the garden and leave the plants to bloom and make their growth in the pot, watering and feeding them during the growing season; after the plants have had a freeze and severe weather comes on lift the pots, and then give them substantially the treatment set out above.

Some leave the plants in the garden until the ground is frozen, lift and pot them during the first winter-thaw, and then bring them in.

Heretofore the explanation of necessity for freezing has usually been, that the plant must have some period of practically complete rest before it can flower again, and that this is brought about by freezing. Of late the theory has been advanced by some scientists, that the new growth does not begin until some of the starch stored in the cells of the plant has been turned to sugar; the enzyme that converts the starch to sugar is supposed to exist outside the plant cells and to be unable to penetrate into them until the cell wall has been weakened in some way, as by freezing.*

Even while the plants are not in bloom they are a welcome addition to the living room. Their bright green leaves are cheery. Each new leaf growing for inches inside an older one (see under *Foliage*, page 123, *Flower-Stem*, page 126)—its outline plainly distinguishable through the latter when the plant is in the light—then gradually emerging, is almost as interesting a sight as a flower unfolding, and its emerging will be eagerly watched—

*American Botanist, February, 1922.

Even as a child delights
To visit day by day the favorite plant
His hand has sown, to mark its gradual growth,
And watch all-anxious for the promised flower.

Southey: Hymn to the Penates.

SOIL BINDING.—Along the sandy shore of the Mediterranean, in one section of southern France, the Iris is extensively grown to hold the sand and prevent it from being blown back upon the cultivated lands. This suggests its use to prevent or lessen the washing of hill-sides.

THATCHING.—In countries where the Iris grows in abundance, its broad leaves, sometimes called “flags”, are sometimes used by the peasantry to thatch their cottages.

And at the utmost point * * * stood there
The relics of a weed-inwoven cot,
Thatched with broad flags.

Shelley: Marenghi.

In the north of France, sometimes the ridge of the thatched cottage is given a coating of clay the whole width of the roof and Irises are planted in the clay. Perhaps this is but an imitation of a similiar practice in China and Japan. There another species of Iris, *I. tectorum* (“tectum” being Latin for “roof of a

house”), is grown on roofs. This custom is thought, by some, to have originated in a superstition that Irises are efficacious in the prevention of disease, and by others, to have been adopted merely as a means of strengthening the thatch. Another version of the origin of such roof-growing is given under *Orris-Root* in this chapter.

ORRIS-ROOT.—“Orris-root” is a corruption of “Iris-root.” The violet-scented, chalky appearing orris-root of commerce is obtained from several species (*germanica* and *pallida*), Florentina yielding the principal supply. The rhizomes are taken from the ground the latter part of June, in Italy, but in this climate (northern Illinois) August is the proper time. After removal of the leaves and roots the rhizomes are cleaned, and then the brown bark-like skin is scraped off and all imperfections removed—the clump being broken apart to facilitate the work. The pieces are then thoroughly washed and placed in the sun to dry, but they should not be allowed to become wet with rain. After exposure to the sun for eight or nine days they can be packed away in a dry place to mature. When fresh they have an earthy odor but in drying they acquire the pleasant smell of violets—which is fully developed after about three years—which they retain indefinitely—

* * * like the violet, which decayed in bloom,
Survives through many a year in rich perfume.

Scott: Epilogue.

Orris-root is much used in perfumery. It is principally used in powdered form (formerly called Powder of Cyprus), for sachet powders, tooth and hair powders and other scented dry preparations. The dried root is sometimes chewed to conceal an offensive breath.

Formerly powdered orris-root was used as a complexion beautifier. The root of a species of *Iris* grown on the thatched roofs in China and Japan is used for the same purpose, and the origin of such roof-growing is thus given in Mrs. Fraser's Book of "Japanese Tales":

"Once there was a great famine in the land, and it was forbidden to plant anything in the ground that could not be used for food. The frivolous Irises only supply the powder with which the women whiten their faces, but their little ladyships could not be cheated out of that. 'Must we look like frights as well as die of hunger?' So every woman set a tiny plantation of Irises on the roof of her house, where they are growing to this day."

The following lines, written for the United Press, July, 1917, indicate that if the late European War had continued much longer, the ladyships of other lands than China and Japan would find a similiar use for the *Iris*:

In France they've taken all the rice
To hoard for food supply,
So powderless all dames must go,
Of low degree or high.

Henceforth each Gallic feminine
Will feel she looks a fright,
And shiny noses soon become
A common Paris sight.

Margaret Mason.

Toilet-uses of orris-root are thus referred to by an English poet, in describing a painting—

* * * vestments and white faces, sweet
As puff on puff of grated orris-root
When ladies crowd to church at mid-summer.

Browning: Fra Lippo Lippi.

The dried root is sometimes thrown upon a fire to give out a pleasant odor. Pieces are sometimes placed with clothing in chiffoniers, trunks and chests, to impart to it an agreeable perfume. The French peasants string pieces together, pour boiling water on them, and immerse their bed linen in the liquid, in order to give it a pleasant odor. After use the pieces are re-dried and stored away for future use.

In some European countries (especially in Germany and Austria) finger-like pieces of thoroughly dried orris-root are given to infants to bite on, to facilitate teething.

Beads for personal adornment are sometimes made of orris-root. Not long ago Paris and Leghorn exported twenty millions of them in a year.

In fresh condition orris-root contains an acrid juice and possesses slight cathartic and purgative properties, and was formerly used in many medical preparations. Anciently it was considered a complete remedy for the removal of freckles and discolorations caused by a stroke or bruise, and a sovereign cure for dropsy, diseases of the kidneys and spleen, piles, stone, convulsions, King's evil and hard swellings, shortness of breath, old coughs and many other ailments.

The virtues of the Iris, real and supposed, were thus sung, about the middle of the seventeenth century, by an English poet who was a botanist and had been made a doctor of medicine at Oxford but probably never practiced medicine:

At length the sporting goddess [Flora] thought it best
(Though sure the humour went beyond a jest)
A pleasant sort of trial to propose,
And from the Plants a queen to choose
Which should preside over the Flow'r'y race,
Be a vice-goddess, and supply her place:
Each plant was to appear, and make its plea,
To see which best deserv'd the dignity.

* * * * *

The Flower-de-luce next loosed her heavenly tongue,
And thus, amidst her sweet companions sung.

(Iris: or Flower-de-luce.)

If empire is to beauty dear,
(And this in Flow'rs if any where holds true)
Then I by nature was designed for reign,
Else nature made a beauteous face in vain.
Besides I boast a sparkling gem,
And brighter goddess of my name.

My lofty front towards the heav'ns I bear,
And represent the sky, when 'tis serene and clear.
To me a godlike power is given
With a mild face resembling heaven;
And in the kingly style no dignity
Sounds better than Serenity!
Beauty and Envey oft' together go;
Handsome myself, I help make others so;
Both gods and men of most curious eyes
With secret pleasure I surprise;
Nor do I less oblige the nose
With fragrance from my root that blows.
Not Sibaris or soft Capua did know
A choicer Flow'r for smell or show.
Though both with pleasure of all kinds did flow.
I own the Violet and the Rose
Divinist odours both disclose;
The Saffron and Stockillyflower, .
With many more;
But yet none can so sweet a root produce.
My upper parts are trim and fair,
My lower breathe a grateful air.
Soft as I am, amidst this luxury,
Before me rough diseases fly.
Thus a bold Amazon with virgin face,
Troops of dastard men will chase:
Thus Mars and Venus often greet,
And in single Pallas meet:
Equal to her in beauty's charms,
And not to him inferior in arms.
By secret virtue and resistless power
Those whom the jaundice seizes, I restore;
Though moist with ungent, and inclin'd to love,
I rather was for luxury designed;
And yet, like some enraged lioness
Before my painted arms the yellow foe dost haste.
The Dropsy headlong makes away

As soon as I my arms display.
The Dropsy, which man's microcosm drowns,
Pulling up all the juices in its rounds;
I follow it through ev'ry winding vein,
And make it quit in haste the delug'd man.
The nation of the Jews, a pious folk,
Though our gods they don't invoke,
And not to you, ye Plants! unknown
I' th' days of that florist Solomon,
Tell us that Jove, to cheer the drooping ball,
After the flood a promise past,
That so long as earth should last,
No future deluge on the world should fall;
And as a seal to this obliging grant,
The rainbow in the sky did plant.
I am that bow, in poor hydropic man
The same refreshing hopes contain;
I look as gay, and shew as fine,
I am the thing of which that only is the sign:
My Plant performs the same,
Towards man's little worldly frame;
And when within him I appear,
He needs no deluge from a dropsy fear.

Cowley: Of Flowers. Tr. by C. Cleve.

CUT FLOWERS.—The flowers are fragile and when fully open do not bear much handling.

The sweetest flowers are ever frail and rare.

Shelley: Marenghi.

For house use the flower-stems may be taken just as the first buds are about to open, and all will open in water; but, except in the case of varieties usually having only a few buds (as, *pallida Dalmatica*) it is better to wait until one or two buds are fully expanded, as the later buds will then open much better developed. Flowers that come out in water will lose in size and sometimes a little in depth of color. If kept out of direct sunlight they will keep their color better. As the flowers fade pick them off, shorten the stem and change the water, and the remaining buds will all open in succession, and a single stem will sometimes furnish flowers for a week or more.

The cutting should be done with a sharp knife, and the cut should be slanting to avoid squeezing the stem together and thus reducing the amount of water that can be taken up, and to prevent the ends from being sealed if they should rest upon the bottom of the holder. As in the case of most flowers, it is better to cut them in the early morning. (See under *Flowers*, Chapter XII.)

* * * together let us tread
The morning dews, and gather in their prime
Fresh blooming flowers.

Thompson: The Seasons.

Form is as dominant a feature of the Iris as color, and therefore the flowers should not be crowded. A few (two or three) flower-stems in a holder, per-

mitting a view of each flower in its entirety, will be found more satisfactory than a larger number. Compare the appearance of the three flower-stems shown in Fig. LVII, with the appearance of the dozen stems shown in Fig. II, page 38.

The most appropriate holder for the Iris is a tall, narrow one, widest at the bottom, with a base sufficiently wide to prevent tipping. Several inches of sand or fine gravel in a narrow holder will make it less likely to be tipped over by long stems, and if the sand or gravel is perfectly clean—and especially if it is white—it will not detract from the appearance of even a glass holder.

The holder should be plain, subordinate to its contents. A tall, plain, glass pitcher with a narrow mouth, but wide at the bottom, answers admirably. The ideal holder is tall and narrow, narrowest at the middle, and above the middle has flutes of such size (radius about half an inch) as will hold the flower-stems in place (not allow them to slip together).

In view of the sentiments associated with Iris, messenger of Juno, from whom we have one of the names of the flower, and the metaphorical use of one of its other names, *Fleur-de-lis*, the Iris seems to be peculiarly appropriate for Decoration Day in latitudes where that is its blooming time, and for use generally as a funeral flower. In classic mythology, Proserpine, one of the greater goddesses, Queen of the lower regions, claimed of the dying a lock of hair as the condition of permitting the agony of death to come to an end, and it was one of the duties of Iris to cut off the lock—Iris thus becoming a means of relief

FIG. LVII.—THREE STEMS OF CAPRICE

to the dying and a blessing to the dead. It is this that Virgil refers to in the lines describing the death of Dido on her funeral pyre:

Then Juno, pitying her disastrous fate,
Sends Iris down her pangs to mitigate.
(Since if we fall before the appointed day
Nature and death continue long their fray).
Iris descends; "This fatal lock (says she)
To Pluto I bequesth, and set thee free";
Then clips her hair: cold numbness straight bereaves
Her corpse of sense, and the air her soul receives.

Virgil: Æneid IV (Denham's tr.).

Or as the passage is translated by another poet:

Then Juno, pitying her long pain,
And all that agony of death,
Sent Iris down to part in twain
The clinging limbs and struggling breath.

* * * * *

So down from Heaven fair Iris flies
On saffron wings impearled with dews.
That flash against the sunlit skies
A thousand variegated hues;
Then stands at Dido's head, and cries:
"This lock to Dis I bear away
And free you from your load of Clay":
So shears the lock: The vital heats
Disperse, and breath in air retreats.

Virgil: Æneid IV (Conington's tr.).

For the religious sentiments associated with Fleur-de-lis—later in the Christian era—see under *Metaphor*, page 87, *Religious Symbol*, page 90.

CHAPTER XII

Shipping

THE SHIPPING of rhizomes and plants is as easy as that of flowers is difficult.

RHIZOMES.—Dormant stored rhizomes should be freed from dried leaves and roots—taking care not to injure the tender point or the buds—though the roots are frequently left for the receiver's attention. Wrap each one tight in dry paper or moss so as to prevent free circulation of air and the rhizome's drying out. Enclose in a pasteboard box or strong wrapper (as, corrugated paper, matting, burlap) to prevent injury by bruising. A rhizome in transit by mail from any point to another, within the United States, without such careful wrapping will usually dry but little, but that little may as well be prevented.

Commercial growers shipping in quantity sometimes merely pack in barrels, boxes or sacks, jarring the rhizomes together as the packing proceeds, and thus packed they keep sufficiently moist.

GROWING PLANTS.—The leaves and roots should be shortened as suggested under *Planting*, page 173, but the roots are frequently left to be shortened according to the buyer's judgment. The plants should be freed from soil, and when this is done by

washing they should be allowed to dry in the shade to their normally moist condition. Each plant should be surrounded with a little dry moss or fine excelsior for absorption of any excessive moisture and then should be loosely wrapped in paper so that if any decay ensues the trouble will be less likely to be communicated to others, but the ends of the wrapper should not be made air-tight or the plants will be more likely to heat. They can then be placed in boxes having some ventilation, or wrapped in coarse burlap or, preferably, matting. (See under *Roots*, page 120.)

FLOWERS.—In the May number, 1921, of "The Flower Grower" Mr. R. S. Sturtevant makes the following suggestions in relation to cutting, handling, transporting and exhibiting blooms, based on experience in shows in Boston, Philadelphia, Washington and other places.

"Cut late the afternoon before the show, and keep in water in a cool dark place until you are ready to pack. For short distances, that is not over twenty miles, or not more than one hour in time, and for transportation by automobile, the stalks may be stood upright in a pail of water, with a packing of crumpled paper to keep the expanded flowers from touching each other; and a protection from wind should be provided. For longer distances stalks may be packed in ordinary flower boxes and the best ones selected at the show. It is better to pack them in tissue paper in shallow trays, but neither boxes nor trays permit the carrying of full-blown flowers, and any opening buds should be tied with soft wool.

“Miss Sturtevant has handled full-blown flowers successfully by the following method:

Boxes about 8x12x48 inches are used, with strips of cotton cloth run through the sides at various distances apart; each stalk is laid in separately and the cloth strip is pinned on each side of the stalk so that there is no chance of slipping; as only about 20 to 40 stalks can be put in a box, this method is hardly practicable for large exhibits, but it is well worth while when exhibiting in small classes, as the flowers can be shown in as perfect condition as when first picked. If the flowers are expected to remain packed for more than four hours, it is advisable to place moist cotton or moss around the cut ends of the stem. Boxes should always be carried by hand in train or automobile, and never sent by mail or express.”

The method adopted by Mrs. Hardee, of Kentfield, Cal., who supplies the florists in San Francisco who carry Iris flowers, is described in the March number, 1922, of “The Flower Grower”:

“I deliver them in packages of ten dozen—each dozen tied separately. They must be taken to town by machine, as they do not stand shipment well, though perhaps special boxes could be made. I cut in rather close bud one morning, tie and place in water in a cool, perfectly dark room, and deliver the following morning before eight o’clock. When the blooms are placed in the light they open beautifully.”

CHAPTER XIII

A Few Varieties

THE FOLLOWING are only a very few of the many hundreds of varieties of Tall Bearded Iris now in commerce—just enough to indicate the wide range of colors of the early and late moderately priced varieties. They are numbered in the approximate order of their blooming—approximate only, for situation, soil and season are greatly modifying factors—and those beginning about the same time to bloom are given the same number. For the rating of each, and, also of many other varieties (many of them later introductions and higher priced), see under *Symposium*, Chapter XIV.

In the description the figures indicate in inches the height of the flower-stalk. Height varies more or less with locality and cultivation, but the relative heights of the different varieties in the same locality and under similar conditions do not usually vary to any very great extent. “S” refers to the three standards or upright segments, and “F” to the three falls or drooping segments. The descriptions of the flowers are necessarily only general, for there is hardly any other flower as difficult as the Iris, “The Rainbow Flower”, to either describe in words or represent in colors.

What skillful limner e'er would choose
To paint the rainbow's varying hues,
Unless to mortal it were given
To dip his brush in dyes of heaven?

Scott: *Marmion*.

Who can paint
Like nature? Can imagination boast,
Amid its gay creation, hues like hers?
Or can it mix them with that matchless skill,
And lose them in each other, as appears
In every bud that blows? If Fancy then,
Unequal, falls beneath the pleasing task,
Ah what shall Language do? Ah where find words
Tinged with so many colors?

Thompson: *The Seasons*.

WHITE STANDARD AND FALLS

- 2—*Florentina* (*germanica*, see page 109). S. creamy white, faintly flushed lavender; F. creamy white, more deeply flushed lavender, flaked yellowish white at base. 24-29 inches. (Fig. XXXIII, page 138; see page 230.)
- 1—*Ingeborg* (intermediate). Pearly white; very large flower. 17 inches.
- 4—*Innocenza* (*variegata*). S. ivory-white; F. white, striped maroon at base; beard golden. 24 inches. (See page 209.)

- 3—*Mrs. H. Darwin* (amœna). S. white; F. white, penciled violet at base. 24 inches.
- 3—*Penelope* (plicata). S. white; F. white, veined red-violet, often quite upright like a crocus; beard yellow. 18 inches. (Figs. XXIX and XXX, page 137.)

WHITE, FEATHERED WITH PURPLE OR
BORDERED WITH BLUE

(A).—COLOR CONFINED TO MARGIN OF SEGMENTS

- 3—*Fairy* (plicata). White, delicately bordered and suffused soft blue; exceedingly fragrant. 36 inches. (Fig. XXII, page 132.)
- 3—*Jeanne d'Arc* (plicata). S. white with border delicately penciled bright lilac; F. white, bordered lilac at base. 33 inches. (Fig. XXV, page 134.)
- 3—*Mme. Chereau* (plicata). White, with frilled lavender edge. 36 inches. (Fig. XXXVIII, page 140; see page 209.)

(B).—COLOR SUFFUSED THROUGH THE SEGMENTS

- 3—*Parisiana* (plicata). S. white ground dotted and shaded lilac-purple; F. white; bordered and dotted lilac. 28 inches.

WHITE OR SLIGHTLY TINTED STANDARD
AND PURPLE FALLS

- 3—*Anne Leslie* (amoëna). S. white, rose tinted; F. rich carmine. 30 inches.
- 4—*Rhein Nixe* (amoëna). S. white; F. raspberry-purple, edged white. 36 inches. (Fig. XIX, page 129.)
- 3—*Victorine* (amoëna). S. white, with irregular spots of violet-blue; F. violet blue, upper half striped white. 25 inches. (See page 209.)

PURPLE SELFS

(A).—LAVENDER-PURPLE

- 2—*Celeste* (pallida). S. pale lavender; F. deeper lavender. Lighter colored and more floriferous than pallida Dalmatica. 32 inches. (Fig. XXVI, page 135.)
- 1—*Dorothea* (intermediate). S. milky white, flushed blue, spreading horizontally; F. horizontal, lavender-white with deeper blue markings. Much like a Japanese Iris. 18-20 inches. (Fig. XXVII, page 135.)
- 4—*Pallida Dalmatica*. Delicate lavender, with pink reflections. Very large flower and foliage. 40 inches. (Fig. XVIII, page 128.)

- 4—*Queen Caterina* (cypriana). Pale lavender-violet, white haft veined with bronze. 36-48 inches. Better grower than *Caterina* which it probably will supplant in the East and Middle West.
- 3—*Ring-Dove* (pallida). S. pale lavender-violet; F. deeper shade with band of still deeper shade at the throat. Very floriferous. 36-48 inches.
- 3—*Tineæ* (pallida). Like pallida *Dalmatica* in color and size of flower, and with larger foliage. 36-45 inches. (See page 154.)
- 4—*Violacea Grandiflora* (pallida). S. and F. of rich blue, of violet shade in the latter. Darker than pallida *Dalmatica* and *Tineæ*, 32-40 inches. (See page 209.)

(B).—BLUE-PURPLE

- 2—*Firmament* (Introducer, Groschner, found it in clump of *Florentina*). S. violet-purple, paler toward edge; F. turquoise-blue; beard bright orange. Large flower. 24-29 inches.
- 3—*Loppio* (cengialti). S. lavender-blue; F. violet-blue. 18 inches. (Fig. II, 7, page 38.)

(C).—RED-PURPLE

- 3—*Caprice* (pallida). S. reddish purple; F. deeper and richer. A good wine-red Iris. 24 inches (Figs. II, 9, page 38, and Fig. LVII, page 238.)

- 2—*Crimson King* (*germanica*). S. rich claret-purple; F. velvety claret-purple. 24 inches. (Fig. XLVIII, page 172.)
- 5—*Edouard Michel* (*pallida*). Reddish purple, much like *Caprice* but larger. 32 inches. (Fig. I, title page.)
- 2—*Kochi* (*germanica*). Deep purple, falls have a translucent black coating, buds are soot-black. 24 inches. (Fig. XXXV, page 139.)
- 4—*Parc de Neuilly* (*pallida*). Navy-blue, with a reddish tinge. 28 inches. (Fig. II, 8, page 38.)

PURPLE BI-COLORS

- 2—*Amas* (*germanica*). S. violet-blue; F. deep purple-violet. 24 inches. (Fig. XLI, page 145.)
- 3—*Archeveque* (*neglecta*). S. purple-violet; F. deep velvety violet. 27 inches. (Fig. II, 10, page 38.)
- 3—*B. Y. Morrison* (*amoena*). S. light lavender-violet; F. velvety raisin-purple, with bronze-lavender border. 33 inches.
- 3—*Governor Hughes* (*squalens* [?]). S. violet tinged with red; F. darker shade of same color; very large orange beard. 28 inches.
- 2—*Kharput* (*germanica*). S. violet; F. velvety red-purple. Large flower. Very desirable but requires special care. 20-25 inches. (Fig. XXXIV, page 139.)

- 3—*Lord of June* (germanica [?]). S. lavender-blue; F. violet-blue. Large flower, form like Amas (Fig. XLI, page 145.) 36-40 inches.
- 5—*Monsignor* (neglecta). S. satiny violet; F. velvety purple-crimson with darker veining and lighter margin. 24 inches. (Fig. II, 4, page 38, and Fig. XXIV, page 133.)
- 4—*Perfection* (neglecta). S. lavender, flecked with deeper shade; F. velvety lavender, dark reflections. Very floriferous. 30 inches. (Fig. XVII, page 128 and Fig. XXXI, page 138.)
- 4—*Shalimar* (trojana). Rich violet-purple. Remarkable for branching habit, candelabrum form and floriferousness. 36 inches.
- 4—*Tamerlan* (squalens). S. light violet-purple; F. deeper in color. Sometimes unsatisfactory in growth. 30 inches. (Fig. XXXVII, page 139.)
- 1—*Walhalla* (intermediate). S. light violet; F. violet-purple. 24 inches.

YELLOW SELFS

- 3—*Sherwin-Wright* (variegata). Golden yellow, without markings. Flower small. Free blooming. 24 inches. (Fig. II, 6, page 38.)
- 3—*Shekinah* (pallida). A pale lemon-yellow deeper through the center to the orange of the beard; haft with green back, color extends unto blade. A strong grower. 36 inches.

- 4—*Virginia Moore* (a second generation from Her Majesty [pallida] Honorable [variegata]). Color clear yellow-chrome, same as lemon lily. Free blooming, flowers of good size and up to twelve to a stem. 33 inches. (See page 119.)

PALE YELLOW STANDARDS AND PURPLE FALLS

- 3—*Loreley* (variegata). S. light yellow; F. creamy white, with purple reticulations blending into a velvety purple mass near the ends which are margined with deep canary. 30 inches. (Fig. XXXII, page 138.)
- 3—*Mithras* (variegata). S. light yellow; F. brilliant wine-red, with narrow border of deep yellow. 28-30 inches.

DEEP YELLOW STANDARDS WITH PURPLE FALLS

- 3—*Kathryn Fryer* (variegata [?]). S. large bright yellow; F. velvety maroon-red, veined white in the center, reticulated yellow at base; orange beard. 30 inches.

SHOT SHADES

(A).—YELLOW THE MOST OBVIOUS COLOR NOTE

- 4—*Iris King* (squalens). S. bronze-yellow; F. rich crimson, bordered and upper half veined with yellow; beard orange. 25 inches. (Fig. XXIII, page 133.)

(B).—PURPLE-BRONZE EFFECT

- 3—*Alcazar* (squalens). S. light bluish violet; F. deep purple; with bronze veined throat. 36-48 inches.
- 3—*Eldorado* (squalens). S. rosy bronze; F. bright violet-purple, touched down the sides with the brown or yellow of the haft; style-branches clear gold. 32 inches. (Fig. II, 3, page 38, and Fig. XX, page 130.)
- 2—*Lent A. Williamson* (germanica). S. lavender-violet; F. rich purple, center of flower blended with yellow and russet vinaceous; sometimes called an improved *Alcazar*, but darker in color. One of the heaviest pollen producers, and a better seeder than *Amas*, its seed parent. 42 inches. (See page 212.)
- 3—*Prosper Laugier* (squalens). S. light bronze-red; F. velvety ruby-purple; beard orange. 27 inches. (Fig. II, 2, page 38.)

LILAC AND ROSE SHADES

- 3—*Delicatissima* (pallida [Millet]). Large flower of delicate lilac color. Very fragrant. 30 inches.
- 4—*Her Majesty* (pallida). S. rose-pink; F. bright crimson, shaded darker. 22 inches.
- 4—*Isoline* (squalens). S. silvery lilac; F. purplish old rose, golden at the throat; beard yellow.

Foliage remains green until well into winter. 36 inches. (Fig. II, 12, page 38, and Fig. XXXVI, page 139.)

- 3—*Lohengrin* (pallida). Soft silvery pink-mauve, shaded to white at haft. 36 inches.
- 3—*Mrs. Paul B. Riis* (pallida). S. delicate lilac-rose; F. bright rosy claret. Long blooming period. 30 inches.
- 3—*Queen of May* (pallida). Soft and clear rose-lilac approaching closely to pink. 24 to 30 inches. (See page 209.)
- 3—*Windham* (pallida). S. soft lavender-pink; F. heavily veined with darker shades. 20 inches.

CHAPTER XIV

Symposium

THE SYMPOSIUM of Bearded Irises in commerce in America in January, 1922, compiled by Mr. C. P. Connell from the ratings by 23 Iris experts selected as jurors for that purpose, is published in "Bulletin No. 5" (May, 1922) of the American Iris Society, edited by the Secretary, Mr. R. S. Sturtevant.

Ratings were made on following basis:

10	Perfection not yet attained.
9.7 or 9.8	Nearest perfection among existing Irises.
9.5	Almost perfect.
9.0	Very fine.
8.5	Fine.
8.0	Very good.
7.0	Good.
6.0	Good but not outstanding.
5.0	Fair but surpassed by similiar varieties.
-5	Below 5.

The Symposium will be of great assistance to persons who contemplate purchasing Irises but are not familiar with the different varieties, notwithstanding difference of tastes. (See under *What to Plant*, page 164.) It is to be expected as a matter of course that after further experience with the "novelties" (introductions since 1916) the rating of some of them will be changed.

The Bulletin contains also a tabulated list of the varieties of Tall Bearded Irises rated above -5 in the

Symposium, arranged in order of merit (according to the jurors' ratings) which—omitting the number of votes given each variety—is as follows:*

GRADE	STANDARD VARIETIES	VARIETIES INTRODUCED SINCE 1916
9.6		Lent A. Williamson
9.5	Princess Beatrice	
9.4		Ambassadeur Ballerine Dominion
9.3		Souvenir de Mme Gaudichau
9.1	Lord of June	Avalon Magnifica Leverrier Queen Caterina
8.9	Alcazar Caterina	Phyllis Bliss
8.8	pallida Dalmatica	B. Y. Morrison Georgia Halo Hermione Shekinah
8.7	Crusader cyprianna Opera	Dusk Marshmarigold Reverie
8.6	Edouard Michel Isoline Mme. Claude Monet Mme. Durrand	Afterglow Anne Page Cluny

*Courtesy of American Iris Society.

STANDARD		VARIETIES
GRADE	VARIETIES	INTRODUCED SINCE 1916
8.5	Lady Foster Valery Mayet	Dream Grevin Medrano Merlin Mme. Chobaut Moa Rose Madder Sweet Lavender Tartarin
8.4	Anna Farr Kashmir White Monsignor Quaker Lady Rhein Nixe Troost	Arsace Cretonne W. J. Fryer
8.3	Ambigu Archeveque Corrida Dejazet Ivanhoe La Neige Mercedes Montezuma Prosper Laugier White Knight	Anne Leslie Benbow Dimity Du Guesclin Mme. Cheri Rodney Seminole Sindjkhat Stanley H. White Taj Mahal Ute Chief
8.2	Delicatissima Lohengrin	Azure Drake Morwell Nancy Orne Onnoris Roseway

GRADE	STANDARD	VARIETIES
	VARIETIES	INTRODUCED SINCE 1916
8.1	Carthusian Juniata Ma Mie mesopotamica Mme. Louesse Neptune Parc de Neuilly Stamboul trojana	Blue Lagoon Dora Longdon Kathryn Fryer Mlle. Schwartz Raffet Sherbert Virginia Moore
8.0	Col. Candelot Dalila Fairry Jacquesiana Nine Wells Romeo Sarpedeon Sunshine Violacea Grandiflora	Baronet Tom Tit
7.9	Albert Victor Emir Iris King Loreley Mady Carriere Ochracea Oporto Parisiana	Barton Harrington Dorman Laura E. Sturtevant Mrs. Fryer
7.8	Arnols Dawn Eldorado Jeanne d'Arc King George V. Kochi	Clematis Fantasy Katrinka Kynsna Madison Cooper Magnate

GRADE	STANDARD	VARIETIES
	VARIETIES	INTRODUCED SINCE 1916
	Mary Garden	Mary Williamson
	Minniehaha	Mrs. Cowley
	Mme. de Sevigne	Swatara
	Odoratissima	
	Oriflamme	
	Perfection	
	Red Cloud	
	Ricardi fonce	
	William Marshall	
7.7	Black Prince	Cordon Bleu
	Major	Nirvana
	Mme. Boullet	
	Pocahontas	
	Shalimar	
7.6	Copperman	Sarabande
	E. L. Crandall	
	Florentina	
	Gloire de Hillegom	
	Mauvine	
	Miss Willmott	
	Mrs. Alan Gray	
	Nuee d'Orage	
	Princess Royal	
	Ring Dove	
	Sherwin-Wright	
	Thelma Perry	
7.5	Armenian	Dr. Andrist
	Atlas	Empire
	Caprice	Fenella
	Dalmarius	Fryer's Glory
	Fro	Mrs. Christman
	Gold Crest	Rachel Fox

GRADE	STANDARD VARIETIES	VARIETIES INTRODUCED SINCE 1916
	La Beaute	Syphax
	Mithras	Zua
	Pauline	
	Queen Alexandra	
	Rhoda	
	Shrewsbury	
	Tineæ	
	Tregastel	
	Viola	
7.4	Aurea	Bluet
	Aurora	Naushon
	Dr. Bernice	Tamar
	germanica major	
	Hautefeuille	
	Hiawatha	
	Lewis Trowbridge	
	Massasoit	
	Mme. Chereau	
	Navajo	
	Purple King	
	Queen of May	
	Ricardi	
	Richard II	
	Tamerlan	
	Tunisie	
7.3	Albicans	Baski-bazouk
	Clio	Gules
	Her Majesty	Hilda
	Junonia	Mareschal
	Leonidas	Mrs. A. M. Brand
	Mandaliscaæ	Queen Elinor
	Mary Gray	Rosalind
	Nibelungen	Tintallion

GRADE	STANDARD VARIETIES	VARIETIES INTRODUCED SINCE 1916
	Pancroft Windham	
7.2	Marvar Moor Oriental Our King Princess Victoria Luise Saracen Wyomissing	Mme. Denis
7.1	Blue Jay Celeste Cordelia Delagrangé Fontarabie germanica germanica alba Goliath Innocenza Petit Vitry Porcelain Shelford Chieftain	Gov. Hughes Mandalay Margaret Moor Paxatawny Prestige W. F. Christman
7.0	Donna Nook Flavescens Hebe James Boyd Mrs. Kingscote Penge	Elinor Francina Mrs. J. S. Brand Myth Purple and Gold Wanaque
6.5 to 6.9 inclusive	Apollo Atrocoerulea Australis	Acquahanock A. M. Brand Abrabesque Arethusa

GRADE	STANDARD VARIETIES	VARIETIES INTRODUCED SINCE 1916
	Aymard, M.	Clarence Wedge
	Barbara	Demure
	Belcolor	Grace Kimball
	Bergi	M. G. Peters
	Bianca	Mikado
	Brionense	Mme. Blanche Pion
	Buriensis	Mrs. Andrist
	Cameleon	Mrs. Christman
	Candelabre	Mrs. H. Darwin
	cengialti	Mrs. Kimball
	Chester J. Hunt	Mrs. Neubronner
	Cottage Maid	Mrs. Reuthe
	Darius	Mrs. Sanford
	Demi-Deuil	Othello
	Erich	Palaurea
	Esmeralda	Palissy
	Foster's Yellow	Patience
	Gagus	Prince of Wales
	Gertrude	Rakan
	Gloriette	Reticulata alba
	Glory of Reading	Riva
	Igouf	Rose Unique
	Iroquis	Standard Bearer
	Isola	Thorbecke
	Khedive	Vesuve
	Laverter	Victorine
	Lord Grey	Violet Queen
	Loute	Waywayanda
	Mary Minnanelle	

MEMORANDA

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