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The Longfield Iris Farm



Bluffton, Indiana
1925

E. B. Williamson

Paul H. Cook

INTRODUCTION AND TERMS

We have been growing and breeding Iris for about eighteen years. Working originally with many species of several subgenera, we have in recent years specialized in Pogoniris, the bearded Iris, and to a lesser extent in Apogon, the moisture-loving rhizomatous Iris of which our common native Iris, I. VERSICOLOR, is a well known example. The Pogoniris are of the easiest cultivation, are best adapted to most soils and climates and, in their regal beauty, have such a range of color, form and size that we believe that these Iris possess advantages as a universal garden flower over all other Irises. While selecting and propagating the best productions of European and American breeders, we are giving special attention to originating varieties and visitors are invited to inspect our plots of thousands of seedlings during the flowering season.

Prior to 1922 we had issued a few short circulars or price lists. Our first catalog was printed in 1922. A second printing of this was made the same year. In 1923 and again in 1924, we published supplements to this catalog.

Prices quoted in this catalog are for single plants delivered to the customer. Six plants will be furnished for five times the cost of a single plant. We shall ship plants as nearly on the date as desired by the purchaser as our weather conditions will permit. Plants are not held in storage and are shipped the same day they are dug. But we urgently recommend that the customer ask for shipment at a date to suit us in July or August as this allows us to dig during the most favorable season for transplanting Iris and at the particular time when local weather conditions are the best. In this way we can furnish maximum sized plants in the best possible condition. This request is made for the best interests of our customers upon whose good will and approval our business depends. The size, quality and labelling of every plant is guaranteed satisfactory to the customer.

THE LONGFIELD IRIS FARM

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ARGYNNIS
A New Longfield Iris
Reduced from a painting by J. Marion Shull

CLASSIFICATION OF THE GENUS IRIS

The genus IRIS is primarily divided into two sections in one of which the rootstock is a rhizome, and in the other a bulb. In the latter section three subgenera are recognized: JUNO, with small standards, containing twelve to fifteen old world species; XIPHIMUM, with large erect standards, containing about a dozen old world species, including the so-called English and Spanish Irises; and GYNANDRIRIS, represented by a single widely distributed old world species, separated from Xiphium by having the stamens adhering to the style-branches.

In the rhizomatous Iris, seven subgenera are recognized. In APOGON and PARDANTHOPSIS the falls are not bearded or crested. Pardanthopsis contains only one species and it is distinct from all other Iris in bearing numerous small flowers in a regular raceme. Apogon contains many species in the old and new world and among these are many of the most valuable garden Irises including Siberian Iris, Japanese Iris and the stately spurias. EVANSIA is characterized by a distinct crest on the falls. It occurs in both the old and new world and our beautiful native species, CRISTATA, belongs in this subgenus. The four remaining genera all have a conspicuous beard on the falls. Three genera, PSEUDOREGELIA, REGELIA and ONCOCYCLUS, are separated from POGONIRIS by characters of the seed which in the first named three genera has a conspicuously differently colored and enlarged tip, but superficial characters for their easy recognition in the garden are not available though once seen peculiarities of vegetation and of flower form, color and markings will make themselves felt. Pseudoregelia contains a single old world species. There are three species of Regelia one of which is the well known KOROLKOWI, a species of easier cultivation than the species of Oncocyclus. This last named subgenus contains thirteen old world species, among them some of the handsomest and strangest colored of all Irises. But unfortunately they can be grown successfully only under certain peculiar and unusual soil and climatic conditions. The mourning Iris, I. SUSIANA, I. GATESII, a giant flowered species, and I. LORTETII, one of the most beautiful of all Irises, belong in this subgenus.

POGONIRIS contains an uncertain number of species and an endless and ever increasing number of garden varieties. In this subgenus belong the dwarf Iris, the intermediate Iris, and the tall bearded or so-called German Iris. In recent years they have received more attention by the plant breeder than any other subgenus and their great range and delicacy of color and their ease of cultivation give them high standing among all hardy garden flowers. In fact many flower growers know only Iris of this subgenus and many so-called Iris catalogues list only varieties of Pogoniris. Our own catalogue lists a few Iris belonging to Juno, Evansia and Apogon, but by far the larger number are Pogoniris.

The varieties of Pogoniris may be classified according to the following system. In this system the six principal divisions are based on the most obvious color of the flower, and the subdivisions are

based on the modifying or less prominent color of the flower. The letters used to designate the various groups are: W (white), Y (yellow), L (lavender, or pale blue purple), B (blue purple), P (pink), and R (red purple). C (concolorous, or self colored), M (margin), S (standard), and F (fall) are used descriptively following the initial letter or letters which designate the group.

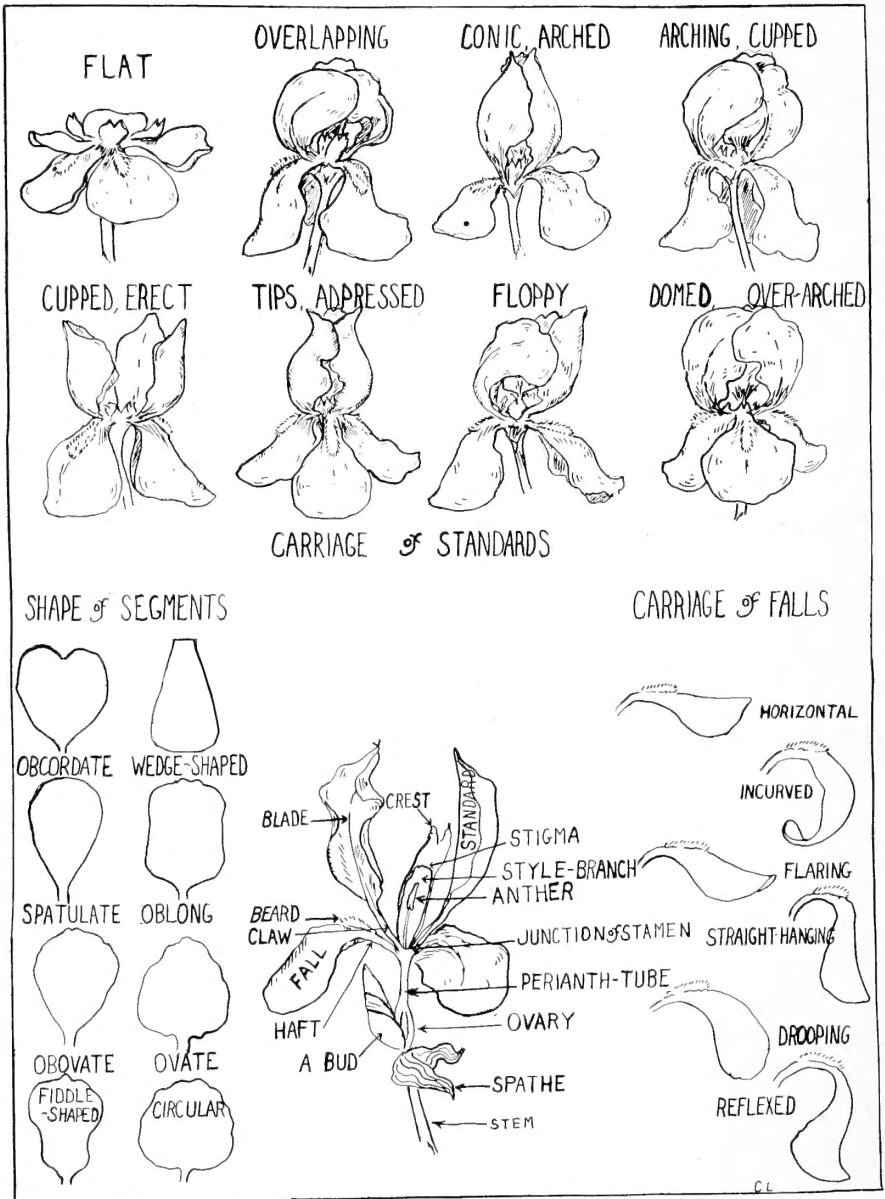
It may be seen that a brief but somewhat detailed color description may be given of any variety by taking in their descending order the letters designating the main color group and subgroup or groups within which such variety falls; for example, WML describes Madame Chereau as a white flower margined lavender, LYC describes Dalmarius as a concolorous blend in which lavender predominates, and WFBMW describes Mary Williamson with its white standards and white margined blue falls. We regard this classification of the bearded Iris as the best and most workable system yet proposed.

- | | |
|---------------------------|------------------------|
| W. White | P. Blended with pink |
| C. Concolorous | C. Concolorous blends |
| M. With colored margins | F. Bicolored blends |
| L. Margined lavender | L. Lavender |
| B. Margined blue purple | C. Concolorous |
| P. Margined pink | F. Bicolored |
| R. Margined red purple | Y. Blended with yellow |
| S. With colored standards | C. Concolorous blends |
| L. Colored lavender | F. Bicolored blends |
| B. Colored blue purple | B. Blue purple |
| P. Colored pink | C. Concolorous |
| R. Colored red purple | F. Bicolored |
| F. With colored falls | Y. Blended with yellow |
| L. Colored lavender | C. Concolorous blends |
| B. Colored blue purple | F. Bicolored blends |
| P. Colored pink | P. Pink |
| Y. Yellow | C. Concolorous |
| C. Concolorous | F. Bicolored |
| M. With colored margins | Y. Blended with yellow |
| S. With colored standards | C. Concolorous blends |
| F. With colored falls | F. Bicolored blends |
| W. Colored white | R. Red Purple |
| L. Colored lavender | C. Concolorous |
| B. Colored blue purple | F. Bicolored |
| P. Colored pink | Y. Blended with yellow |
| R. Colored red purple | C. Concolorous blends |
| L. Blended with lavender | F. Bicolored blends |
| C. Concolorous blends | |
| F. Bicolored blends | |

The color classification of Pogoniris with the following varieties listed under each head will assist the gardener, in search of certain colors, in more readily selecting those varieties which will serve his purpose.

- W. (White)
- C. (Concolorous) Florentina, Innocenca, La Niede, White Queen, White Knight, Zua.
- M. (With colored margins.)
- L. (Margined lavender.) Anna Farr, Cygnet, Dimity, E. L. Crandall, Fairy, Hebe, Jeanne d'Arc, Ma Mie, Mme. Chereau.
- R. (Margined red purple.) Pocahontas.

- S. (With colored standards.)
 R. (Colored red purple.) Parisiana, Mme. de Sevigne.
- F. (With colored falls.)
 B. (Colored blue purple.) Mrs. W. E. Fryer, Mary Williamson, Nokomis, Richard II, Thorbecke, Tristram, Lycaena.
 R. (Colored red purple.) Anne Leslie, Rhein Nixe.
- Y. (Yellow.)
 C. (Concolorous.) Aurea, Dawn, Empire, Empress, Etta, Flavescens, Helge, Mrs. Neubronner, Shekinah, Sherwin Wright, Virginia Moore, Colias.
 F. (With colored falls.)
 M. (Margined darker.) Montezuma.
 W. (Colored white.) Arabesque.
 L. (Colored lavender.) Darius.
 R. (Colored red purple.) A. E. Kundred, Fro, Gajus, Iris King, Kathryn Fryer, Knysna, Lorely, Mithras, Princess Victoria Louise, Argynnis.
 L. (Blended with lavender.)
 F. (Bicolored blends.) Cretonne, Mary Garden, Mme. Chobaut, Nibelungen, Whiffenpoof, W. J. Fryer.
 R. (Blended with red purple.)
 F. (Bicolored blends.) Mandarin, Toreador, Dr. Bernice, Grapta.
- L. (Lavender.)
 C. (Concolorous.) Bluet, Celeste, Cluny, Dorothea, Drake, Juniata, Lady Foster, Leonidas, Mandraliscae, Mareschal, Mother of Pearl, Myth, Queen Caterina, Tineae, Viola, Violacea Grandiflora.
 F. (Bicolored.) Ballerine, B. Y. Morrison, Chester Hunt, E. H. Jenkins, Firmament, Hiawatha, James Boyd, Koya, Lord of June, Mag-nate, Neptune, Oriflamme, Shalimar, Shelford Chieftain, Tamerlan, Thecla.
 Y. (Blended with yellow.)
 C. (Concolorous.) Afterglow, Dalmarius, Eldorado, Palaurea, Pan-croft, Quaker Lady.
 F. (Bicolored.) Herocles, Nuee d'Orange, Prospero, Taffeta, Tregas-tel, Anosia.
- B. (Blue purple.)
 C. (Concolorous.) Blue Boy, Crusader, Gertrude, Miranda.
 F. (Bicolored.) Amas, Azure, Baronet, Blue Jay, Mary Gray, Mary Orth, Nine Wells, Perfection, Raffet, Souvenir de Mme. Gaudi-chau.
- P. (Pink.)
 C. (Concolorous.) Dream, Georgia, Lohengrin, Mrs. Alan Gray.
 F. (Bicolored.) Cherubin, Windham.
 Y. (Blended with yellow.)
 C. (Concolorous.) Queen of May, Rose Unique, Roseway, Terias, Wyomissing.
 F. (Bicolored.) Dalila, Dejaset, Demure, Goliath, Her Majesty, Isoline, Magnifica, Mme. Cheri, Nancy Orne, Troost.
- R. (Red purple.)
 C. (Concolorous.) Caprice, Crimson King, Edouard Michel, Kochii, Margaret Moore, Oporto, Parc de Neuilly, Pauline, Powhatan, Socrates.
 F. (Bicolored.) Archeveque, Cordelia, Kharpur, Monsignor, Rubella, Rangoon, Speciosa.
 Y. (Blended with yellow.)
 F. (Bicolored.) Alcazar, Ambassadeur, Ambigu, Arnols, Col. Can-delot, Grevin, Jacquesiana, Lent A. Williamson, Medrano, Merlin, Mt. Penn, Opera, Prosper Laugier, Red Cloud, Seminole, Shrews-bury, Tunisie, Ute Chief.



THE CULTIVATION OF POGONIRIS

The only essentials are sunshine, good drainage and a sweet soil. These conditions are realized in the ordinary flower and vegetable garden. To attempt to grow Iris in shaded, undrained locations will result only in disappointment. Applications of hydrated lime in small quantities or of limestone screenings or dust are usually desirable in most gardens to prevent leaf spot. Fresh organic material should be avoided either in the soil or as a mulch. Bone meal at the rate of two or three ounces to the square yard seems to be the most satisfactory fertilizer. Wood ashes may be freely distributed about the plants in late fall or early spring and are of great value in supplying both potash and lime. Screened coal ashes or sand may be advantageously worked into heavy clay soils without impairing their value for growing Iris. Ground gypsum (calcium sulphate) applied at about the same rate as recommended above for bone meal, supplies sulfur which seems to be a desirable element for Iris and is often deficient in long cultivated soils.

Iris may be transplanted any time the ground is not frozen. From soon after flowering until late in August is probably the most favorable time. Dig when the ground is dry rather than wet, and when it is in condition to work well.

In planting Iris it is important that the soil be pressed closely about the roots and rhizomes. An easy way to insure this and at the same time avoid planting deeper than intended is to dig the hole or trench by pulling the dirt in one direction only. The plant is then placed against the opposite side of the hole or trench, the rhizome at the desired depth and the roots spread out below it, the soil pulled back over it, and this soil firmly tramped down by pressing the foot toward the face of the trench or hole against which the plant was laid. By such a procedure the rhizome is not moved vertically during the pressing down process and the depth at which it is really planted is not a matter of guess work. Loose soil should finally be drawn over the packed soil.

Cultivation should be shallow and is required only to kill weeds and to maintain a dust mulch. In cultivating about newly planted rhizomes, care should be taken not to loosen them in the soil.

The character of the soil determines to a very great extent the depth at which the rhizome should be planted. The essential thing is that it should be deep enough to be firmly held by the soil so winds and rain will not move it, but no deeper. The heavier the soil the shallower it may be planted, to meet this requirement, and in the lightest soils a depth of not more than an inch or two should be required.

Late planted Iris should be lightly mulched after the ground is frozen, with straw, cornfodder, evergreen branches or similar material to prevent heaving and this mulch should be removed in early spring. Manure, tree leaves and other close packing substances should not be used as a mulch.

A CONVENIENT FORM OF LABEL AND STAKE FOR IRIS

An ink which is permanent on zinc can be made with the following recipe and can be prepared by any druggist.

Copper subacetate	1 dram
Ammonium chloride	1 dram
Lamp black	½ dram
Water	10 drams
Mix thoroughly.	

Cut sheet zinc into small strips measuring three-quarters inch by two and three-quarters inches, with a hole punched near one end. Clean the surface and write with the above ink, using a rather coarse steel pen. Do not blot but allow ink to dry. The above label is wide enough to permit the writing of the name of the variety and the source from which the plant was obtained. For convenience in referring to labels it is well to write the data on both sides. We have found a stake eighteen inches long made of number nine galvanized iron wire with a ring turned on one end as convenient as any. The ring and the wire adjacent to it may be dipped in good paint and dried before the label is attached. This prevents iron rust running down over the label. The label is attached to the ring with a bit of copper wire.

DISEASES AND PESTS

Iris are exceptionally free from diseases and insect enemies and only two, one a bacterial disease and the other a moth larva, are serious and generally distributed in this country.

ROOT ROT, BACILLUS CAROTOVORUS. This is an insidious and destructive bacterial disease which in its maximum development reduces the lower parts of the leaf and flower stems and the entire rhizome to a stinking, semi-fluid mass. The most vigorous and rankest growing plants seem especially susceptible to attack. Some of the factors that encourage its development seem to be poor drainage, shade, accumulation about the plant of decaying vegetable matter (such as forest leaves and fresh manure) and physical injury and breaking of the plant tissues (such as crushing of the plant, the injuries of the moth larva discussed in the next section, possibly slight injury by other insects or earthworms, and the unseasonable freezing of early leaf growth.) As indicated by some of these contributing causes, good drainage should be provided, plants should be grown in sunny locations, leaves and accumulations of similar debris about and over the rhizomes should be removed, and the moth larva should be zealously guarded against. After severe damage to early spring growth by unseasonable freezes, the moisture of the killed and sodden leaves can be absorbed and the danger of the root rot nearly or quite removed by dusting the crowns of the plants freely with dry powdered gypsum. Several methods of treating diseased rhizomes have been recommended. These involve the

removal of the plant to a new location. For example, some say to lift the plant at once when the disease is discovered, carefully pare away all diseased parts and reset in another location. Others suggest treating the rhizome, after this cutting away of diseased parts, with one of two solutions; either corrosive sublimate solution, one part to one thousand of water, or a cherry red solution of potassium permanganate in water, placing the rhizome for a moment in either solution and then planting. Or powdered sulphur may be dusted over the rhizomes before replanting. Others recommend digging the earth away from the plant, fully exposing the affected part and the immediately adjacent parts, to sunlight and air. The drying out which follows this treatment seems to be all that is required. We have found an effective way is to take an old spoon with sharpened edges, and spoon out all the readily available diseased tissue, disturbing the plant as little as possible, and filling up the cavity in the rhizome and the opening in the soil with dry powdered gypsum. Whether the resultant checking of the progress of the disease is due to the dry powder thus brought against the exposed rhizomatous surface, or whether there is some chemical action, we do not know, but the method seems invariably successful and the damage to the plant and checking of its growth is materially lessened as compared with that which takes place if the plants are reset. At the same time gypsum should be freely dusted over adjacent plants until the soil is completely covered with a thin coating.

Information as to the nearest point at which gypsum can be obtained for any section of the country may be had by addressing The Gypsum Industries Company, 844 Rush street, Chicago, Illinois.

In this connection, the following quotation from a letter by Professor H. S. Jackson, Department of Botany, Purdue University, is of interest: "A rot caused by a fungus somewhat resembling *SCLEROTIUM ROLFSSII*, a fungus of uncertain relationships, appears to be not uncommon on Iris. The fungus attacks the bases of the leaves, rotting them off slowly, often accompanied by the development of considerable white mycelium (mould) on the surface of the ground about the infected plants. On this mycelium are usually formed large numbers of very small brown sclerotia about the size and shape of mustard seed. These are merely compact vegetative masses of fungus tissue which are capable of withstanding conditions adverse to the growth of the fungus and serve to carry it over from season to season. No spore form or other usual type of reproduction is known for this fungus.

"The disease in itself does not appear to do much damage, rarely if ever rotting the rhizome, but confining its attacks to the bases of the leaves, causing the premature death of the outer foliage. It is possible that the bacterial rot caused by *BACILLUS CAROTIVORUS* may in some cases be a secondary invader following the *SCLEROTIUM*. The white mould often seen in the form of strands on the surface of rhizomes when dug is at least in part this fungus.

"No remedial measures have been worked out for this trouble, but dusting the surface of the ground about the plants with flowers

of sulphur might be tried. Our observations indicate that where the ground is kept well cultivated close to the plants, and clumps are divided and moved at reasonably frequent intervals this trouble will not become serious."

This Sclerotium is of wide distribution, but is readily controlled by a heavy dusting of powdered gypsum. It is probably the cause of a rhizome rot which reduces the tissue within the epidermis to a brown or reddish brown fluid. In such rotted rhizomes larvae of the Lesser Bulb-Fly, *EUMERUS STRIGATUS* FALL, as determined by Prof. J. M. Aldrich of the U. S. National Museum, may occur in large numbers. With regard to this fly, Professor Aldrich writes: "The species is constantly imported in bulbs and has apparently been established in various parts of the United States. The best opinion seems to be that it attacks only decaying bulbs and hence is of little or no importance. Dr. David Griffiths, bulb specialist of the Department of Agriculture, liberated some hundreds of them in an outdoor cage containing normal growing bulbs, but never secured a single infestation."

ROOT BORER, *MACRONOCTUA ONUSTA*. The adult is a dark, dull colored noctuid expanding an inch and a half to an inch and seven-eighths. It emerges in late September, October and early November and lays clusters of eggs in folds of Iris leaves and more rarely on other leaves in proximity to the Iris. On the Iris the eggs may be placed from the ground level up to at least a height of six inches. Outer dried leaves seem to be preferred to the green leaves at the center of the crown. A single one of these egg clusters is potentially able to spread grief and wrath for the Iris lover, over a square yard or more of his choicest plants. For from these eggs in late April and probably during the entire month of May, emerge minute caterpillars which, burrowing at once into the newly grown Iris leaves, begin a series of destructive activities which always seriously damage and often kill the plant. Not only the leaves but the flower stem and even the flower buds may be attacked. In the leaves the caterpillar lives in the ample space provided by the leaf fold and, feeding at first on leaf tissue, later passes into the rhizome which its voracious appetite may reduce to a small handful of coarse saw-dust-like fecal matter. Finally in a small earthen cell an inch or two beneath the surface pupation takes place and a few weeks later the adult emerges.

Unfortunately we have no positive control for this secretive pest. The following suggestions are given in the hope that some of them may prove of value in particular cases. We have discussed the matter informally on several occasions with Professor John J. Davis and Mr. Harry F. Dietz, and their suggestions are embodied in the following paragraphs.

It seems that any attempt to kill the eggs by chemical methods will be futile. The eggs are usually so well concealed and protected within the leaf folds that they cannot be reached. Likewise mere garden cleanliness cannot be relied upon to keep a garden clear of

these moths as the probability of egg clusters persisting after the most thorough raking is too great.

In the case of a small planting receiving close attention, some success has been reported in killing the larvae by pinching each one in situ between the thumb and finger or by stripping the leaves under pressure through the hands. We have had poor success with either method. At the best they are applicable on only a small scale. A better plan is to clip off the vegetation soon after flowering, gathering the leaves as they are cut in a receptacle from which they can be thrown on a fire. This clipping to be effective must of course be below the larvae and the clipping should be postponed until all the eggs are hatched as the attacks by newly hatched larvae on clipped plants are especially destructive. A still better plan for killing the larvae is probably by spraying. In fact we believe both Professor Davis and Mr. Dietz believe that it is along this line that this insect will eventually be controlled. Mr. Dietz recommends the following spray: one ounce arsenate of lead, one ounce of fish oil soap and one gallon of water. Spray about the middle of the day and when the foliage is dry. Because of the growth of new leaf surface, sprayings should be made about every week and more often if excessive rains wash the material from the leaves. Spraying should be started about the middle of April and continue at least until the middle of May. These dates are approximate for Northern Indiana and allowances must be made for other latitudes.

Probably another control measure equally as efficient as spraying to kill the larvae, can be directed against the eggs by burning the garden. This should be done cautiously and in an experimental way at first to detect any bad effects, especially to see if burning is attended the following year by any increase in root rot. Burning, to be of value, must be done in the fall after all the eggs are laid and this means not earlier than the middle of November. At that season it is often difficult to provide a material for the quick running and singing fire which is desirable. The fire must be placed to burn all the dead or withered Iris leaves and be hot enough to kill eggs close to the ground on green leaves but the rhizome itself should suffer the least possible injury, since killed tissue would almost certainly become infected with bacteria and very probably with root rot the following spring.

As to the pupae no very effective attack on them is possible. If Iris beds are reset during the pupal period many of the pupae can be detected and destroyed and those that are overlooked may be killed by wetting the ground thoroughly and pressing it down solidly. Adults can be readily trapped by spreading burlap over infected beds, examining this daily. The moths on emerging, cling to the under side of the burlap. Attempts to attract the moths to light have been made but it seems that this cannot be made a successful control method.

Finally, serious as this pest is, it will do little damage in gardens where Iris are reset every second year and where transplanting is done immediately after the flowering season when the larvae are

still in the leaves. The dug plants should all be carried to one point for topping and the accumulated leaves should be burned or buried under several inches of firmly pressed soil.

We are sure every detail in the life history of the root borer will be of interest to Iris growers, so we are glad to quote here from a letter written by Mr. H. F. Dietz who has reared two hymenopterous parasites of it: "The parasites have been identified as follows: No. 1, *APANTELES MILITARIS* WALSH; No. 2, *AMBLYTELES JUCUNDUS* BRULLE. Both belong to the Superfamily Ichneumonoidea, the former belonging to the Family Vipionidae and the latter to the Family Ichneumonidae. The Superfamily Ichneumonoidae includes perhaps the largest number of the hymenopterous parasites. It is therefore a most beneficial group of insects.

"Now for the parasites themselves. *APANTELES MILITARIS* is a small blackish parasite about 2 to 3mm. long and individually very inconspicuous. However since a large number of the insects hatch from a single worm they are very effective. The small adult lays her eggs directly into the caterpillar. These hatch into grubs which eat out the vital organs of the caterpillar. The grubs become full grown just before the caterpillar is ready to transform. They bore through the body wall of the caterpillar and spin cocoons of whitish color tinged with brown. These cocoons are massed in the tunnel of the rootborer. The caterpillar, of course, cannot transform into a pupa and dies. The only records of this parasite I can find in the literature that I have available is as an enemy of the Army Worm, *CIRPHIS* (*LEUCANIA*, *HELIOPHILA*) *UNIPUNCTA*. Apparently this parasite is of wide distribution and I hope it continues its good work in attacking the Iris root borer.

"*AMBLYTELES JUCUNDUS* is another Army Worm parasite that seems to have found the Iris root borer a suitable host. It is much larger and more conspicuous than *Apanteles*. It measures between 11 and 14mm. in length, is of a deep reddish brown to blackish color and with the second segment of the abdomen of a yellowish color. The third, fourth and sixth segments have a whitish band so that all told the insect is quite conspicuous. To the layman it looks like a small wasp though on careful observation the abdomen and the feelers are not as wasplike as they first appear. The adult female lays her eggs (probably only one egg to a caterpillar) in the caterpillar sometime near the stage that the caterpillar is getting ready to transform into the pupa, or into the pupa itself. I can find nothing in the literature on this point. At any rate the development of the grub of this parasite takes place largely in the pupa and it is from the pupa that the adult *Amblyteles* emerges through a large hole that it tears through the anterior end of its victim. Literally speaking it 'knocks the block off' of the root borer pupa. I hope that this parasite will become more abundant.

"Unfortunately there are no common names by which either of these parasites are known. I believe that it is a good idea to call attention to their existence since these are apparently the only records of any parasite attacking the Iris root borer, according to Mr.

S. A. Rohrer, the curator of Hymenoptera of the U. S. National Museum. The *Apanteles* was identified by Mr. A. B. Gahan and the *Amblyteles* by Mr. R. A. Cushman, both of whom are specialists in these respective groups at the U. S. N. M."

INSECT LARVAE INFECTING SOIL. A number of insects during their larval life feed on plant roots and on occasion these larvae may transfer their destructive activities to Iris rhizomes or roots. For this reason it is never advisable to plant Iris on recently plowed or spaded old sod or pasture land. The common wire worm, the larva of a snap beetle, has been known to seriously attack Iris. As the larva of these insects lives for several years before pupating, such an infestation may prove a very serious matter as several larvae may attack a single rhizome through which they eat many small burrows, riddling the rhizome in every direction. Professor Davis recommends the following poisonous bait for wire worms; paris green, 1 pound; wheat bran, twenty-five pounds; nitrobenzine (oil of mirbane), two ounces. Mix thoroughly and moisten so it will mould in the hand and scatter when broadcasted. This can be scattered over the top of the ground or drilled in about an inch below the surface, or a small quantity can be placed just beneath the soil and in contact with the Iris rhizome.

As Iris can be kept out of the ground for some time without injury, an effective riddance of the various soil larvae can probably be accomplished by carefully digging the plants and spreading them in a shed or basement where the pests will soon desert them.

ANTS IN THE GARDEN

By H. F. Dietz.

In regard to the ridding a garden of ants, I think that paradichlorobenzene will, if placed in the ant hills, kill out the ants. Cyanide solution will do the same thing; so will hot water. However, all these substances will injure plants and if the ant nests are in a clump of Iris or other plants, there is bound to be injury to this clump by the use of any of these three substances. In a case where a nest is around the roots of a plant, I believe that strong nicotine solution, one part of nicotine sulphate (Black Leaf 40) to three hundred parts of water, poured over the ground to saturate it, will kill out the nest. Of course, nicotine sulphate is too expensive to be used on a large scale and where the ants are infesting a considerable area I think that the best thing to use is a slow killing poison. Such poison can be prepared as follows:

tartar emetic	one part
sugar	ten parts
water	one hundred parts
benzoate of soda	one-third part

Reducing this to pints and ounces, we have one-eighth of an ounce of tartar emetic, one ounce of sugar, and two-thirds of a pint of

water with just a pinch of sodium benzoate. The sodium benzoate makes this substance more attractive to the ants; that is, where the ants are attracted to any kind of sugar solution. But there are some ants that are not attracted to sweets and a person is up against it unless he determines this experimentally. This solution is prepared by boiling the sugar in the required amount of water and adding first the tartar emetic, and when this is dissolved, the sodium benzoate. On cooling it can be placed in containers such as empty tobacco tins, that is, cans such as those that Prince Albert and Tuxedo come in. The free side can be bent in slightly which allows the ants access to the inside of the can. A small quantity of the poison is placed on the bottom of the can and bits of sponge, rags or excelsior are dropped into the poison so that the ants can crawl over it and lap it up at their leisure without drowning in it. The can should be sunk into the ground at a point where the ants may find it, usually some point along their line of travel. Of course, it must be allowed to project above the surface of the ground to prevent it from filling up during rains; or the can may be set at the base of the plants over which the ants are working and thus will be in their line of travel. We have found that this poison solution works admirably in the control of ants in the household. It has given effective results in a number of experiments which have been watched. The only objection to it is that it is not a quick method but requires from four to six weeks to kill out the nest. The principal on which this poison works is that the tartar emetic is not strong enough to kill the ants that carry it back to the nests, but being a cumulative poison, when fed to the young and to the queen in time will kill them. In the case that ants which do not feed on sugar are encountered, it is sometimes advisable to try an old bone, such as a ham bone or a soup bone, smear a small quantity of tartar emetic into such meat as remains on this bone, and place it where the ants can get it. This has been effective for the non-sugar eating ants which are species that sometimes feed on other insects either dead or alive.

PROPAGATION AND BREEDING

Propagation of Pogoniris is by divisions of the rootstock or rhizome and it is interesting to consider that the thousand thousand plants of a variety, blooming in the gardens of Europe and America, are the web-like extensions of a single plant.

Increase of stock varies in varieties from scarcely a doubling to exceptional cases in which there is an increase of eight or ten times the original in a single year. Probably the average increase is between three and five times. Various plans to increase the rate have been suggested but no generally successful method is practiced on a large scale so far as known to us. Resetting every two years and dividing into single growing points, each with at least a small portion of the rhizome, will give as large increase as any ordinary garden practice. Growing Iris from seed is impractical for the general gardener, since there are so many fine varieties available, which have

been selected from thousands of seed-grown plants, that a garden of Iris grown from a few random seeds cannot compare with a garden of carefully selected varieties.

The production of new varieties of Iris is entirely by hybridization, though one or two varieties of unknown origin may be bud sports. Chance seed, resulting from insect pollination, has produced some fine varieties but the greatest improvement and the newest developments are based on crosses definitely planned and carried out.

The stamens may be gathered as soon as the flowers open and the pollen transferred directly to the stigmas or the stamens may be gathered in small boxes and the pollen placed on the stigmas with a camel's hair brush. In *Pogoniris*, pollen clings to the anthers for a day or more following the opening of the flower but in *Apogon* the fine powder-like pollen escapes almost at once from the anthers so in the latter subgenus it is well to open the flower carefully with the fingers and remove the anthers a short time before the flower would normally open. *Apogons* are generally better seeders than *Pogoniris* but the stigmas are smaller and are less readily pollinated, except at a certain time, than in *Pogoniris* where the larger stigmas may be brushed with pollen at any time during the life of the flower. The time during which pollen retains its vitality is not known but it is probably better not to use pollen over two days old. In warm humid weather, pollen in any quantity mildews rapidly. Rainy weather is generally regarded as unfavorable for pollination but the season of 1924 was unusually and continuously wet and seeds were produced in extraordinary numbers and of a very high quality.

Seed pods are not subject to many diseases or pests. In rainy weather the standards and falls may be snipped off with a pair of scissors to insure against a bacterial rot developing in these parts as they wither and infecting and destroying the pod. Occasionally the larva of the root borer destroys a forming pod and larger pods may be eaten by grasshoppers and caterpillars of the silver spotted skipper and possibly by other insects. Not infrequently the Iris weevil, *MONONYCHUS VOLPECULUS*, invades the garden and repeats there on a smaller scale the destruction which accompanies its activities on our native *Apogon* where the larvae will sometimes destroy every seed over the entire area of a marsh or pond. It is rather curious that during two years, in a garden of several hundred varieties of *Pogoniris*, we found the rascally looking adults of this beetle only on flowers of Lord of June.

In *Pogoniris* the most destructive seed insect is a moth, determined for us by Mr. August Busck, as *OLETHRUETES HEBESANA* Walker. Its presence in the pod is indicated by small punctures where the pod thickens and hardens. Within the larva is eating its way industriously through the hearts of the forming seeds from one end of the pod to the other. Infected pods should be gathered as soon as they show signs of ripening, and any seeds which have escaped may be saved and the pod and the debris within it

burned. This will destroy the pupae from which the adults emerge in August.

Seed pods should be gathered when they begin to open and they can be conveniently cared for in a small paper sack, properly labelled, the end folded over and pinned, and strung with others on a string, as children sew popcorn on strings for the Christmas tree. Such strings of paper sacks can be conveniently hung on a clothes line or other supports and readily carried indoors to escape showers and night dews.

Seed should be planted in September or October about an inch deep in flats or prepared beds. Winter protection is not necessary and the plants can be transplanted in May when three or four leaves have formed, or in September. Or seed may be planted in open ground in rows alternating about eighteen and thirty inches, and let stand until they flower. Seed may be conveniently cleaned by shaking them in water, planting the heavier seed which sink at the desired distance of an inch or two apart in the row, and sowing the chaff and lighter seed over these before covering.



**MIXED POGONIRIS SEEDLINGS, 100 PLANTS IN
GREAT VARIETY, \$5.00, EXPRESS
CHARGES COLLECT**

Mixed seedlings can be furnished only when we are digging our seedling beds soon after flowering in June. These seedlings



Lent A. Williamson

include many choice Iris of high quality and we will guarantee not less than fifty varieties in each lot of one hundred plants.

We have sold a large number of these seedlings and in every case the customer was more than pleased and in many cases orders were received from friends and acquaintances of the first purchaser. Moreover, we have received many letters from purchasers who were enthusiastic over their plants, when these came into flower, and who wrote that their love of Irises began with the growing of one of our baskets of mixed seedlings. We cannot too strongly recommend these seedlings for the beginner and for those who wish to

plant as many or more than one hundred Iris plants for their effect and are not interested in named sorts. A mixed Iris border has some real advantages over a border of one variety.



GRAPTA
A New Longfield Iris
Reduced from a painting by J. Marion Shull

THREE IRIS COLLECTIONS

The following three collections have been prepared for those who wish to obtain a limited number of varieties showing a wide range of beautiful colors.

Collection No. 1, price \$2.50 prepaid.

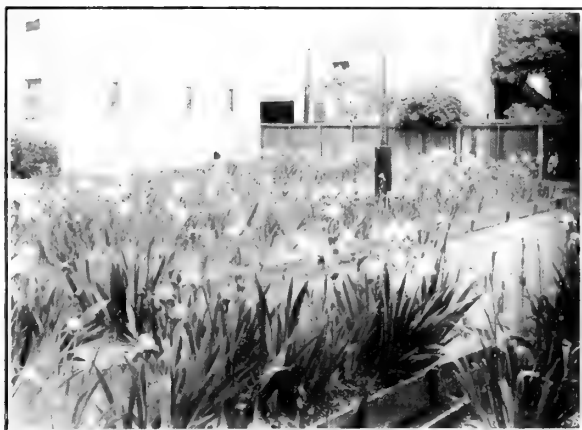
Arnols
Aurea
Celeste
Dorothea
Fairy
Her Majesty
Kochii
Mandalisca
Perfection
Princess Victoria Louise
Quaker Lady
Speciosa

Collection No. 2, price \$2.50 prepaid.

Afterglow
Archeveque
Crimson King
Empress
Juniata
Rhein Nixe
Sherwin Wright
Windham

Collection No. 3, price \$5.00 prepaid.

Isoline
Lent A. Williamson
Lord of June
Queen Caterina
Shekinah



NEW LONGFIELD IRIS FOR 1925

The following new Iris are Longfield seedlings which have been under observation for several years. All are hardy and vigorous free flowering varieties which have won the admiration of numerous visitors. The number following each variety is the number under which it has been carried in our trial beds. The names used are the generic names of butterflies occurring in the United States.

ARGYNNIS (69)

(See Front Plate.)

A tall and distinct Iris of Variegata coloring. Standards strontian yellow narrowly margined and delicately shaded aniline yellow; the blade of the falls a solid dark violet carmine, without reticulation, paling slightly at border; haft yellow, veined maroon; beard yellow.

Stalk forty inches tall, slender, erect, carrying ten to twelve flowers. The large flowers widely spaced, bright and carried with a butterfly lightness and grace. Mid-season to late. A free bloomer and the tallest Iris in this color group. - - - - \$5.00

ANOSIA (52)

Standards of the rich brown tone found in some of the Breeder tulips; falls golden red. Rich, distinct and good. Flowers freely produced on stems thirty inches tall. Growth vigorous. We prefer this Iris to the somewhat similarly colored but shorter stalked Grapta. - - - - \$1.00

COLIAS (77)

A three-foot opaque yellow that carries well. The flowers of good size are practically self colored, the falls being only slightly lighter than the standards. A variety of dependable growth and of distinct value in the garden. - - - - \$1.00

GRAPTA (8)

(See Colored Plate, Opp. page 19)

Standards of yellowish or toast brown; falls deeper. An Iris of distinct and effective coloring. Flowers of good size on stems two feet in height. Lax foliage. Early mid-season. This is the Iris Mr. Mead has referred to as "Molasses colored". We prefer the similarly colored but distinct Anosia. - - - - \$1.00

LYCAENA (79)

An amoena which we consider particularly fine. The flowers are of good shape and the pale margined falls, of a deep shade of rich purple, are in clean and beautiful contrast to the white standards. Mr. Mead has referred to this Iris as superior to Rhein Nixe and equal or superior to Daphne. - - - - - \$1.00

TERIAS (86)

Best described as a pink Quaker Lady. Flowers of medium size of a peculiar coppery pink. Distinct and beautiful. Very free bloomer. Three feet. - - - - - \$1.00

THECLA (135)

A healthy vigorous Iris bearing its beautiful flowers in the greatest profusion. Standards bright, clear mauve; the spreading falls purple. Medium size blooms on thirty-inch stems. Most like Cordelia and Monsignor but freer, and of more pleasing form and brighter color. Especially good in mass or large clump. - - - \$1.00



NAMED IRIS FOR SALE 1925

The following Iris are for sale at the price indicated, postage prepaid. Six plants of the same variety are offered at five times the price of a single plant. Where a number precedes the name of a variety, this is the American Iris Society's Symposium rating and, while not final, is the best single guide we have to the merits or popularity of a variety. Before ordering, please read the inside front cover of this catalog.

63. **A. E. Kunderd (Fryer 1917)**. Standards bronzy yellow; falls magenta red tinged with bronze; orange beard; two feet. - - - - \$0.25
83. **Afterglow (Sturtevant 1917)**. A blending of the lavender of pallida dal-matica and the yellow of Aurea. Large flowers of soft grayish lavender shading to pinard yellow through the center. Three and one-half feet. A thrifty grower and dependable bloomer. Good. - - - - \$0.75
89. **Alcazar (Vilmorin 1910)**. Standards mauve; falls deep reddish purple. A strong suffusion of yellow gives the whole flower a bronzy look. Of the largest size, tall and fine. - - - - \$1.00
78. **Amas**. A large flowered species from Asia Minor collected in 1885. Broad but somewhat floppy standards of iridescent blue; falls smooth violet. Branched stems thirty inches high. Early. Not as free blooming as might be wished. The parent of many fine new hybrids. - \$0.35
94. **Ambassadeur (Vilmorin 1920)**. Standards bronzy violet; falls velvety car-mine purple. Flowers of great substance on strong stems three feet high. Growth good. One of the world's finest Irises. - - - - \$2.50
83. **Ambigu (Vilmorin 1916)**. A richly colored flower of smoky red purple. Twenty-four inches. - - - - \$1.25
84. **Anna Farr (Farr 1913)**. A beautiful white Iris of splendid form and sub-stance, the standards and falls delicately margined pale blue. Thirty-six inches. Probably the best of the frilled varieties. - - - - \$1.50
77. **Anne Leslie (Sturtevant 1918)**. Standards white delicately tinted rose; falls dahlia carmine with showy orange beard. Not a large flower but an unusual color combination. Thirty inches. We like it. - \$1.00

Anosia—New Longfield Seedling. (See Page 20).

66. **Arabesque (Sturtevant 1918)**. An early flowering variety of distinct color-ing. Standards pale creamy yellow; falls white veined with purple. Medium sized flowers on two-foot stalks. Withdrawn by the originator and generally not attractive. - - - - \$0.35
83. **Archeveque (Vilmorin 1911)**. A richly colored Iris fine in clump or mass. Standards violet; falls a velvety deep violet purple. Neither large nor tall but a general favorite on account of its fine coloring. Two feet. - - - - \$0.50

Argynnis—New Longfield Seedling. (See Page 20).

78. **Arnolds (Barr 189-)**. An old variety with flowers of clouded red purple. Still good. Thirty inches. Like all the bronzed varieties, fades badly in hot sun. - - - - \$0.25

74. **Aurea (Jacques 1830)**. Clear chrome yellow throughout both standards and falls. Flowers of good form on stems twenty-four to thirty inches high. An old variety but one not supplanted by any newer yellow. **\$0.25**
80. **Azure (Bliss 1918)**. Standards lavender blue; falls deep blue purple. The general effect is one of rich clear blue. A bicolor belonging in the same color group as Perfection and B. Y. Morrison. Three feet. - **\$2.50**
94. **Ballerine (Vilmorin 1920)**. Standards clear light blue; falls a deeper blue. Very large sweet scented flowers on fine tall stems. Certainly one of the very finest varieties in the great class of lavender bicolors. Forty inches. - - - - - **\$4.00**
80. **Baronet (Sturtevant 1920)**. Long flowers of blue purple on well branched stems three feet high. - - - - - **\$1.00**
67. **Blue Boy (Foster 1913)**. An early flowering semi-dwarf derived from the species aphylla. The flowers are self colored a peculiar shade of deep lavender blue and have blue beards in place of the usual orange or yellow ones. Fifteen inches. Distinct and good in its season. - **\$0.35**
71. **Blue Jay (Farr 1913)**. An Iris giving a splendid deep blue effect in mass. Individual flowers of rather small size but of good form; standards a medium shade and falls a deep shade of clear violet blue. A late bloomer. Thirty inches. - - - - - **\$0.35**
72. **Bluet (Sturtevant 1918)**. Flowers self colored pale blue. Neat and pretty. Two feet. - - - - - **\$0.50**
85. **B. Y. Morrison (Sturtevant 1918)**. Standards pale lavender violet; the flaring falls velvety purple widely bordered lavender. Stalks slender. Thirty inches. A good bicolor, distinct because of its widely margined falls. - - - - - **\$1.00**
75. **Caprice (Vilmorin 1904)**. Rosy red purple flowers of broad segments and fine form. A thrifty grower and dependable bloomer. Two feet. **\$0.25**
71. **Celeste (Lemon 1855)**. Flowers of clear azure blue with suggestions of clean white throughout. Open flowers carried gracefully on thirty-inch stems. One of the old varieties that is still good. - - - **\$0.25**
68. **Cherubin (Vilmorin 1911)**. Thin texture flowers of pale pink. - **\$0.25**
69. **Chester Hunt (Farr 1913)**. Standards light blue; falls deeper. An Iris giving a good blue effect. Early mid-season. Thirty-three inches. **\$0.25**
65. **Clarence Wedge (Fryer 1919)**. Standards heliotrope suffused yellow; falls purple red. Beard orange. Twenty-four inches. - - - **\$0.25**
86. **Cluny (Vilmorin 1920)**. Large flowers of pale lavender violet. Three feet. - - - - - **\$1.25**
- Colias—New Longfield Seedling.** (See Page 20).
80. **Col. Candelot (Millet 1907)**. Bright coppery red flowers on three-foot stems. Of vigorous growth and free flowering. - - - **\$1.00**
71. **Cordelia (Parker 1873)**. Standards pale lilac purple; falls crimson purple margined lilac. A late variety - - - - - **\$0.35**
84. **Cretonne (Bliss 1919)**. Standards pale violet purple; falls violet red; the whole flower strongly bronzed. Two feet. Probably an overrated variety. - - - - - **\$1.00**

79. **Crimson King.** This Iris has flowers of the same rich deep purple coloring as Kochii, but the flowers are larger, the stalks taller and the growth more open. Very good. Every Iris collection whether large or small should have either this variety or Kochii. - - - - - \$0.25
- Cristata (Species).** A native Iris of the crested group, having a ridge or crest on the fall where the Pogoniris have a beard. Of creeping habit; only three inches high. Flowers rich blue. - - - - - \$0.50
87. **Crusader (Foster 1913).** Large flowers of exceptional substance and a most satisfying violet blue color. Forty inches. Growth only moderate but one of the finest blue Irises. - - - - - \$2.00
- Cygnets (Sturtevant 1922).** Standards pale yellow marked pale purple; falls white margined lavender. Three feet. Distinct and good. - - - - - \$5.00
80. **Dalila (Denis 1914).** Standards a blending of cream and very pale pink, in strong contrast with the red purple of the spreading falls. Two feet. - - - - - \$1.50
75. **Dalmarius (Goos and Koenneman 1907).** Standards grayish lavender; falls deeper lavender. There is a flush of pink and tan in the flower, especially in the falls. Very close in color to the newer Asia. Plant vigorous and free flowering. Two feet. - - - - - \$0.25
68. **Darius (Parker 1873).** Standards clear yellow; falls pale lavender lilac fading to white at edge. Two feet. A distinct color combination carrying especially well in mass. - - - - - \$0.25
78. **Dawn (Yeld 1911).** Standards and falls pale sulphur yellow. Beard orange. Larger flowers than Flavescens. - - - - - \$0.75
69. **Demure (Sturtevant 1918).** A coppery pink bicolor. Twenty-four inches. - - - - - \$0.35
83. **Dejazet (Vilmorin 1914).** A bronzy red purple bicolor yellow at center. Two feet. - - - - - \$1.25
83. **Dimity (Bliss 1919).** Standards white margined and suffused pale blue; falls white, veined at haft. Three feet. - - - - - \$1.50
76. **Dorothea (Caparne 1901).** A large flowered intermediate of pale blue. The standards tend to lie flat like the falls. Two feet. - - - - - \$0.25
- Dorothea K. Williamson (Williamson 1918).** Fulva×Foliosa. Large velvety flowers of the most vivid purple on thirty-inch stems. Generally considered one of the very finest of the beardless Irises. Splendid as a cut flower. - - - - - \$2.00
82. **Drake (Bliss 1919).** A free flowering pallida of a medium shade of lavender. Three feet. - - - - - \$1.00
85. **Dream (Sturtevant 1918).** Standards and falls a clear even pink, technically lilac to Chinese violet. Three-foot stems carry many flowers of fine form. One of the very finest of the pink Irises. - - - - - \$3.00
74. **Dr. Bernice (1867).** Standards bronze yellow; falls maroon red. The general color effect is of brown. Two feet. An old variety but still good. - - - - - \$0.25
86. **Edouard Michel (Verdier 1904).** Standards and falls somewhat ruffled, a distinct shade of rosy red. Large flowers of rather frail texture on three-foot stems. Of unsurpassed color but unfortunately the plant is not of the strongest growth. Give a dry location. - - - - - \$2.00

- E. H. Jenkins (Bliss 1919).** Large flowers of two shades of lavender blue on tall low branched stems. Forty-two inches. Of the same general color as Neptune. - - - - - \$2.00
76. **E. L. Crandall (Farr 1915).** A flower of more than usual substance on stems two feet in height. Standards white bordered deep blue; the flaring falls widely margined blue at base. Beautiful and distinct. Fine as a cut flower. - - - - - \$0.50
78. **Eldorado (Vilmorin 1910).** A peculiar and distinctive blending of violet purple and yellow. An open flower on stalks thirty inches high. There is nothing else like it. - - - - - \$0.50
75. **Empire (Sturtevant 1918).** A slightly clouded yellow self. A free and dependable bloomer. Thirty inches. - - - - - \$0.50
81. **Empress (Caparne 1901).** An intermediate, blooming just before the tall varieties. Large flowers of pale creamy yellow. Most beautiful. Two feet. - - - - - \$0.35
80. **Fairy (Kennicott 1905).** Medium sized flowers on tall stems. Standards and falls white narrowly margined pale blue. Fragrant. Three feet. A popular variety. - - - - - \$0.25
- Firmament (Groschner 1920).** A very early variety having large blooms of two shades of lavender blue. Two feet. - - - - - \$0.75
70. **Flavescens (DeCandolle).** The old pale yellow sweet-scented Iris. Thirty inches. - - - - - \$0.25
76. **Florentina.** The fragrant early flowering Iris common everywhere. Standards and falls white tinged lavender. Flowers of good size borne on rather weak stalks. Thirty inches. Makes a beautiful clump and always dependable. - - - - - \$0.25
- Foliosa (Species).** A native beardless Iris of the Hexagona group. Large flowers of violet blue carried very close to the ground on short angular stems. Easy to grow. - - - - - \$0.50
75. **Fro (Goos and Koenneman 1910).** Standards deep golden yellow; falls bright reddish chestnut. Well shaped flowers of richly contrasted colors. Of vigorous growth, the stalks reaching thirty inches. One of the brightest and best of the variegata varieties. - - - - - \$0.25
- Fulva (Species).** Another member of the beardless Hexagona group. Flat flowers of brick red on upright stems fifteen to eighteen inches high. This Iris likes considerable moisture and some shade but it is not difficult to grow. - - - - - \$0.50
67. **Gajus (Goos and Koenneman 1906).** Standards clear pale yellow; falls heavily veined maroon red. Two feet. - - - - - \$0.25
89. **Georgia (Farr 1920).** A fine new Iris of clear deep purple pink throughout both standards and falls. Thirty inches. One of the best of the "pinks", particularly effective in mass. - - - - - \$3.00
65. **Gertrude (Peterson 1907).** Self colored flowers of blue purple. Very free. Useful chiefly for massing. Three feet. - - - - - \$0.25
71. **Goliath (Cayeux 1908).** Standards bronzy yellow; falls red purple. Forty inches. - - - - - \$0.50
- Graminea (Species).** A grassy leaved beardless Iris. Small fragrant flowers of red purple marked blue on style branches. - - - - - \$0.35

Grapta—New Longfield Seedling. (See Page 20).

85. **Grevin (Vilmorin 1920).** Flowers of great substance, deep red purple flushed copper. Two feet. Very good. - - - - - **\$2.00**
70. **Hebe (1854).** Flowers somewhat crowded on stem but one of the most delicate and beautiful of the plicata varieties. Standards and falls white edged clear bright blue. Thirty inches. - - - - - **\$0.35**
66. **Helge (Goos and Koenneman 1908).** Flowers of rather dull yellow. An early and profuse bloomer. Twenty-four inches. - - - - - **\$0.25**
73. **Her Majesty (Perry 1903).** Standards clear rose pink; falls same color heavily veined crimson; center of flower flushed yellow. One of the best and most dependable varieties giving a general pink effect. Twenty-four inches. - - - - - **\$0.25**
- Herocles (Millet).** A blend of blue and yellow, the blue predominating. Two feet. - - - - - **\$0.50**
74. **Hiawatha (Farr 1913).** Flowers of good form; standards rosy lavender; falls purple. Makes a pleasing mass effect. Twenty-seven inches. **\$0.35**
71. **Innocenza (Lemon 1854).** A good white Iris of medium size and height. - - - - - **\$0.25**
79. **Iris King (Goos and Koenneman 1907).** Standards a clouded yellow; falls rich velvety maroon bordered yellow. Two feet. A general favorite with those who like the variegatas. - - - - - **\$0.50**
86. **Isoline (Vilmorin 1904).** Standards pale pinkish buff; falls coppery old rose. A beautiful blend of pink and yellow. The straight hanging falls give the flower a long appearance. Three feet. Unfortunately not the best of growers in the north but well worth some coddling. - **\$0.50**
80. **Jacquesiana (Lemon 1840).** Standards bronzy lilac red; the flaring falls rich purple red. An old variety but still a favorite. Three feet. **\$0.35**
70. **James Boyd (Farr 1915).** Standards clear light blue; falls dark violet. Large flowers. Thirty inches. - - - - - **\$0.35**
78. **Jeanne d'Arc (Verdier 1907).** Much like Ma Mie. Standards and falls white edged lavender. Thirty inches. - - - - - **\$0.50**
81. **Juniata (Farr 1909).** Standards and falls of somewhat ruffled outline, a medium shade of rosy lavender. Large flowers on very tall stems. Mid-season to late. One of Mr. Farr's best known and best Irises. **\$0.35**
80. **Kathryn Fryer (Fryer 1917).** Standards dull pale yellow; in the falls the confluent veins are velvety purple red. Large flowers are borne freely on sturdy stalks thirty inches high. Very good. - - - - - **\$1.50**
74. **Kharput.** An early flowering species from Asia Minor. Standards violet; the straight hanging falls deeper violet. Stalk well branched, thirty inches. Not a free blooming Iris but the large flowers are always welcome in their season. - - - - - **\$0.35**
76. **Knysna (Bliss 1917).** Standards clear yellow; falls velvety maroon. Free flowering and good. Two feet. - - - - - **\$1.25**
78. **Kochii** A wild Iris of southern Europe, probably descended in part from the species *Aphylla*. Flowers a deep blackish purple. Very rich coloring and a general favorite. Two feet. - - - - - **\$0.25**

- Koya (Sturtevant 1920).** Early midseason. Slightly ruffled flowers of two shades of lavender blue; the haft conspicuously veined. Beard orange. Pleasing flowers freely produced on good three-foot stems. - - - - - \$0.50
83. **La Neige (Verdier 1912).** One of the finest white varieties though rather small and dwarf. Standards cupped; falls flaring. Two feet. \$1.50
85. **Lady Foster (Foster 1913).** Standards pale blue; falls lavender violet. Large fragrant flowers of great beauty on three and one-half foot stems. Very fine. - - - - - \$2.00
90. **Lent A. Williamson (Williamson 1918).** Early midseason. Standards very broad, lavender violet; falls broad and drooping, velvety violet purple. The whole flower suffused yellow, more heavily toward the center. Beard yellow. Large flowers of exceptional substance on stout stems three and one-half feet high. Extremely vigorous in growth. This Iris, our origination, has been a standard of comparison since its introduction. - - - - - \$1.00
73. **Leonidas.** Large flowers of lavender violet with orange beard. Good although the long falls tend to hug the stem. Makes a showy clump. Three feet. - - - - - \$0.25
91. **Leverrier (Denis 1917).** Flowers very large; standards lilac purple; falls pansy violet. Of vigorous growth, producing its great blooms on tall widely branched stems. Forty-two inches. - - - - - \$5.00
82. **Lohengrin (Goos and Koenneman 1910).** Standards and falls uniformly colored a soft cattleya rose. Beard orange. Three feet. Good grower and free bloomer but with flowers too crowded at top of stalk. \$0.35
91. **Lord of June (Yeld 1911).** Very large fragrant flowers having floppy standards of lavender blue and long falls of lavender violet; prominent yellow beard. A pale blue bicolor in general effect. The large flowers held on tall splendidly branched stems makes this an outstanding variety, marred only by lack of substance in standards. Forty-two inches. - - - - - \$1.50
79. **Loreley (Goos and Koenneman 1909).** Standards light clear yellow; falls purple margined yellow. Distinct in that the color of the falls tends away from the usual maroon toward the blue side of purple. Vigorous and free, the stalks attaining thirty inches. - - - - - \$0.25
- Lycaena—New Longfield Seedling.** (See Page 21).
78. **Magnate (Sturtevant 1918).** Standards blue; falls lavender violet. Large flowers on sturdy stalks twenty-four inches high. - - - - - \$1.25
91. **Magnifica (Vilmorin 1920).** Like Alcazar but still larger; also lighter and more pink. Immense blooms on very tall, strong, splendidly branched stems. - - - - - \$3.00
81. **Ma Mie (Cayeux 1906).** Standards and falls clear white frilled violet blue. Of better form than Mme. Chereau. Three feet. - - - - - \$0.75
- Mandarin (Cleveland 1920).** Standards pale violet red strongly flushed yellow; falls maroon purple reticulated white. A flower of peculiar attraction. Thirty inches. - - - - - \$0.50
73. **Mandalisca.** Of unrecorded origin but probably a collected form of the species pallida. Rich lavender purple flowers on three-foot stems. Early and free flowering. - - - - - \$0.25

73. **Mareschal (Sturtevant 1918)**. Flowers of Queen Caterina coloring but smaller and on taller stems. Not as good as Queen Caterina. \$0.50
67. **Margaret Moor (Bliss 1918)**. Flowers a pleasing reddish lilac. Thirty inches. \$1.25
78. **Mary Garden (Farr 1913)**. Standards pale yellow dulled by a sanding of light purple; falls creamy white veined maroon purple. Thirty inches. Good only when viewed closely. \$0.35
73. **Mary Gray (Farr 1913)**. Flowers self colored a medium shade of violet blue. Beard orange. Three feet. \$0.50
- Mary Orth (Farr 1920)**. Standards a light shade and falls a deep shade of blue violet. Twenty-four inches. \$1.50
78. **Mary Williamson (Williamson 1921)**. Standards white; flaring falls purple with wide white border. Flowers of medium size on slender thirty-inch stems. Distinct and fine. \$5.00
85. **Medrano (Vilmorin 1920)**. Standards and falls deep smoky wine red. Of rich and distinct color. Large flowers on twenty-four inch stems. \$2.50
83. **Merlin (Sturtevant 1918)**. Standards lavender violet; falls rich red purple; styles yellow. Flowers of large size on strong stalks. Thirty inches. \$1.25
- Miranda (Hort 1919)**. A very beautiful deep blue purple Iris of perfect form and carriage. One of the earliest of the tall bearded varieties, free flowering and of strong growth. Fine in every way. \$3.00
75. **Mithras (Goos and Koenneman 1910)**. Standards light yellow; falls maroon with narrow border of yellow. One of the taller of the variegata varieties and one of the best. \$0.35
74. **Mme. Chereau (Lemon 1844)**. Standards and falls white, widely margined lavender violet. The straight hanging falls give the flowers a long appearance. Three feet. An old favorite but easily surpassed by such newer varieties as Anna Farr, Ma Mie and Pocahontas. \$0.25
84. **Mme. Cheri (Sturtevant 1918)**. The lavender of the standards and the lavender pink of the falls are smoothly blended with yellow. One of the very finest Irises of blended tones. Strong in growth. Three and one-half feet. \$2.50
85. **Mme. Chobaut (Denis 1916)**. Flowers of pale yellow shaded and veined pale brown. Three feet. Of unusual coloring. Good. \$4.00
78. **Mme. de Seigne (Denis 1916)**. Standards and falls white thickly veined violet purple. Flowers of rather small size on thirty-inch stems. \$0.75
84. **Monsignor (Vilmorin 1907)**. Standards violet; falls heavily veined a deeper purple. Most effective in clump. Twenty-four inches. \$0.35
83. **Montezuma (Farr 1909)**. Standards deep yellow dotted brown; falls yellow and white, veined purple. Eighteen inches. A distinct variety. \$1.50
- Mother of Pearl (Sturtevant 1921)**. Standards and falls pale bluish lavender with a faint creamy undertone. Large flowers of exceptional substance and perfect form on well balanced stems forty inches high. Vigorous in growth and producing its wonderful flowers freely. We consider this an almost perfect Iris. \$5.00

76. **Mrs. Alan Gray (Foster 1909)**. Pale rose mauve flowers on thirty-inch stems. - - - - - \$0.25
68. **Mrs. Neubronner (Ware 189-)**. Small flowers of deep golden yellow. Twenty-four inches. A little deeper in color than Sherwin Wright but not as good as that variety. - - - - - \$0.25
71. **Mrs. W. E. Fryer (Fryer 1917)**. Standards very pale lavender; falls red purple with lighter border. Thirty inches. - - - - - \$0.50
82. **Mt. Penn (Farr 1909)**. Standards lilac; falls crimson purple, the whole flower with undertone of yellow. Thirty inches. Good. - - - - - \$0.50
74. **Myth (Sturtevant 1918)**. Standards and falls light violet blue. Large flowers on two-foot stems. - - - - - \$0.50
82. **Nancy Orne (Sturtevant 1921)**. Standards purplish lilac; falls deeper; center of flower showing some yellow. Growth vigorous. Three feet. - - - - - \$1.00
81. **Neptune (Yeld 1916)**. Near Amas and Trojana in general coloring. Standards pale lavender blue; falls deeper. Large flowers on slender wiry stems. Three feet. - - - - - \$1.25
73. **Nibelungen (Goos and Koenneman 1910)**. Standards yellowish brown; falls purple bordered light brown. Vigorous and free. Thirty-three inches. - - - - - \$0.25
80. **Nine Wells (Foster 1909)**. Standards lavender violet; falls deep velvety purple. Large flowers on heavy stems forty inches high. A fine outstanding purple Iris. - - - - - \$1.00
63. **Nokomis (Farr 1915)**. Standards very pale lavender; falls violet blue with white border. Very free. - - - - - \$0.25
76. **Nuee d'Orage (Verdier 1905)**. Flowers grayish blue shaded bronze. Two feet. - - - - - \$0.25
87. **Opera (Vilmorin 1916)**. A rich violet red bicolor. Thirty inches. \$2.50
79. **Oporto (Yeld 1911)**. Standards and falls violet. The flowers are not large but have a certain neatness and finish, making this a beautiful Iris. Thirty inches. - - - - - \$0.50
- Orchioides**. A bulbous species blooming in early spring. Flowers yellow, the small standards drooping below the broad horizontal falls. Fifteen to eighteen inches. A little known but easily grown species. \$1.00
78. **Oriflamme (Vilmorin 1904)**. Derived from Amas and with flowers much like that species. Standards lavender blue; falls violet purple. Stiff stalks thirty inches high. - - - - - \$0.50
72. **Palaurea (Sturtevant 1918)**. Like Afterglow a cross of Dalmatica and Aurea. Flowers of mingled lavender and yellow. Three feet. \$0.50
88. **Pallida Dalmatica (1600)**. One of the best forms of *Iris pallida*. Standards and falls clear lavender blue. Forty inches. - - - - - \$0.35
73. **Pancroft (Millet 1909)**. Pale buff flushed pale mauve. Thirty inches. \$0.50
81. **Parc de Neuilly (Verdier 1910)**. Large flowers of rich deep purple on thirty-inch stems. Good. - - - - - \$0.50

79. **Parisiana (Vilmorin 1911)**. Standards thickly netted purple on white ground; falls creamy white margined purple. Thirty inches. Vigorous and free. - - - - - \$0.50
75. **Pauline (Farr 1913)**. Fine large flowers of pansy violet on three-foot stems. Prominent orange beard. A very good red purple variety, vigorous and free flowering. - - - - - \$0.50
78. **Perfection (Barr)**. Standards light lavender violet and falls a very deep velvety blue purple. Beard orange. A free flowering richly colored Iris. Thirty-six inches. - - - - - \$0.25
77. **Pocahontas (Farr 1915)**. Standards and falls white widely bordered lavender violet. One of the finest frilled varieties. Thirty inches. \$0.50
80. **Powhatan (Farr 1913)**. A good red purple self. Thirty-six inches. \$0.50
72. **Princess Victoria Louise (Goos and Koenneman 1910)**. Standards light yellow; falls purplish rose, bordered pale yellow. Two feet. - \$0.25
83. **Prosper Laugier (Verdier 1914)**. Flowers of strongly bronzed crimson purple. Three feet. Good. - - - - - \$0.50
- Pseudacorus (Species of Apogon)**. The European counterpart of our native Versicolor. Strong foliage and flowers of brightest yellow. Two feet. - - - - - \$0.25
84. **Quaker Lady (Farr 1909)**. Standards smoky lavender; falls blue and old gold; center of flowers and beard yellow. Of fine form and finish. One of Mr. Farr's best varieties. - - - - - \$0.35
91. **Queen Caterina (Sturtevant 1918)**. Standards and falls very broad, a luminous pale lavender violet, appearing pinker in sun and bluer in shadow. The flowers of large size and heavy substance are freely produced on tall, branched stems. One of Miss Sturtevant's finest varieties. - - - - - \$1.50
74. **Queen of May (1859)**. Standards and falls soft rose lilac, near pink in general effect. Thirty inches. - - - - - \$0.25
81. **Raffet (Vilmorin 1921)**. Standards violet blue; falls blue with heavy veins of deep purple. Orange beard. Two feet. - - - - - \$1.50
62. **Rangoon (Sturtevant 1919)**. Standards mauve; falls red purple. Twenty-four inches. - - - - - \$0.35
78. **Red Cloud (Farr 1913)**. Flowers red purple tinged bronze. Two feet. - - - - - \$0.35
84. **Rhein Nixe (Goos and Koenneman 1910)**. Standards white; falls purple violet bordered white. Three feet high. The tallest of the white and purple Irises. Best seen at a distance of a few yards. Foliage strongly marked purple at base. Very strong grower and a good variety. \$0.50
74. **Richard II (Dykes 1914)**. Standards white; broad spreading falls deep velvety purple. Beautiful flowers on a plant of weak constitution. \$3.00
69. **Rose Unique (Farr 1910)**. An early deep pink. - - - - - \$0.35
82. **Roseway (Bliss 1919)**. Standards and falls violet rose, taller and later than Rose Unique. - - - - - \$0.75
83. **Seminole (Farr 1920)**. Standards lilac red, falls velvety crimson; the whole flower brightened by a suffusion of yellow. Orange beard. Very fine color. Two feet. - - - - - \$1.50

77. **Shalimar (1916)**. Standards lavender blue; falls violet purple. Noted for its especially fine stem. Forty inches. - - - - - \$1.00
87. **Shekinah (Sturtevant 1918)**. One of the finest of yellow Irises. Flowers on three-foot stems, pale lemon yellow shaded deeper at center. A clear soft color without any harshness. - - - - - \$1.25
76. **Sherwin Wright (Kohankie 1915)**. Standards and falls clear deep golden yellow. Flowers small but produced freely, making a very bright effect in clump or mass. Two feet. Thrifty and dependable. - - - - - \$0.35
75. **Shrewsbury (Farr 1916)**. Standards purple lilac; falls violet purple; the whole flower clouded bronze. Beard orange. Rich and striking. Two feet. - - - - - \$0.50
73. **Socrates**. A dwarf variety flowering early in May. Standards and falls rich claret purple. Six to eight inches. - - - - - \$0.25
93. **Souv. de Mme. Gaudichau (Millet 1914)**. Standards violet blue; falls a deep velvety purple. Large flowers of exceptional substance on stalks three feet high. Growth vigorous. One of the most beautiful. \$3.00
- Speciosa (1830)**. Standards lilac rose; falls crimson purple. A free blooming and attractive Iris. - - - - - \$0.25
79. **Swatara (Farr 1918)**. Standards blue with an undertone of yellow; falls violet. Conspicuous orange beard. Thirty inches. - - - - - \$0.50
60. **Taffeta (Cleveland 1920)**. Standards brown shaded blue; falls blue suffused fawn. Thirty inches. - - - - - \$0.50
74. **Tamerlan (Vilmorin 1904)**. Standards lavender and falls violet purple. Thirty inches. - - - - - \$0.35
- Terias—New Longfield Seedling**. (See Page 21).
- Thecla—New Longfield Seedling**. (See Page 21).
68. **Thorbecke (Introduced about 1897)**. A clear sharp contrast of white standards and deep velvety purple falls. The flowers are carried on slender thirty-inch stems. In our opinion, a fine Iris and greatly underrated. - - - - - \$0.35
75. **Tineae (Origin Unknown)**. Much like *pallida dalmatica*. Very heavy glaucous foliage; pale lavender flowers of typical *pallida* form on forty-inch stalks. - - - - - \$0.25
- Toreador (Cleveland 1920)**. Standards bright bronze yellow; falls red. Strong grower and free bloomer. Thirty inches. - - - - - \$0.50
75. **Tregastel (Millet 19—)**. A red purple bicolor heavily shot with yellow. Thirty inches. - - - - - \$0.75
82. **Tristram (Bliss 1919)**. Standards white; falls velvety purple. A most pleasing color contrast. Thirty inches. Not as tall as Rhein Nixe but more richly colored, with broader falls than Thorbecke, though with more reticulation toward the haft. - - - - - \$1.50
84. **Troost (Denis 1908)**. Flowers of old rose; very good in spite of the streaking in the falls. Two feet. - - - - - \$2.00
74. **Tunisia (Millet)**. Large flowers of smoky lilac purple. Twenty-four inches. - - - - - \$1.00

83. **Ute Chief (Farr 1920).** A large bronze purple almost identical with Alcazar. Forty inches. - - - - - \$1.50
- Versicolor (Species).** The beardless swamp Iris of the northern states. Flowers of lavender purple on stems eighteen to twenty-four inches high. - - - - - \$0.25
75. **Viola (Foster 1913).** A pretty free flowering lavender with orange beard. Thirty inches. - - - - - \$0.25
80. **Violacea Grandiflora (1860).** A good late flowering Iris. Flowers deep lavender throughout. Three feet. A good grower and free bloomer. - - - - - \$0.25
81. **Virginia Moore (Shull 1920).** Standards bright yellow; falls yellow slightly veined. With us not over thirty inches tall. Flowers deeper in color than Aurea. - - - - - \$1.00
62. **Whiffenpoof (Sturtevant 1917).** Standards dull clouded yellow; falls maroon red. More yellow and brighter than Nibelungen. Thirty inches. - - - - - \$0.25
83. **White Knight (Saunders 1916).** A pure white Iris with only the lightest of reticulations at the haft. Flowers of fine form and good substance. Two feet. A better grower than La Neige. - - - - - \$0.75
- White Queen.** Standards, falls and beard pure white without marking or shading. Two feet. The finest of the small flowered white varieties. - - - - - \$5.00
73. **Windham (Farr 1909).** Flowers pale purplish rose with a thin veining of purple in the falls. A good "pink". Twenty-four inches. - - - - - \$0.35
83. **W. J. Fryer (Fryer 1917).** Standards dull gold; falls deep red purple reticulated in upper half. Vigorous and free. A fine outstanding variety. Three feet. - - - - - \$1.50
72. **Wyomissing (Farr 1909).** Small flowers of cream pink. Useful in mass. - - - - - \$0.25
75. **Zua (Crawford 1914).** Very pale lavender flowers heavily crimped and creped. Eighteen inches. Early. Entirely distinct from all other Irises. - - - - - \$1.00
85. **Zwanenburg (Denis 1909).** Standards brownish yellow shaded green; falls bronzy yellow flushed maroon. Early and very free blooming, but not particularly beautiful. - - - - - \$1.50





A photograph taken in E. B. Williamson's back yard by Mr. Paul A. Kohl of the Missouri Botanical Garden. Jane Williamson is busily engaged pollinating. In the extreme lower right hand corner is the famous Dominion. At the lower left is a raised bed for growing varieties requiring the best drainage. Beyond the raised bed is a seed planting. The rows of flowering plants where Jane is working are dusted with gypsum. At the extreme right is a barrel churn—an excellent utensil for mixing small quantities of fertilizers.

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