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AN INTERGENERIC HYBRID BETWEEN *BELAMCANDA*
CHINENSIS AND *PARDANTHOPSIS*
DICHOTOMA (= *IRIS DICHOTOMA*)

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In 1936, Rex D. Pearce of the Pearce Seed Co., Moorestown, New Jersey, imported a number of plants from Japan, one of them being *Belamcanda flabellata* Grey which he described as "a low, compact species with flowers that were unmarked golden-yellow." According to Grey (1937), *B. flabellata* is native to Japan but the exact provenance is unknown. Through hybridization between *B. flabellata* and *B. chinensis* (L.) DC. (as *B. sinensis*), Pearce produced by selection from the resulting hybrids a strain of blackberry lily known as the Avalon Hybrids. Recent authors (Ohwi, 1965; Chittenden, 1951) recognize *Belamcanda* as monotypic and the species *chinensis* as widespread in Asia and variable. On this basis, Pearce's Avalon Hybrids would be considered intraspecific rather than interspecific. In the early 1960's Samuel N. Norris of Owensboro, Kentucky, purchased seeds and plants of the Avalon Hybrids from the George W. Park Seed Co., Greenwood, South Carolina. These he reports "showed considerable variation in height and growth form."

A plant generally known as *Iris dichotoma* Pall. has long been in cultivation but it has never been very common in gardens. Its resemblances to the common blackberry lily (*Belamcanda chinensis*) have been noted by numerous authors; nevertheless, recent taxonomists have not suggested that it was not an *Iris* although they have all placed it in a separate category within the genus where it stands by itself. Rodionenko (1962) considers the subgenus *Pardanthopsis* containing *I. dichotoma* to be the most primitive, saying that it "retains both in structure and its biology, many ancestral traits, i.e., such as were characteristic of the ancestral species of *Iris*." A recent study (Lenz, 1972) has shown that in a number of respects *I. dichotoma* is more closely related to *Belamcanda* than it is to *Iris* and that this relationship is best expressed by according the plant generic status under the name *Pardanthopsis* Lenz. The production of fertile hybrids between the blackberry lily and *P. dichotoma* (Pall.) Lenz bears out this close relationship. No hybrids between *dichotoma* and any species of *Iris* have been recorded.

Norris (pers. com.) purchased from the Zilke Brothers Nursery, Baroda, Michigan, plants sold under the name "Hansen New Everblooming Orchid *Iris*." According to them, the plants were brought to the United States by

"Carl A. Hansen from one of his world-wide plant exploration expeditions." They described the plants as coming from "the wilds of Siberia near the town of Shilka." According to *The Times Atlas of the World*, Vol. 2, Shilka is located at 51°55' N and 116°01' E, placing it east of Lake Baikal and about 500 miles northeast of Ulan Bator, Mongolia. These plants were later identified as *Iris dichotoma*, now properly known as *Pardanthopsis dichotoma* (Pall.) Lenz, a species of wide distribution in eastern Asia.

During the summer of 1967, Norris (pers. com.) pollinated flowers of *P. dichotoma* with pollen taken from a number of the plants of *Belamcanda* Avalon Hybrids. He obtained 12 well-filled capsules with nearly 500 seeds which were planted immediately upon harvest. Within three weeks approximately half of them had germinated. Seedlings were grown throughout the winter under fluorescent lights and lined out in the garden the following April. According to Norris, blooming commenced about the middle of July and continued until frost. The F₁ generation was very uniform in bloom and growth. In the F₂ generation the plants showed great variation in both flower form and plant habit. Norris' experience has been that the hybrids will backcross to both parents but when *Belamcanda* is used as the maternal parent the seeds fail to germinate. In the spring of 1970, Norris supplied me with plants of the two parental species and the hybrid as well as seed produced by placing mixed pollen of the F₂ generation onto *P. dichotoma*. The seeds germinated readily and the plants began blooming in late July and continued well into October.

Plants of the F₂ generation showed great variation in flower form between that typical of *Belamcanda* and *Pardanthopsis* although in this population there were no yellow-flowered plants but there were some that were salmon-colored and there were none that were identical to *Belamcanda* in flower form. One of the most obvious and at the same time interesting morphological features of these hybrids was the style and style branches which varied from those typical of *P. dichotoma* to those nearly identical to those of *Belamcanda*. If Rodionenko is correct, and *Belamcanda*, or a *Belamcanda*-like plant, is the progenitor of *Iris* then by arranging the style branches from plants of the segregating F₂ population in a sequence from those most nearly approaching *Belamcanda* to those most like *Pardanthopsis* one might gain an understanding of the evolution of the advanced petaloid style branch found in *Iris* from the simple structure present in *Belamcanda*. One of the most conspicuous features of the *Iris* style branch is the two style crests, often very long and attenuate, below which is a stigmatic flap. In *Belamcanda* the terminal segments are all alike and all three are stigmatic. In the F₂ populations of the *Belamcanda* × *Pardanthopsis* hybrid a series could be arranged showing various stages in the development of the style crests and associated stigmatic flap from the simple undifferentiated style branch characteristic of *Belamcanda* to the petaloid style branch found in *Iris*.

Plants from the population, *P. dichotoma* ♀ × (*Belamcanda* Avalon Hybrids × *P. dichotoma*) ♂, as might be expected, more nearly approached

in morphological characters *Pardanthopsis* than *Belamcanda*. The flowers opened late in the afternoon or early evening and were closed by next morning, also a characteristic of *Pardanthopsis*. The flowers of *Belamcanda* normally open about midmorning and close by late afternoon as do those of the F_1 generation of the hybrid.

×*Pardancanda norrisii* hybrida hortensis nova

Folia alternata, equitania, ad 35 cm longa, 3 cm lata; caulis usque ad 1 m altis, valde ramosus, ramis saepe binis ex eodem loco productis; spathae multiflorae; floribus fugacibus, post anthesin spiraliter contortis; pedicelli ad 3 cm longi; perianthii tubus ca 7 mm longus, 2.5 mm latus; segmenta externa obovata ad 3 cm longa, 1.2 cm lata, sine ungue, externa pars reflexus, purpureus, macula albida prope carinam; segmenta interiora late elliptica, ad apicem emarginata, ad unguem angustata, circa 1/3 longitudine segmentorum, 1.9 cm longa, 1.2 cm lata; ovarium ellipticum, ca. 7 mm longum, 2.5 mm latum; stylus 2.1 cm longus, in 3 segmenta ca. 1/2 longitudine styli divisus, rami styli in alam expansi, crista styli ca. 2 mm longa; stamina 6, antherae ca. 7 mm longae, filamentis ca. 1.2 cm longis; stamina erecta, non firme stylum appressa.

Leaves alternate, equitant, to 35 cm long, 3 cm wide; flowering stems to 1 m, much-branched, the peduncles often issuing in pairs of equal length at the same point; spathes many-flowered, flowers fugacious, after anthesis perianth segments spirally contorted; pedicels to 3 cm long; perianth tube ca. 1 mm long, 2.5 mm wide; external segments obovate, 2.9 cm long, 1.2 cm wide without a distinct claw but outer portion distinctly reflexed, purple, claw with white markings near keel; inner segments broadly elliptical, emarginate at the apex, tapering into a claw about 1/3 the length of the segment, 1.9 cm long, 1.2 cm wide; ovary elliptical, about 7 mm long, 2.5 mm wide; style 2.1 cm long, divided into three segments about 1/2 the length of the style, style arms slightly winged, style crests about 2 cm long, stamens six, anthers about 7 mm long, filaments about 1.2 cm long; stamens upright, not firmly held against style.

Holotype.—Grown at the Rancho Santa Ana Botanic Garden from plants received from Samuel N. Norris, Owensboro, Kentucky. *Lee W. Lenz* 24895, 21 Sept., 1971 (RSA).

It gives me great pleasure to name this hybrid in honor of the man who created it and who kindly supplied me with plants and information about the origin of this most attractive garden plant.

LITERATURE CITED

- Bartholomew, J. (Ed.) 1959. The Times Atlas of the World. Mid-Century edition. Times Publishing Co., London. 48 plates.
Chittenden, F. J. 1951. Dictionary of gardening. Vol. 1. Clarendon Press, Oxford. 512 p.
Grey, C. H. 1937. Hardy bulbs. Vol. 1. Iridaceae. Williams & Norgate, London. 403 p.
Lenz, L. W. 1972. The status of *Pardanthopsis* (Iridaceae). *Aliso* 7: 401–403.
Ohwi, J. 1965. Flora of Japan. Smithsonian Institution, Washington. 1067 p.
Rodionenko, G. I. 1961. The genus *Iris*. Academy of Sciences USSR, Leningrad and Moscow. 215 p. (in Russian).