

TAXONOMY AND NOMENCLATURE IN SOME SPECIES OF THE GENUS
ARUM L.

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1. THE RELATIVE STATUS OF *ARUM ITALICUM* AND *ARUM NEGLECTUM*

Recent studies of the distribution of *Arum neglectum* (Townsend) Ridley and *Arum italicum* Miller (Prime, Buckle and Lovis, 1955, 1960) have made it difficult to sustain the two as separate species. The differences between the two have been discussed by Ridley (1938) but plants intermediate in every respect can be found in large populations on the Continent, and in the extreme west of England. There is a ratio cline, the *italicum* form being commoner in the Mediterranean area, and the *neglectum* form in south Britain. Particularly attractive forms of *Arum italicum* with dark green leaves, diverging basal lobes and a well-marbled white venation have been cultivated in this country and are occasionally found as escapes. This fact complicates the interpretation of the distribution in the British Isles, but the main facts of the cline are clear enough, and it seems best to treat the two as subspecies.

The first real attempt to classify the common Aroids was made by Tournefort (1719). He describes three genera, *Arum*, *Dracunculus* and *Arisarum*. Linnaeus's copy of this book, now in possession of the Linnean Society, contains his names against the species listed, and he included them all as belonging to the single genus *Arum*. Tournefort gives the synonymy for *Arum maculatum* and amongst the names may be noted '*Arum venis albis* C. B. Pinax' and '*Arum venis albis, Italicum, maximum, H. R. Par.*' (See Bauhin, C. (1623) and Joncquet, D. (1665)). Against all the synonyms, including the two above, Linnaeus has written only one name, *Arum maculatum*, so it is clear that he considered all these to refer to the one species.

Miller (1759) describes *Arum maculatum* and *Arum italicum* separately. The description of *Arum italicum* reads:

"*Arum acaule foliis hastatis acutis petiolis longissimis spatha erecta. Arum* without Stalk, pointed Spear-shaped leaves, with very long Petals, and a large upright Spathe. This is the *Arum venis albis, Italicum, maximum. H. R. Par.* Largest Italian *Arum* with white Veins."

Again, Linnaeus in his own annotated copy of the *Dictionary* ignores this species, so he evidently regarded its description by Miller as unwarranted splitting. Miller goes on to say that the plant "grows naturally in Italy, Spain and Portugal from whence I have received the Seeds. The Leaves of this Sort rise a foot and half high, are very large, running out to a Point; these are finely veined with white, interspersed with black Spots, which together with the fine shining green of their Surface, make a pretty Variety. The Flowers grow near a Foot high, and have very long upright Spathas, which are of a pale green, inclining to white; these appear at the End of April, or Beginning of May, and the Seeds are ripe in August."

It seems therefore quite clear that Miller intended his description to apply to the more common Mediterranean plant with marked white veins and not to the plant found in this country. Townsend (1883) first described the latter as *A. italicum* var. *neglectum*. He makes the following observation "The Isle of Wight plant more frequently has dark coloured spots on the leaves, which are rarely seen on the continental *A. italicum*. The basal lobes are less triangular in outline, and are less spreading than those of the usual continental plant; the apex of the leaf is more rounded. The Isle of Wight form is in my experience rare on the Continent, but I have it from Cannes, together with the usual form from

Bordighera, and both retain their own characters. *A. italicum* appears earlier but flowers later than *A. maculatum*." He cites a specimen in the British Museum Herbarium collected by Trimen. Ridley (1938) gave a fuller description, and raised the variety to specific rank.

Though Townsend's diagnosis is rather slight, and not quite characteristic of *A. neglectum* as understood today, the name is validly published. As a subspecies of *A. italicum* it becomes **Arum italicum** Mill. subsp. **neglectum** (Townsend) Prime, *comb. nov.* (*A. italicum* var. *neglectum* Townsend, *Fl. Hants.*, (1883); *A. neglectum* Ridley, *J. Bot., Lond.*, 78 : 144 (1938). Holotype : Ventnor, October 1866, Trimen (BM)).

The principal differences between the two subspecies are :

Subsp. <i>italicum</i>	Subsp. <i>neglectum</i>
1. Leaf-shape relatively narrow. Length/width 1.7.	Leaf-shape relatively broad. Length/width 1.5.
2. Leaf-apex pointed, almost acuminate.	Leaf-apex rounded at side, acute.
3. Basal lobes of leaf relatively narrow, diverging, not overlapping. Angle between mid-line of lobe and petiole about 60°.	Basal lobes relatively broad, less divergent, sometimes overlapping. Angle between mid-line of lobe and petiole about 45°.
4. White venation very marked.	White venation absent or inconspicuous.
5. Leaves dark green.	Leaves lighter green.
6. No. of seeds per fruit 2-4.	No. of seeds per fruit 1-2.
7. Fruits rather more turgid.	Fruits less turgid, slightly more oblong in shape.

The last difference is a reflection of the different number of seeds in the fruit.

The Distinction between Arum italicum and Arum maculatum.

Arum maculatum, it may be emphasised, is a very different plant from *Arum italicum*. *A. italicum* is larger in all its parts; it is winter-green, the leaves being fully expanded by early November. The petioles are longer in proportion to the blade length and the laminae stand more erect. The spathe is relatively larger than the spadix when compared with *A. maculatum*. The spathe droop earlier, and the reproductive organs occupy a relatively greater space, for the ring of ovaries is about twice as long as broad. In *A. maculatum* this ring is about one and a half times as long as broad. The rudimentary male flowers do not taper very directly into the filaments, and the spadix is yellow with a fairly sharply contracted base. The fruits are larger and contain two to five seeds, which are also larger than those of *A. maculatum*. The fruits of *A. italicum* are also slower to turn to the bright red colour of autumn, and are usually hardly as bright in colour.

2. THE SUBSPECIES OF *ARUM MACULATUM*

The Danish plant with 28 chromosomes, an account of which has already been given (Prime, 1955) is a distinct form of *Arum maculatum* and should be treated as a separate subspecies. This raises the problem of the correct typification of *A. maculatum* L. It would of course be convenient if it could be demonstrated that the name *A. maculatum* subsp. *maculatum* should be applied to the more widely distributed and commoner plant with $2n = 56$ chromosomes. As Linnaeus himself said (*Critica botanica*, p. 246 in W. T. Stearn, 1957), "If an accepted genus has to be split up into several, according to the Law of Nature and of Science, then the name which formerly belonged to the whole should be kept to denote the best known and officinal plant."

It seems most likely that the name *A. maculatum* was first given to this plant, but although at the moment plants with 28 chromosomes are known only with certainty from Denmark, they may occur elsewhere. Schmucker (1925) gives $2n = c.32$ for some German plants, probably in error for $2n = 28$, and it seems not unreasonable to believe that plants

with $2n = 28$ may occur in Germany and even further afield. In Denmark, *Arum maculatum* ($2n = 56$) has been widely planted, but the plant with 28 chromosomes is confined to the southern part of the country. It is common on the islands of Lolland and Falster; frequent on Bornholm, Møn, and the south and west part of Zeeland. In east Jutland, where it is only found in rich soils and woods towards the sea, its existence is probably due to the fact that the summer is relatively warm and long.

The name *A. maculatum* was first used for the species by Tabernaemontanus (1590) and Bauhin (1623), and this name was retained by Linnaeus in *Species Plantarum* (1753). The specimen in the Linnean herbarium (No. 1079·8) is most likely of the subspecies with $2n = 56$, but the nature and condition of the specimen make it impossible to decide with certainty. Another early reference to a specimen is in the *Hortus Cliffortianus* (1737). The phrase name here is the same as in the *Species Plantarum*, i.e. "*Arum acaule, foliis hastatis integerrimus, spadice clavato,*" Habit and distribution are given as "*Crescit ad sepes in umbrosis per Germanium, Hollandiam, Angliam, Galliam, Italiam.*" The species described in the *Hortus Cliffortianus* are essentially those growing at that time in Clifford's garden, which was at Hartekamp in Holland, and they are also the plants represented in his herbarium. This herbarium is in the British Museum, and has been consulted, but the specimen labelled in a later unknown hand is not *Arum maculatum* at all but a quite different unidentified Aroid.

The only illustrated work cited by Linnaeus is by l'Obel (1591), but the illustration is inadequate for a definite identification to be made. It is thus not possible at the present time to select a satisfactory nomenclatural type for *Arum maculatum*. However, in the absence of conclusive evidence demonstrating which of the two subspecies is in fact the type subspecies of *A. maculatum*, it nevertheless remains more probable that Linnaeus originally described the plant with $2n = 56$ chromosomes, and therefore the name *A. maculatum* subsp. *maculatum* should be applied to this plant. Accordingly, the plant with $2n = 28$ chromosomes is described below as a new subspecies.

***Arum maculatum* subsp. *danicum* Prime, subsp. nov.** Surculus maximus cormi in medio situs; folia immaculata et pro longitudine latiora quam in subsp. *maculato*, minus hastata; spatha ad imam partem collata, brevior quam in subsp. *maculato*; spadix cylindrica, non latior basim versus. Chromosomata $2n = 28$.

Holotypus: Grønnesse Skov, nr. Frederiksvoerk, North Zeeland, T. W. Böcher, 11 May 1961, in Herb. København (C).

Isotypus in Herb. Mus. Brit. (BM).

Distributio. Solum in Dania meridionali-orientali.

Main shoot of corm centrally situated; leaves unspotted, relatively broader than in subsp. *maculatum*, less hastate; ratio of spathe length to the basal part less than in subsp. *maculatum*; spadix uniformly cylindrical, not tapering from the base. Chromosome number $2n = 28$.

Distribution (so far as is known) confined to Denmark, mainly in woods on the islands and in south-east Jutland (Køie, 1939).

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