A New Species of Arum L. From Crete

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The following account is based upon a field trip I made to Crete in April, 1985, which was partly sponsored by an Alpine Garden Society Travel Award.

Shortly after I had returned from South East Turkey last November, I was working at Kew identifying a number of Biarum spp. from the Turkish-Syrian borders. During a coffee break, Simon Mayo, who had been assisting me on a number of points, asked if I had seen a slide of an *Arum* sp. from Agia Roumeli, a small village on the South West Coast of Crete. It depicted an apparently undescribed species. I can make such a dogmatic statement due to the plant's remarkable coloration, the spathe and spadix being of a rich, unmarked purple, quite unique for a Cretan species. The slide was taken by Vaughn Fleming in early April. Simon and I spent some time discussing its possible affinities, based on its early flowering period and distinct coloration. At that time we did not know the structure of the tuber (essential in most cases for *Arum* identification), so we compare what we knew of the "new" species to the other purple flowered European species. This is presented in tabular form below;

SPECIES	DISTRIBUTION	FLOWERING
Arum nigrum Schott	Mountains of Adriatic Jugoslavia and North Greece	May
Arum pictum L. fil	Balearics, Corsica Sardinia, South Italy	October
Arum cyrenaicum Hruby	Between Derna and Bengazi, North Libya	April
Arum palaestinum Boiss	Palestine, etc. not known in Greece	May

From the table it can be seen that *Arum pictum's* flowering period is too late. We felt that the distribution of *Arum nigrum* made its affinities to the Cretan plant unlikely, since no purple-flowered *Arum* occur in southern Greece on any of the Aegean islands, or on the north coast of Crete. However, a glance at an atlas will reveal just how close North Africa, and in particular Libya, is to southern Crete. This coincidence, coupled with the flower's rich coloration led us to the conclusion that it might be allied to, or even actually be *Arum cyrenaicum*, a rare and little known species described from material collected in about 1910.

At the same time there was no available material of the Cretan plant (in this country), and very little in the way of *A. cyrenaicum*, so a firm decision was not possible. By coincidence later that month, I attended the Botanical Society of the British Isles meeting at the British Museum. Vaughn Fleming was there to give a slide talk and had the slide with him. It was quite unlike any *Arum* species I had seen before. It resembled *Arum maculatum* L. in general floral structure, but the coloration was quite unique. I questioned Vaughn about the habitat and so forth. He told me that in early April there were only a handful of the plants in flower. Most were in an advanced state of fruiting. This suggested to me a peak flowering period in late February or early March. Once again the nagging suspicion of a "new" species came to mind.

At this time I made up my mind to visit the site to collect material both living and pressed, and also to try to discover the full extent of the plant's distribution. Arrangements were made and I finally flew out to Crete on the 2nd April. To reach Agia Roumeli I opted to walk down the Samaria Gorge in the hope of photograph-

ing *Aceras anthropophorum*. Due to late snows, parts of the gorge were treacherous. The river had to be forded on half a dozen occasions, and at one point, at the famous Sideroportes, about a mile from the Gorge exit, the water was nearly hip deep. I exited from the Gorge around mid-afternoon, and almost immediately found the *Arum*, growing in the tiny small-holdings that border the path. All the plants encountered were in fruit, not even withered spathes remained.

I made my way across the wide rocky plain and into the village. Then, just outside the village centre, I found a large colony of the plant growing around a small *Phoenix canariensis*; one plant bore a small rather stunted spathe, fully open. The next morning I carried out a thorough search of the land on either side of the path from Agia Roumeli to the Gorge. The Arum was commonest in the partial shade of walls, trees etc. usually growing in short grass over stony terra rossa. Occasionally the plant was in more open positions, between large rocks, and on a slope leading from a large beehive enclosure I found it growing in-between large boulders and semi scree in association with *Sarcopoterium* and small *Salvia*, many clumps were flowering well.

I made several collections of pressed material and from a small field I gathered live specimens. The tubers were fairly deep, about 15 cm down, and took some extraction. When the first one came up my heart jumped. The tuber was horizontal like *Arum maculatum*. If the plant had been *Arum cyrenaicum* the tuber would have been vertical. I was more convinced than ever that the Agia Roumeli *Arum* was an undescribed species. Since I now had sufficient material for a description, and to introduce the plant into cultivation, I felt that a search of the coast line to the east was needed, to try to determine just how extensive the plant's distribution was. To this end I took the coastal track that leads from Agia Roumeli to Loutro, following this as far as Loutro, which is some five hours walk away. At first the path leads through open pine woods the dominant understory being *Cistus incana* sub. sp. *creticus* and various *Salvia* sp. Apart from a scattering of *Ophrys* sp. and *Cytinus ruber* there was little to excite. After some two hours I came to an outcrop of sheer cliffs which boasted some beautiful *Verbascum arcturus* and a large number of *Dranunculus vulgatis*. Along the track edges, which was now running along the midway point of a steep slope leading to the sea, were plentiful *Arisarum vulgare* and in places large swathes of *Convolvulus athaeoides*. Then, at a point two and a quarter hours out of Agia Roumeli I found a reasonable colony of the *Arum* beneath a lone *Ceratonia*. It was in fruit, but distinct enough to make identification accurate. Also abundant was *Arisarum vulgare* in fruit, the leaves already yellowing. Just past the two and half hour point I found another smaller group again beneath *Ceratonia*. The last plants I found were in a rather desiccated condition, though in flower, growing up through large bolders in full sun. This was some three and a quarter hours out from Agia Roumeli.

Unfortunately the coast to the west of Agia Roumeli is almost inaccessible, and thus I was unable to make a thorough search of this area. However, I feel it likely that the plant may have spread only a short distance in this direction. It thus seems reasonable to suggest that the *Arum* is restricted to the area between the Samaria Gorge exit and Agia Roumeli and thence from the village along the coast for a distance of approximately 15 km.

In general appearance the plant's closest ally would appear to be *Arum maculatum*. From that species it differs primarily in the rich purple spathe and spadix, which is generally larger than in *Arum maculatum*, the spathes also being shorter than the leaves. Also it has an earlier flowering and fruiting period. The leaves differ in being generally fewer in number, the leaf blade being more hastate and longer. The leaf petiole is generally longer and in all the specimens I encountered stained purple at the base. The leaf-blade in all cases was a rich dark green.

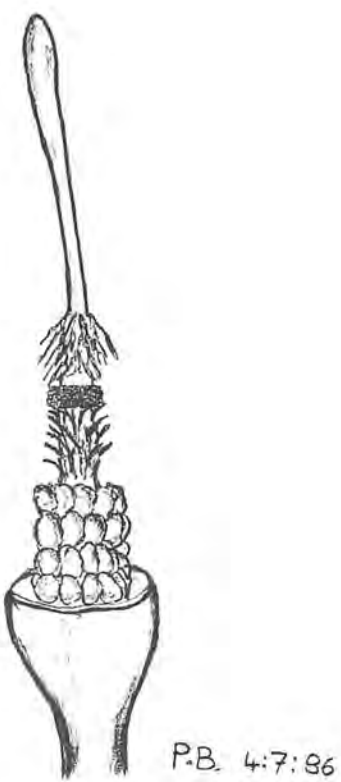
On opening, the Agia Roumeli *Arum* releases a slight but noticeable urine-like smell. This is similar to that of *Arum maculatum* but nowhere near as offensive, not as long lasting. In the specimens collected the tuber was very similar to that of *Arum maculatum* though generally longer. Though I have no reports to substantiate it, I would guess, due to the

condition of the foliage, that the Cretan plant comes into leaf in Autumn or early winter, unlike the spring appearance of *Arum maculatum*.

Based on the above information I feel I have grounds for describing the Agia Roumeli plant as a new species:

Arum purpureospathum Boyce sp. nov. *Arum maculato* similis, sed appendice spadicis spathaque toto atro-purpureo, foliis autumno crescens maioris hastatis non sagittatis differt. TYPE: Agia Roumeli in field beside church. Growing in stony terra rossa and short grass, 6 April 1985. In Herb. Kew.

A perennial Herb; tuber horizontal; leaves appearing in autumn; leaf stalks (10-) 20-25 (-30) cm long, mid to pale green, suffused purple at the base; leaf blade hastate, mid to deep green, immaculate, (10-) 20-30 (-40) cm long, (10-) 15-20 (-25) cm wide at broadest point; plant with usually less than five leaves, occasionally up to seven; spathe wholly dark purple both inside and outside, purple color continuing down most of the stalk; flowering from late February to early April; inflorescences sub-equal to leaves; peduncle 6-8 cm long; spadix dark purple, appendix reaching no further than halfway up spathe limb or even shorter, shortly stipitate, blunt; male zone 9.5 cm long, 0.75 cm in diameter; sterile flowers occurring both above and below male flowers, as in *Arum maculatum*; female zone 2 cm wide 0.75 cm in diameter; a few sterile flowers mixed in with the first row of female flowers; fruiting head (3) 4-6 cm long. Berries 0.25-0.5 cm in diameter, green ripening to orange red; berry containing 1-3 whitish fawn seeds, each 0.2-0.25 cm in diameter.



Arum purpureospathum Boyce. Taken from type specimen (Kew) P.B. 51, Agia Roumeli, Crete, April 5, 1985.