

## Derbyshire Pansies.

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THE name *Viola tricolor* was applied by Linnaeus<sup>1</sup> to what is commonly known as the "heartsease pansy," and he included under this name the cultivated garden pansy, which seems to be of a hybrid nature.<sup>2</sup>

It soon became evident that there were several different heartsease pansies, and in 1762, Hudson<sup>3</sup> recognised the yellow-flowered upland plant as distinct and named it *Viola lutea*. In 1770 Murray<sup>4</sup> separated the small pale-flowered plants as *V. arvensis*, and later Forster gave the name *V. Curtisii* to a plant which grows on Braunton Burrows in Devonshire and elsewhere, and which was described and figured in Smith's *English Botany*, 1831.

In France excellent work was done by Alexis Jordan, who recognised many different forms and described them as species in two valuable works.<sup>5</sup> He was followed by Boreau<sup>6</sup> and others.

The literature relating to the *Melanium* section of the genus *Viola* in Derbyshire is very scanty. The Rev. W. R. Linton in his *Flora of Derbyshire*<sup>7</sup> recorded the presence

<sup>1</sup> *Species Plantarum*, Ed. i., 1753, p. 935.

<sup>2</sup> A short account of the probable origin of the garden pansy was contributed by me to the *Journal of the Royal Horticultural Society*, Vol. xxxv, part 2, 1910, pp. 174-182.

<sup>3</sup> *Flora Anglica*, Ed. i, p. 331.

<sup>4</sup> *Prodromus desig. stirp.* Gott. p. 73.

<sup>5</sup> *Observations sur plusieurs plantes nouvelles, rare ou critique de la France*, 1846 (quoted in the text "Jordan, Obs."); and *Pugillus Plantarum novarum praesertim Gallicarum*, 1852.

<sup>6</sup> *Flore du Centre de la France et du Bassin de la Loire*, Ed. iii, 2 (1857).

<sup>7</sup> 1903, p. 76.

of *V. tricolor* (sensu stricto), *V. arvensis* and *V. lutea* with its variety *amoena*, and in a memoir published in the *Journal of Botany*, 1909, I gave the localities of several plants which I had seen in the county.

For many years I have paid much attention to British and Continental pansies and certain conclusions have been reached which are now in course of publication in the *Journal of Botany*, and it is hoped that a fairly stable arrangement of these plants is being presented. In these circumstances a brief account of the pansies which have been found in Derbyshire may not be without interest. Hitherto my observations have been confined almost entirely to the Coal Measures, Millstone Grit and Carboniferous Limestone districts of the north of the County. The Triassic tract of south Derbyshire is almost unworked and I should be very grateful for specimens from that region.<sup>1</sup>

The pansies in our county fall naturally into four divisions.

#### I. THE ARVENSIS SERIES.

Annual plants of cultivated or broken waste land, with small pale-coloured flowers. The petals are shorter than, or at most equal in length to the sepals.

#### II. THE TRICOLOR SERIES.

Annual plants with large, usually brightly coloured or, in *V. contempta*, pale yellow flowers. The petaline spur is at most very little longer than the sepaline appendages. They occur for the most part as weeds of cultivated soil.

#### III. THE LEPIDA SERIES.

Typically perennial plants with well developed twiggy bases of the branches below the surface of the soil or amongst the surrounding herbage. The flowers are large and showy and the petaline spur is longer than the

<sup>1</sup> The writer would call attention to the fact that mere scraps are useless; in determining specimens it is absolutely necessary to examine fully grown plants showing both roots and stems.

sepaline appendages. Though typically perennial, they flower in the first year before the twiggy bases of the stems are formed, and if disturbed, as they are liable to be in cultivated land, they behave as annuals. In truly native and undisturbed habitats, however, they continue to grow from year to year.

#### IV. THE LUTEA SERIES.

Definitely perennial plants with extensively branching underground stems; flowers large and brightly coloured and the petaline spur very long and slender.

##### I. THE ARVENSIS SERIES.

###### 1. *Viola agrestis* Jordan, *Obs.* ii, 15.

Lateral branches spreading widely; leaves acute; midlobe of the stipule foliaceous, crenate or crenate-dentate; stem, leaves and stipules densely clothed with short hairs which give a dark green or cinereous appearance to the plant.

(*Localities*:—Boythorpe, Hasland, Linacre, Upper Loads, Barlow).

###### 2. *Viola Deseglisei* Boreau, p. 82.

Branches upright or ascending from the base; leaves acute; mid-lobe of the stipule crenate-dentate. The hairy coating is much less dense than in *agrestis* and the colour is a brighter green.

(*Localities*:—Boythorpe, Freebirch, Cathole, Ashover Hay, Cromford).

*Viola subtilis* Jordan ap. Billot, *Fl. France et Allem.* 101, 1855 (nomen); Drabble, *Journ. Bot. Suppl.* p. 3, 1909.

This seems to me to be merely a form of *Deseglisei* with very narrow leaves and mid-lobe of the stipule. I have seen it only at Clown.

###### 3. *Viola segetalis* Jordan, *Obs.* ii, 12.

Stems tall, upright and usually but little branched; leaves acute, pale green; mid-lobe of the stipule narrow, usually entire.

(Localities:—Brampton, Linacre, Norton Lees, Bretton, Eyam).

4. *Viola obtusifolia* Jordan, *Pugillus* p. 23.

A plant with the tall upright habit of *segetalis*, but with very obtuse leaves and crenate foliaceous mid-lobe of the stipule.

(Localities:—Spital, Duckmanton, Brampton, Walton, Grindleford, Bakewell).

5. *Viola latifolia* Drabble, *Journ. Bot.* Oct., 1926, p. 266.

This plant differs from *obtusifolia* in its very spreading habit, very broad leaves and usually long-stalked mid-lobe of the stipule.

(Localities:—Barlow, Newbold, Cathole).

6. *Viola ruralis* Boreau, p. 81.

A plant with spreading branches, obtuse leaves, obtuse mid-lobe of the stipule and linear-oblong lateral lobes arranged in a pinnate manner for some distance up the stipule. Though not common in Derbyshire, in some parts of the county it is the most abundant of the field pansies.

(Localities:—Wingerworth, Repton, Stapenhall).

7. *Viola arvatica* Jordan, *Pugillus* p. 24.

A small plant usually not more than five inches in height, with typically unbranched zig-zag stem, widely divaricate peduncles and small leaves and stipules. When growing among corn it may be considerably updrawn, but the small leaves, long internodes and divaricate peduncles render it readily recognizable. All intermediates between this state and the small typical plant occur.

(Localities:—Linacre, Barlow.)

8. *Viola derelicta* Jordan ap. Billot, *Annot. Fl. France et Allem.*, 101, 1855 (nomen): Drabble, *Journ. Bot. Suppl.*, p. 6. 1909.

This is the smallest of the British pansies, with the

exception of *V. nana* which occurs only on the sea-coast. It has a simple upright stem usually not more than four to six inches in height and unbranched. The only possibility of confusion is with young early flowering plants of other species. To obviate this danger it is necessary to avoid naming any but fully grown pansies. Errors have arisen in the past through neglect of this precaution.

(*Locality*:—Linacre).

## II. THE TRICOLOR SERIES.

9. *Viola contempta* Jordan, *Pugillus* p. 24.

Stem simple or branched from the base; leaves generally acute; stipules more or less pinnately lobed; petals pale yellow, the upper ones occasionally slightly tinged with purple or blue.

(*Localities*:—Elmton, Wingerworth, Eyam).

10. *Viola Lloydii* Jordan ap. Boreau, p. 80.

A very leafy plant; leaves for the most part obtuse; mid-lobe of the stipule rather broad, usually entire; sepals broad like those of the *arvensis* series; petals purple or particoloured.

(*Localities*:—Linacre, Eyam).

11. *Viola Lejeunei* Jordan, *Pugillus* p. 27.

This plant differs from *Lloydii* in having a less densely leafy stem, usually acute leaves of somewhat triangular-rhomboid outline, narrow entire mid-lobe of the stipule and narrow sepals.

(*Localities*:—Norton Lees (I gathered it here twenty years ago on land now occupied by buildings), Eyam, Linacre).

## III. THE LEPIDA SERIES.

12. *Viola lepida* Jordan, *Pugillus* p. 28.

This is a plant with purple or particoloured flowers and the general characteristics of its group. It was

first recognised as British in 1860 when Boreau thus named certain specimens gathered in Glen Shee, Perthshire. It is widely distributed throughout Scotland and England.

(Localities:—Linacre, Freebirch, Cromford, Eyam, Wirksworth).

#### IV. THE LUTEA SERIES.

In British plants of this series I can recognize only one species.

13. *Viola lutea* Hudson, *Flor. Angl.* p. 331.

This plant which is readily recognized by the characters given above for the Series, varies greatly, but all intermediates are found between the extreme forms. In its typical state in upland limestone pastures the aerial flowering stems are short, each bearing one or few long peduncles which greatly overtop the stem. In such situations the Derbyshire plant is predominantly yellow-flowered, but purple-flowered plants do occur, and to such Henslow, in 1829, gave the name var. *amoena*.<sup>1</sup> If the aerial stems are tall, one to one and a half feet in height, the leaves rather broad, and the flowers large, blue, yellow or particoloured, it is the form which was named *V. polychroma* by Kerner,<sup>2</sup> from the Austrian Tyrol. This form makes a splendid show on the hills above Eyam. If the stems are updrawn, the leaves narrow and the flowers rather small it is *V. calaminaria*.<sup>3</sup> In this form I have seen it near Sheldon and Wadshelf. It has been stated over and over again that *V. calaminaria* is characteristic of soils containing calamine (zinc carbonate) and Schimper<sup>4</sup> goes so far as to say that it owes its special characters to the action of zinc and that it

<sup>1</sup> *Catalogue of British Plants*, 3.

<sup>2</sup> *Schedae ad Fl. Exsicc. Austro-Hungar.*, 11, p. 89. (1882).

<sup>3</sup> Lejeune ex de Candolle, *Prodromus* 1, p. 302 (1824); = *V. multicaulis* Koch *Synopsis*, Ed. 2 p. 95, 1843-45.

<sup>4</sup> *Plant Geography*, English Ed., 1903, p. 93.

does not occur except on such soils. On the whole the facts do not support either statement. It does occur off the calamine-containing soils as was correctly stated by Pfeffer,<sup>1</sup> and the Wadshelf station is on the Lower Coal Measures. In fact I do not think that I have seen it anywhere in the neighbourhood of the mines on the Carboniferous Limestone, where a certain amount of calamine may be present in the soil. Moreover Hoffmann<sup>2</sup> found that when grown on soils free from zinc the plant did not change its characters, and that ordinary *lutea* did not assume the characters of *calaminaria* when grown on zinc-containing soils. Schimper states that the characters have been hereditarily induced by the presence of zinc, but for this there is not a particle of evidence and it is amazing to find that his statement has not been challenged long ago. The subject will not be pursued further here as I am dealing with it at greater length elsewhere.

(Localities:—Millers Dale, Coombes Moss near Chapel-en-le-Frith, Sheldon, Ashover, Eyam, Bonsall, Middleton-by-Youlgreave, Cromford, Matlock, Castleton, Buxton, Wirksworth, Blackwall, Wardlow Hay Cop).

A few words may be said about the distribution of these plants in Derbyshire. There are at present too few records to make any conclusions quite secure, but there is no doubt that *V. lutea* and its forms are predominantly plants of the Carboniferous Limestone. The absence of records from the Permian Limestone districts is remarkable. They do occur on the Millstone Grit at the Fabric at Ashover and on the Lower Coal Measures near Wadshelf, but such occurrences are exceptional.

Of *V. lepida* it is less easy to speak with confidence. Of the five records, three are on calcareous soils (Wirksworth,

<sup>1</sup> *Physiology of Plants*, English Ed., 1900, Vol. i, p. 436.

<sup>2</sup> *Botanische Zeitung*, 1875 p. 623; and *Untersuch. über Variation*, 1787 p. 56.

Eyam, and Cromford)—two (Freebirch and Linacre) on siliceous soils.

The large-flowered annual pansies, *contempta*, *Lejeunei* and *Lloydii* are not common in Derbyshire. The records are chiefly from non-calcareous soils, though all three have occurred at Eyam. In the neighbourhood of Eyam, however, we pass so quickly from calcareous to siliceous soils that further observations are required before any far-reaching conclusions can be drawn.

Of the *Arvensis* series, nearly all the records are from siliceous soils.

It is probable that the determining factor in distribution is not directly the presence or absence of large quantities of calcium carbonate in the soil, but the hydrogen-ion concentration, which naturally is lower in the calcareous soils. It is hoped that some light may be shed on the matter when collections of specimens and determination of the pH values of the soil-water have been made.

The object of these notes is to direct the attention of observers in Derbyshire to a group of plants which, perhaps owing to the difficulty of the subject, has been much neglected.

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