



Hunt Institute for Botanical Documentation  
5th Floor, Hunt Library  
Carnegie Mellon University  
4909 Frew Street  
Pittsburgh, PA 15213-3890  
Telephone: 412-268-2434  
Email: [huntinst@andrew.cmu.edu](mailto:huntinst@andrew.cmu.edu)  
Web site: [www.huntbotanical.org](http://www.huntbotanical.org)

The Hunt Institute is committed to making its collections accessible for research. We are pleased to offer this digitized item.

*Usage guidelines*

We have provided this low-resolution, digitized version for research purposes. To inquire about publishing any images from this item, please contact the Institute.

*About the Institute*

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

CAMBRIDGE LOCAL EXAMINATIONS.  
GREAT METROPOLITAN SUCCESSSES.

The Cambridge University Syndicate have issued in the last few days the order of merit of all the candidates who in the 39th examination conducted by them gained the order of merit. Also a full and comprehensive table which shows all the failures and successes of the students. Only the names of successful candidates are given in the class lists, but the candidates themselves who did not succeed in obtaining a certificate can by means of using their initial number as a key ascertain in what subjects they failed. The information now published demonstrates still more the important part Londoners play in these great examinations. 6,401 candidates were successful, and more than one-fourth of these passed at centres in the metropolitan radius. Of 1,589 marks of distinction awarded, no fewer than 454 have been gained by Londoners. In the "order of merit" the following are premier of the whole examination in the subjects referred to:—Seniors—French (52 distinguished): First, Miss L. Pontifex, Thorndon Heath; also distinguished in English and German. Gorman (31 distinguished): First, Miss O. C. Kohler, Hamilton Terrace, near Maida Vale N.W. High School. Botany (10 distinguished): First, Miss S. H. Hatherley, Kingston-on-Thames; also distinguished in music. Drawing (36 distinguished): First, J. Camp, Whitehall Park Upper Holloway; also distinguished in arithmetic, religious knowledge and French. Music (23 distinguished): First, D. V. Tovey, Baywater. Juniors: Mathematics (136 distinguished). First, E. Hackforth, 29, Lewisham-road, N.W. (Owen's School, Islington), also distinguished in arithmetic, religious knowledge, English, Latin, French, physical geography and drawing. Botany (15 distinguished): First, Miss A. Robertson, Elsworth Terrace, Primrose Hill, also distinguished in French.—It is worthy of note that whilst the senior candidates in the Metropolitan Division obtained 107 marks of distinction, the juniors secured 347. Of the latter, 32 were distinguished in Latin, 41 in mathematics, and 68 in French.

Summer Holidays

1894

sum inside my  
Volume 1902-7

Red Toad flax Documenta  
ria Gymbalania

21076  
2nd June 1893  
when 210011

# Botany

mva

Agnes Roberts

## The Ivy-leaved Toadflax (*Linaria cymbalaria*)

### Classification

Kingdom	Vegetabilia	Stem & leaves contain chlorophyll
Sub	Phanerogamia	Plant forms seeds
Division	Angiosperms	Seeds enclosed in ovaries
Class	Dicotyledones	Leaves have net veins Two cotyledones in seeds Tap root
Sub Class	Gamopetalae	Petals united
Series	Hypogynae	Pistil superior
Order	Scrophulariaceae	Irregular corolla, ovary two celled, style terminal
Genus	<i>Antirrhinum</i> or <i>Linaria</i>	Corolla (swollen at base) spurred
Species	<i>cymbalaria</i>	Leaves 5 lobed, stem creeping



Six drawings made at intervals of a week, to shew

the development of one plant.

I

Saturday August 11<sup>th</sup> 1894



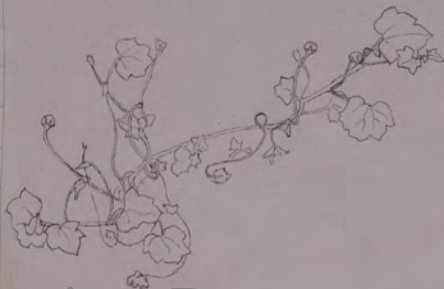
II

Saturday August 18<sup>th</sup> 1894



V

Saturday Sept. 1 1894



III

Saturday August 25<sup>th</sup> 1894



IV

Saturday August 28<sup>th</sup> 1894



VI

Saturday Sept 8<sup>th</sup>



Digitized by Hunt Institute for Botanical Documentation

4  
This pretty little trailing plant is now perfectly naturalized on old walls & sometimes on rocks over the whole of England, & the southern half of Scotland. In 1597 Gerard says that it "grows wilde upon walls in Italie, but in gardens with us; & in 1816 we read in Green's Herbal that it "is a native of Italy; but now become common upon walls in & near London". It was known in Worcestershire forty years ago & probably earlier. It is also known in France under the names of *linace* *Cymbalaire*, *Miere de mille enfants*, & *Lierre de la terre*. Its Dutch name is *Muur bloemtje* (wall bloom); in Germany it is called *Ephenblättriger* or *Frauenflachs*. It has many English names of which the most common are Ivy leaved toadflax, Ivy leaved snapdragon, & Matrimony. In some places it is called Oxford weed, & in the western counties, Mother of Thousands.

Its local Sussex names are Hitty-run-in-the-street,

<sup>1</sup> Sowley <sup>2</sup> Baxke <sup>3</sup> Johns. Flowers of the field.

95  
Hoving sailor, & Creeping Jenny. These names mostly refer either to the way in which the plant creeps about the walls where it grows, "by help of its long rooting stems," or the ready way in which it reproduces itself by its abundant seeds.

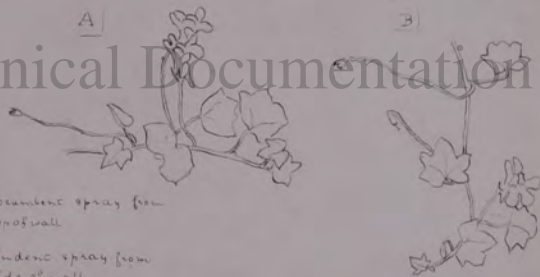
The syllable 'flax' in Toadflax, & the name *Linaria*, were given to the genus to which this plant belongs, because its principal member, the yellow Toadflax, had leaves like *linum* (flax). The distinguishing characteristic of the genus is the form of its flowers, so a little plant is called *Linaria* from the shape of its blossoms, although its leaves bear no resemblance to those of the flax plant. It was formerly referred to the genus *Anthrabinum*, (snapdragon), but is now separated from it, on account of its spurred corolla. "*Anthrabinum*" in Greek signifies 'opposite the nose', from the mask-like appearance of the flowers." The Greek actors always used masks; & as they had to make themselves heard out of doors, these had large 'Arnold. Flora of Sussex. <sup>2</sup> Johns

mouth openings. This explains why the snapdragon flower is called "personate" (mask-like), & how it got its generic name of *Antirrhinum*, by being, as a country child once told me, "the flower that opens its mouth." Gerard says that the snapdragon, called snout, or "Todeflax" has "flowers fashioned like a frog's mouth, or rather a dragon's mouth, from whence women have taken the name *Antirrhinum*." This explains the origin of the syllable "toad" in "toadflax."

The <sup>Latin</sup> name, *Cymbalaria* or *Cymbalaria*, (from the Latin *Cymbalum*, a cymbal) is the one which Gerard uses, calling it *Cymbalaria Italica*, & saying "Matthioli calls it *Cymbalaria* (to which Lobel adds) *Italica Hederaefolia* — & lastly Columna calls it *Linaria hederaefolia*," of which our name, Ivy leaved toadflax is a literal translation. We also read that Bauhin sets it between *Hedera terrestris* (ivy) & *hastatum Indicum*

(a species of cress), apparently from the form & flavour of its leaves.

The whole plant is "dark green & glabrous," & consists of numerous slender red tinged stems, from 3 inches to 2 feet long, procumbent when growing on the top, & pendent when on the side of a wall.



A. procumbent spray from top of wall

B. pendent spray from side of wall

"The branches are many, long, slender, & creeping upon which grow, without any certain order many little smooth thick leaves fashioned like those of ivy, & fastened to stalks of  
Sowerby

some inch long. The root is small, creeping & thredlike, & adventitious roots are formed on the long runners.

August 25<sup>th</sup>  
1892



Runner with  
adventitious  
1892

The growth appears to be quickest in hot weather, for a plant that I drew at intervals of a week for six weeks, grew more between August 25<sup>th</sup> & September 1<sup>st</sup> which was a fine sunny week, than in all the weeks before which were dull & rainy, (except 2<sup>nd</sup>) but Gerard says "They are green & flourish especially in winter." An old countryman told me that the winter storms sometimes  
'Gerard

for the plant in great masses, "backwards off the wall," & it had to begin freshly to cover the bricks, which it had formerly clothed with a "thick tapestry."

The fleshy leaves are shorter than their petioles, & usually five-lobed. Their form varies almost as much as that of the ivy leaves.



"Green's herbal



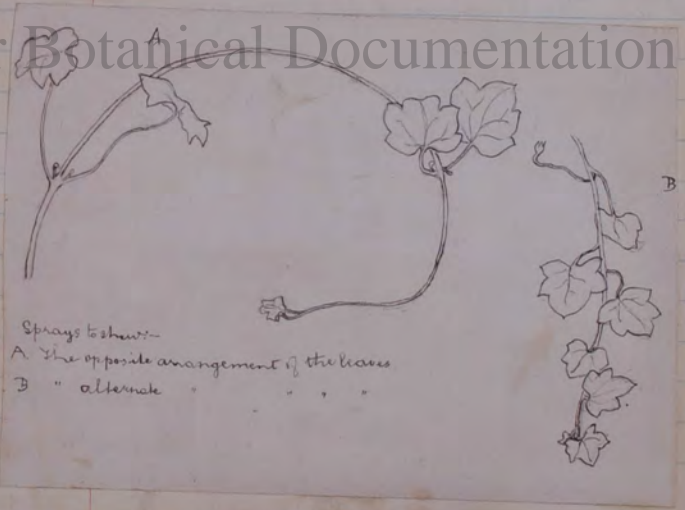
Digitized by Hunt Institute for Botanical Documentation

The stems & leaves are often very much  
 imbedded with red, the colouring matter  
 seeming to reside in the epidermis,  
 which peels off in transparent shreds



Spray showing red tinged  
 stems & leaves.

I measured 20 apparently fully developed  
 leaves, & found the average length to be  
 rather more than 2 centimetres, & the  
 average width about 4 centimetres. The  
 largest I found were 3 cent. 4 mill: by  
 5 cent. 5 mill: & 3 cent. 7 mill: by 5 cent. 14 mill:  
 though the leaves are usually alternate,  
 they are sometimes found in opposite  
 pairs



Sprays to show:-  
 A. The opposite arrangement of the leaves  
 B. " alternate



In southern Europe the plant is eaten as a salad, & is a good antiscorbutic, fully administered in diabetes in Hindostan, being first mixed with sugar.

"The decoction of *Sida* takes away the yellownesse & deformities of the skinne, being washed & bathed therewith, & it is singular good against the jaundice which is of long continuance."

The flavour of the leaves is rather unimproved, but bitter & pungent. Some people who tasted it compared it respectively to the flavour of watercress, endive, nasturtium, & young hawthorn leaves.

My great-grandmother, a Worcestershire woman, used to speak of a salad prepared from the "*matrimony*", but I have been unable to find any recipe for it.

If a bunch of the leaves & stems be offered to a horse or rabbit, he eats it

<sup>1</sup>. Sowerby <sup>2</sup>. Gerard

eagerly. The ivy-leaved *Sida* is often found growing all among the ivy, sometimes really overtopping it, & helping itself along by the ivy's sprays. It thus seems that this little plant, whose leaves are "lobed so as to resemble miniature ivy leaves", has imitated their form in order to protect itself from horses, cattle, & other creatures, who will not eat ivy because it is so very bitter, & who probably mistake the edible *Sida* for the unpalatable ivy, & so leave it alone. Though this supposition cannot be absolutely proved, it seems at least to be in accordance with the theories of evolution.

The inflorescence is axillary; the flowers growing separately on long, slender peduncles.

Diagram showing  
axillary  
inflorescence



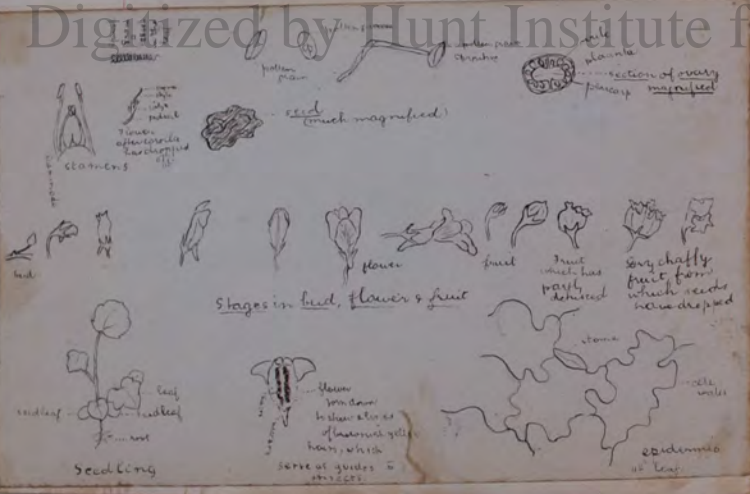
<sup>1</sup>. Sowerby

Gerard gives a quaint description of the blossom. He says, (speaking of the petioles), "with these stalkes come forth others of the same length, that carry spun fashioned flowers of the shape & bignesse of the female Thullen, their outside is purple, their inside blew, with a shot of yellow in the opening." When Gerard speaks of the "shot of yellow" he probably refers to the two lines of brownish yellow hairs in the tube on which the pollen falls. These two rows of hairs serve as hedges to a little path going straight down to the nectary. This path starts between the two yellow spots on the palate. There is a little dip between them, & I have seen a moth settle, & put his proboscis into the flower between the two swollen spots & down between the rows of hairs to the honey bag. He must

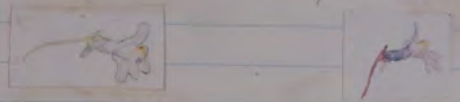
have got some pollen off the hairs on to his proboscis, & so carried it to another flower. Besides the brown moths I have seen a bee & a curious long-bodied, greyish, hairy fly going into the flowers. I saw the fly going in three times, & settling on the flowers or leaves without going in four times, & I saw the bee go in twice. I have not seen enough insects to account for the cross-fertilization of the majority of the flowers, but they may be fertilized at night by moths etc, or possibly they are sometimes self-fertilized. I have twice been out at night with a lantern to see if the flowers are visited by <sup>nocturnal</sup> insects, but I could find none. It was not very warm weather which perhaps may account for <sup>my</sup> <sup>unsuccess.</sup>

There are four didynamous stamens, whose anthers, when dehiscing, adhere

slightly in pairs. Between the inner & shorter pair is a staminode, shewing that the irregular flower is a development of the regular type with 5 stamens, from which all the Scrophulariaceae seem to have evolved. We find a staminode also in the genus *scrophularia* (figwood) where the fifth stamen is represented by a small scale.



The flowers vary a good deal in colour, being pale when <sup>growing</sup> in the shade & much darker when in the full sunlight



Flower which grew in the shade

Flower which grew in the sunlight

I have found several curious abnormal blossoms. Two of them {A}, {B} seemed reverting to a simpler form by losing the spur, & one of the lobes of the lower lip, & the three others {C}, {D} & {E} seemed gradually tending towards a "peloria". I give a drawing, from a dried specimen, of the "peloria" variety of *dianthus vulgaris*.



1 lobe (Anemone-like)

I have found 2 less important modifications of the blossom, in which the upper lip was respectively almost underdeveloped & not 2 partite. I give a comparative table, shewing how the sports A, B, C, D & E differed from normal flowers.

flower with underdeveloped upper lip

comparative table, shewing how the sports A, B, C, D & E differed from normal flowers.

Normal Flower A & note	Normal Flower B	Normal Flower C	Normal Flower D	Normal Flower E	Normal Flower F
4	5	6	5	8	8
2 perianth	2 perianth	2 perianth	2 perianth	2 perianth	2 perianth
none	1	10 beginning 1/2	2	11	11
2	2	4	2 (apparently faded)	6	6
1	1	3	3	5	5
1	1 (f)	2	2	4	4
3, no stamens	4 (f) 4 stamens	4 + stamens	4 stamens	5 stamens 3 long 2 short	7 (3) stamens

Drawings:

half sepals

upper part of  
corolla

no of stamens

no of lobes to  
lower lip.

no of stamens on  
perianth

no. of times of  
orange brown  
marks on throat

3rd number  
of stamens

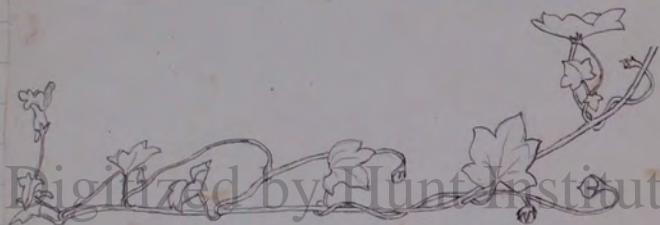
The flowers turn to the light, away from the wall on which they grow. When the corolla falls off, the peduncle lengthens, turns, & curves back, until the capsule touches the wall, or at least gets near it. Very often the capsules partially bury themselves in the earth in the chinks of the walls. This is a very economical proceeding, as the seeds get nicely sown in the wall, instead of being dropped on to the earth beneath, where they would have scarcely any chance against the grasses.

I measured four peduncles when the flower was in perfection & afterwards when the fruit had attained its maximum size. I give the measurements

When flower was in perfection	When fruit had reached its maximum size
1 cent: 2 mill	3 cent 8 mill
3 cent 2 mill	6 cent 4 mill
1 cent	2 cent 4 mill
1 cent 2 mill	4 cent 4 mill

The longest peduncle with a capsule that I measured was 9 centimetres, but I do not know how much it had increased since it was in flower.

Sketch showing capsules turning to the wall. Sepius.



The capsules are "about the size of a coriander seed". The seeds are first whitish green, then yellow, & afterwards black. They are rough & wrinkled. The flowers yield a yellow, but not very permanent dye. I have done what I could in the six weeks during which I was able to observe this plant, but I feel that I am only on the  
"Society"

threshold of an almost inexhaustible subject, & that it would need the careful observations of years to make a complete monograph of the Ivy leavedoadflax.

Additional Notes.

Time of Flowering On Wed: Dec 26<sup>th</sup> 1894, I found some plants of the wy leaved Hoad flax on a wall at Ewhurst Surrey, bearing several flowers & buds.

Condition in winter N. B. The weather was unusually mild I brought home a plant from this wall & it is now (Jan 12<sup>th</sup> 1896) flourishing in my garden. I can fully endorse Gerard's statement that it is green & flourishes especially in winter, for in the cold season it produces a very large number of small <sup>green</sup> leaves, & looks very healthy

Abnormal flower I found a 3 spurred flower at Winchelsea in August 1896. I made a drawing of it which I have unfortunately lost.

State at Winchelsea in 1894 & 1895 The plant flourished in abundance <sup>the late summer</sup> in 1894 when I visited Winchelsea in 1894 & 1895

but going to Winchelsea at the same time in 1895 I found the quantity much diminished, probably owing to the severe frost in the winter between my two visits.

Names. In September 1897 I heard the ivy leaved deadflax called "rabbit-mouth".

Plant in garden. The plant I brought from Rushcut on December 26 1894 is still flowering very well.

Quotation from Hermann Müller's "Feldkuchen & Flowers"

"*Linaria Cymbalaria*, Mill. is visited chiefly by bees. Cleistogamous flowers occur in *Linaria* according to Mouchalet & Kuhn.

Sept 25, 1894

I saw a curious variety of the plant cultivated at Kew. The flowers were white & the spots on the lip pale yellow. The leaves were more cut into than in the normal plant. It was marked

*Linaria Cymbalaria*

Var. fl. alba

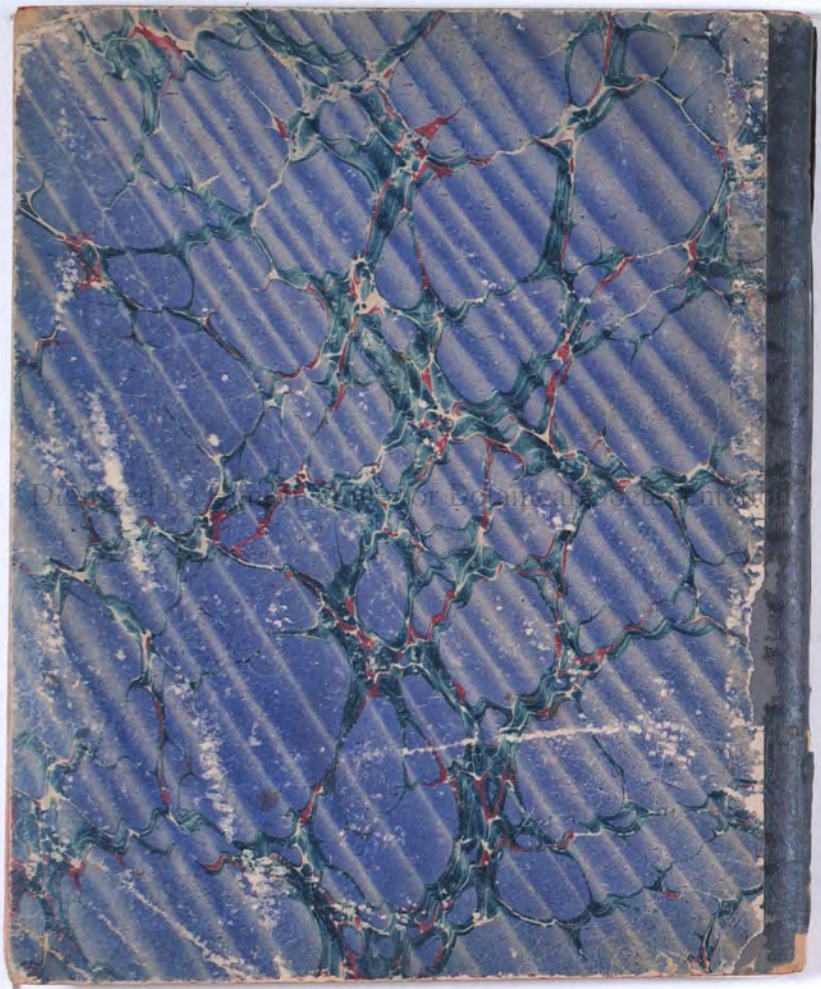
The plant was growing out of cracks in the rock garden.

Digitized by Hunt Institute for Botanical Documentation

Digitized by Hunt Institute for Botanical Documentation







Digitized by Google for EOLIA Project