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Jane Haldimand Marcet (1769–1858) wrote across a range of topics, from natural philosophy to political economy. Her educational books were especially intended for female students, to combat the prevalent idea that science and economics were unsuitable for women, but they found broader popularity: Michael Faraday, as a young bookbinder's apprentice, credited Marcet with introducing him to electrochemistry. This two-volume work, first published in 1829, is a beginner's guide to botany. Since the chief aim was accessibility, Marcet does not dwell on the often burdensome process of plant classification, but focuses on plant forms and botany's practical applications. She presents the facts in the form of simple conversations between two students and their teacher. Based on the lectures of the Swiss botanist Candolle, Volume 1 introduces roots, leaves, sap, and the effects of different soil and air.

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# Conversations on Vegetable Physiology

*Comprehending the Elements of Botany,  
with their Application to Agriculture*

VOLUME 1

JANE HALDIMAND MARCET



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Hooker, William Jackson: *Icones Plantarum* (10 vols., 1837–54)  
[ISBN 9781108039314]

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Perring, Franklyn Hugh et al.: *A Flora of Cambridgeshire* (1964)  
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ON  
VEGETABLE PHYSIOLOGY;

COMPREHENDING  
THE ELEMENTS OF BOTANY,  
WITH  
THEIR APPLICATION TO AGRICULTURE.

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BY THE AUTHOR OF  
"CONVERSATIONS ON CHEMISTRY," "NATURAL PHILOSOPHY,"  
&c. &c.

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## PREFACE.

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THE favourable reception which the former works of the Author have met with, encourages her to offer these volumes to the public. In doing so, she cannot but feel diffident of success, as the subject of the present work is one, with which she has but recently become acquainted. Yet the source from which her knowledge of the vegetable creation is derived, makes her hope, that this new mode of studying Botany may be found interesting and useful.

The reader will perceive that the facts and opinions contained in the following pages, are almost exclusively taken from the lectures of a distinguished Professor of Geneva. To him, indeed, whatever merit may be found in this work, is due. The instruction and amusement which the Au-

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thor derived from his lectures, led her to think, that she might, under the form of Conversation, convey a part of that interest to the minds of others. All she can lay claim to, is having arranged the subject in that form, which has always appeared to her, to possess great clearness and advantage, in fixing the attention of young people.

In acknowledging her obligations for the encouragement and assistance which that friend has so kindly given her, she must at the same time consider herself responsible for any errors, or inaccuracies which, either through inattention or want of knowledge, may have crept into the work.

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## PLATE I.

## THE COMMON PEA.

*Pisum vulgaris* ; Leguminous family, Dicotyledon.

- a*, Stem.  
*b b*, Stipula.  
*c c*, Petiole, or common leaf stalk.  
*d d*, Folioles of the compound leaf.  
*e e*, Apex of the leaf.  
*f f*, Tendril, terminating the petiole of the leaf.  
*g g*, Peduncle or flower-stalk, springing from the  
axilla, and dividing it into two pedicels.  
*i i*, Pedicels.  
*k k*, Axilla of the leaf.  
*l*, The flower.  
*m m*, The calyx.  
*n n*, The corolla.  
*o*, The standard or superior petal.  
*p p*, The two wings or lateral petals.  
*q*, The carina, or two lower petals soldered to-  
gether, seen interiorly.  
*r*, The torus, or base of the flower.  
*s*, The stamens, nine of which are half soldered  
together by their filaments.  
*s*<sup>1</sup>, The tenth stamen free.  
*t t*, The anthers.  
*v u w*, The pistil — *v*, the ovary ; *u*, the style ; *w*, the  
stigma, bearded.

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**PLATES.**

- x*, The fruit or pod, of which a portion has been removed in order to show the seeds.
- yy*, The seeds attached to the upper suture of the pericarp.
- zz*, Firmeules or ligatures attaching the seeds to the pericarp.
- y<sup>1</sup>*, A seed detached.
- y<sup>2</sup>*, The cicatrice.
- y<sup>3</sup>*, The seed split open, showing the embryo plant and the two cotyledons.
- A*, The radicle.
- B B*, The two fleshy cotyledons.
- C*, The plumula.

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## PLATE II.

## WILD TULIP.

*Tulipa sylvestris*; family Liliaceous, Monocotyledon.

- a*, Stem.
- b*, That part of the stem which forms the peduncle  
of the flower.
- c c c*, Leaves.
- d d*, Flowers with six pieces disposed in two rows,  
bearing the name of Perigone.
- e*, Torus, or base of the organs of the flower.
- f*, Filaments of the stamens bearded at their base.
- f*<sup>1</sup>, The anthers.
- g*, The pistil composed of the ovary and the  
stigma, having no style.
- g*<sup>1</sup>, The ovary.
- g*<sup>2</sup>, The stigma crowning the ovary, composed of  
three cells.
- C c*, The pistil enlarged and grown into a fruit.
- C c*<sup>1</sup>, The cut open, to show the three cells, separated  
by partitions, and enclosing each two rows of  
seeds attached to the centre of each cell.
- h*, A separate seed.
- h*<sup>1</sup>, The same cut through lengthwise, to show the  
spermoderm, the albumen, and the em-  
bryon.
- i*, The spermoderm.
- k*, The albumen.

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**PLATES.**

- l*, The embryo.  
*l*<sup>1</sup>, The embryo alone, showing it to be of one  
piece or monocotyledon.  
*m*, The bulb.  
*n*, The base, representing the trunk or stem.  
*o*, The roots.  
*p*, A lateral branch.

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## PLATE III.

## CHINA-ASTER.

*Aster Chinensis* ; Syngenesios family, or Compound  
Flower.

- a*, The stem.  
*b*, A branch.  
*cc*, Leaves.  
*d*, A head not blown.  
*d*<sup>1</sup>, A head in blossom.  
*e e*, Folioles composing the involucre.  
*f*, Floral leaves, approximating to the form of the  
folioles of the involucre.  
*g*, Ligulate florets situated around the disk.  
*g*<sup>1</sup>, A single floret remaining on the head, all the  
others being taken off.  
*h*, Tubular florets situated on the disk or centre  
of the head.  
*h*<sup>1</sup>, A single tubular floret remaining on the disk.  
*g*<sup>11</sup>, A ligulate floret magnified.  
*i*, Tube of the calyx soldered on the ovary.  
*k*, Edges of the calyx terminating in layers or  
pappus.  
*l*, Ligulate petal terminating in fine teeth.  
*m*, Two stigmas.  
*h*<sup>11</sup>, A tubular floret magnified.  
*i*<sup>1</sup>, Tube of the calyx soldered on the ovary.  
*k*<sup>1</sup>, Pappus crowning the calyx.

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## PLATES.

- l*, Tubular petal terminating in fine teeth.  
*m*<sup>1</sup>, Stigma *s*.  
*n*, Upper part of the style bearing the stigmas.  
*n*<sup>1</sup>, The same magnified.  
*n*<sup>11</sup>, The lower part of the style.  
*m*<sup>11</sup>, The two stigmas enlarged to see the sweeping  
hairs.  
*l*<sup>11</sup>, Tubular petal split lengthways and spread  
open.  
*o o*, The fine filaments of the stamens.  
*pp*, The five anthers soldered together, and forming  
a tube.  
*q*, The fruit entire crowned by the pappus.  
*r*, The fruit magnified.  
*s*, The cicatrice, by which the fruit adheres to the  
receptacle.  
*t*, The border of calyx magnified, showing a single  
hair truncated, inserted in a ring of teeth,  
the rest of the hairs being pulled off.  
*u*, The embryo, in which may be distinguished  
the radicle and the two cotyledons.  
*x*, Receptacle of the florets.



PLATE IV.

*Fig. 1.*

GERMINATION OF A MONOCOTYLEDON, OR ENDOGENOUS  
PLANT.

*The Scheuchzeria palustris.*

- a*, Pivot or radicle.
- b b*, Accessory roots shooting from the bottom of  
the stem.
- c*, Cotyledon or first leaf.
- d d'*, Second and third leaves, called primordial.
- c c*, Common leaves of the plant.

*Fig. 2.*

HORIZONTAL SECTION OF THE STEM OF A MONOCO-  
TYLEDON, OR ENDOGENOUS PLANT.

*Yucca aloifolia.*

Showing the scattered fibres which compose the  
wood, having neither bark, pith, medullary  
rays, nor distinct layers.

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## PLATES.

*Fig. 3.*GERMINATION OF A DICOTYLEDON, OR EXOGENOUS  
PLANT.*Daubnentonia punic a.*

- a,* Radicle slightly branching.  
*b,* Neck or vital point between the root and the stem.  
*t,* Portion of the stem below the cotyledons.  
*T,* Portion of the stem above the cotyledons  
*c c,* Two opposite cotyledons.  
*d,* A simple primordial leaf.  
*ff,* Common leaves.

*Fig. 4.*VERTICAL SECTION OF THE STEM OF A DICOTYLEDON,  
OR EXOGENOUS PLANT.The *Oak*.

- a b,* The bark, composed of the vertical layers *a*, and the internal bark *b*.  
*c d e,* The wood, composed of the alburnum or young wood *c*, the perfect wood *d*, and the pith *e*.  
 The circular zones represent the layers of wood, and the lines, diverging from the centre the medullary rays.

*Fig. 5.*A BRANCH TURNING ITS LEAVES TOWARDS THE  
LIGHT.