The Loves of the Plants
by Erasmus Darwin

AUM Critical Edition
Editors

Juanita Barrett
EmilyRae Burton
Caitlin Celka
Marlee Damrel
Shaina Hoffman
Seth T. Reno
Matthew Shoemaker
Sarah Smith
Luke Woodward
The Loves of the Plants: AUM Critical Edition

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Introduction

Erasmus Darwin (1731-1802) was a Romantic-era polymath. Throughout the last four decades of the eighteenth century, he published prolifically on subjects ranging from botany to biology to climatology to evolution. He was a founding member of the Lunar Society, a group of renowned scientists and intellectuals who met regularly during the full moon to discuss new ideas and discoveries. Prominent members included Matthew Boulton, co-inventor of the steam engine; John Whitehurst, an early geologist; and Joseph Priestly, who is credited with the discovery of oxygen. Benjamin Franklin visited the group in the late 1750s and early 1760s during his experimentations with electricity.

In addition to his scientific work, Darwin was a popular and successful poet. He is perhaps best known for his scientific poem *The Loves of the Plants* (1789), which brought plants to life, as it were, by imagining their loving relationships through the Linnaean taxonomy based on sexual reproduction. His poem was widely read by scientists, poets, and general readers, going through several editions as the second part of a longer scientific poem, *The Botanic Garden*, throughout the 1790s. Darwin’s final poem, *The Temple of Nature*, was published posthumously in 1803, and it outlines his theory of evolution. This work would go on to influence his grandson, Charles Darwin, who solidified the theory of evolution in *On the Origin of Species* (1859).

Despite Darwin’s popularity in the 1790s, many conservative figures did not look kindly on his work. *The Loves of the Plants* was published in 1789, the same year as the French Revolution, and the British government was fearful that a similar revolution would occur in England. Many officials turned a suspicious eye on anything that seemed revolutionary, and Darwin’s poem certainly raised some eyebrows. After all, a poem about the sexual lives of plants was sure to receive much attention. In particular, Darwin’s ideas about evolution and sexuality appeared to challenge Christian orthodoxy, and his depictions of polyamorous plants seemed to support the “free love” theory associated with radical revolutionary groups who wished to bring democracy to Britain. As a result, there was a conservative backlash against the poem, which only intensified with its subsequent publications throughout the 1790s. But the people had spoken: Darwin’s poem was a commercial success. Over the next 30 years, a range of scientists and poets would read, respond to, and develop upon *The Loves of the Plants*, including William Wordsworth, Samuel Taylor Coleridge, and Percy Shelley. Mary Shelley even references Darwin’s experiments in the preface to *Frankenstein*. Today, scholars consider Darwin to be central figure in the scientific and literary circles of the Romantic era.

However, many contemporary readers and students know little about Darwin’s contributions to literature and science. One does not find Darwin’s works in anthologies of British literature, and there are few critical editions of his works available to the general public. Yet, Darwin’s writings are essential to a full understanding of British Romantic literature, as well as the interactions between politics, science, and literature in the 1790s. In this open-access critical edition of Darwin’s most popular scientific poem, *The Loves of the Plants*, we aim to make Darwin more accessible to general readers and to students of literature and science.
This AUM Critical Edition offers an annotated version of *The Loves of the Plants* as it was published in 1791 as the second part of *The Botanic Garden*. A group of eight students and one professor from Auburn University at Montgomery carefully transcribed the original text from a digitized copy of the poem available on Eighteenth Century Collections Online (ECCO). This edition provides all of the text related to the poem, including Darwin’s extensive footnotes, which are fascinating in and of themselves. The editors have also included scholarly annotations in the form of additional footnotes. These annotations aim to help readers of Darwin’s poem understand unfamiliar references and terminology.

First-time readers should not be daunted at the number of footnotes in the poem: on many pages, the footnotes outweigh the lines of poetry. Darwin’s goal was to separate poetic language (the poem itself) from scientific language (the footnotes). Most of the footnotes contain details on Linnaean taxonomy, overviews of Darwin’s experiments, and references to other scientific works. In other words, these are not typical footnotes that offer a brief explanation; they form a scientific counter-text to read alongside the poem. This parallel structure is one of the unique elements of Darwin’s poem, but it is also quite strange to modern readers. It is our hope that the scholarly annotations we have provided will be more useful in helping to explain the poem. Each of these annotations, which also appear as footnotes, begin with the bolded phrase “**Editor’s Note**” in order to help distinguish our notes from those of Darwin.

Darwin was a fascinating scientist-poet, and *The Loves of the Plants* is one of the most weirdly wonderful poems of the Romantic era. We hope this critical edition will make his poem more accessible and available to readers in the twenty-first century.
The

BOTANIC GARDEN,
Part II.
containing
The Loves of the Plants,
a
POEM
with
Philosophical Notes

Volume the Second.

Vivunt in Venerim prondes; nemus omne per altum
Felix arbor amat; nutant ad mutua Palmae
Faedera, populeo suspirat Populus ictu,
Et Platani Platanis, Alnoque assibilat Alnus.

Claud. Epith.

Lichfield: Printed by J. Jackson.
Sold by J. Johnson, St. Paul's Church Yard, London:
M, CDD, LXXXIX
Proem.

Gentle Reader!

Lo, here a CAMERA OBSCURA is presented to thy view, in which are lights and shades dancing on a whited canvas, and magnified into apparent life!—if thou art perfectly at leisure for such trivial amusement, walk in, and view the wonders of my INCHANTED GARDEN.

Whereas P. OVIDIUS NASO, a great Necromancer in the famous Court of AUGUSTUS CEASAR, did by art poetic transmute Men, Women, and even Gods and Goddesses, into Trees and Flowers; I have undertaken by similar art to restore some of them to their original animality, after having remained prisoners so long in their respective vegetable mansions; and have here exhibited them before thee. Which thou may’st contemplate as diverse little pictures suspended over the chimney of a Lady’s dressing-room, connected only by a slight festoon of ribbons. And which, though thou may’st not be acquainted with the originals, may amuse thee by the beauty of their persons, their graceful attitudes, or the brilliancy of their dress.

FAREWELL.
ADVERTISEMENT

The general design of the following sheets is to inlist Imagination under the banner of Science, and to lead her votaries from the looser analogies, which dress out the imagery of poetry, to the stricter ones, which form the ratiocination of philosophy. While their particular design is to induce the ingenious to cultivate the knowledge of BOTANY; by introducing them to the vestibule of that delightful science, and recommending to their attention the immortal works of the celebrated Swedish Naturalist LINNEUS.¹

In the first Poem, or Economy of Vegetation, the physiology of Plants is deliver’d; and the operation of the Elements, as far as they may be supported to affect the growth of Vegetables. But the publication of this part is defer’d to another year, for the purpose of repeating some experiments on vegetation, mentioned in the notes. In the second poem, or LOVES OF THE PLANTS, which is here presented to the Reader, the Sexual System of Linneus is explain’d, with the remarkable properties of many particular plants.

The author withheld this work, (excepting a few pages) many years from the press, according to the rule of Horace, hoping to have render’d it more worthy the acceptance of the public,—but finds at length, that he is less able, from disuse, to correct the poetry; and, from want of leisure to amplify the annotations.

¹ Editor’s Note: Carl Linnaeus (1707-1778) was a Swedish botanist credited with creating the modern system of taxonomy and classification called binomial nomenclature. In this system, plants and animals are named in Latin with two parts, the genus and the species. For example, humans are Homo (genus) sapiens (species).
LINNEUS has divided the vegetable world into 24 Classes; these Classes into about 120 Orders; these Orders contain about 2000 Families, or Genera; and these Families about 20,000 Species; besides the innumerable Varieties, which the accidents of climate, or cultivation have added to these Species.

The Classes are distinguished from each other in this ingenious system, by the number, situation, adhesion, or reciprocal proportion of the males in each flower. The Orders, in many of these Classes, are distinguished by the number, or other circumstances of the females. The Families, or Genera, are characterized by the analogy of all the parts of the flower or fructification. The Species are distinguished by the foliage of the plant; and the Varieties by any accidental circumstance or colour, taste, or odour; the seeds of these do not always produce plants similar to the parent; as in our numerous fruit-trees and garden flowers; which are propagated by grafts or layers.

The first eleven Classes include the plants, in whose flowers both the sexes reside; and in which the Males or Stamens are neither united, nor unequal in height when at maturity; and are therefore distinguished from each other simply by the number of males in each flower, as is seen in the annexed PLATE, copied from the Dictionaire Botanique of M. BULLIARD, in which the numbers of each division refer to the Botanic Classes.

CLASS I. ONE MALE, *Monandria*; includes the plants which possess but One Stamen in each flower.
II. TWO MALES, *Diandria*. Two Stamens.
III. THREE MALES, *Triandria*. Three Stamens
IV. FOUR MALES, *Tetrandria*. Four Stamens
VI. SIX MALES, *Hexandria*. Six Stamens
VII. SEVEN MALES, *Heptandria*. Seven Stamens.
XI. ELEVEN MALES, *Dodecandria*. Twelve Stamens.

The next two Classes are distinguished not only by the number of equal and disunited males, as in the above eleven Classes, but require an additional circumstance to be attended to, *viz.* whether the males or stamens be situated on the calyx, or not.

XII. TWENTY MALES, *Icosandria*. Twenty Stamens inserted on the calyx or flower-cup; as is well seen in the last Figure of No. xii. in the annexed Plate.
XIII. MANY MALES, *Polyandria*. From 20 to 100 Stamens, which do not adhere to the calyx; as is well seen in the first Figure of No. xiii. in the annexed Plate.

In the next two Classes, not only the number of stamens are to be observed, but the reciprocal proportions in respect to height.
XIV. TWO POWERS, *Didynamia*. Four Stamens, of which two are lower than the other two; as is seen in the two first Figures of No. xiv.

XV. FOUR POWERS, *Tetradynamia*. Six Stamens; of which four are taller, and the two lower ones opposite to each other; as is seen in the third Figure of the upper row in No. xv.

The five subsequent Classes are distinguished not by the number of the males, or stamens, but by their union or adhesion, either by their anthers, or filaments, or to the female or pistil.

XVI. ONE BROTHERHOOD, *Monadelphia*. Many Stamens united by the filaments into one company; as in the second Figure below of No. xvi.

XVII. TWO BROTHERHOODS, *Diadelphia*. Many Stamens united by their filaments into two companies; as in the uppermost Figure No. xvii.

XVIII. CONFEDERATE MALES, *Syngenefia*. Many Stamens united by their anthers; as in first and second Figures, No. xix.

XX. FEMININE MALES, *Gynandria*. Many Stamens attached to the pistil.

The next three Classes consist of plants, whose flowers contain but one of the sexes; or if some of them contain both sexes, there are other flowers accompanying them of but one sex.

XXI. ONE HOUSE, *Monaecia*. Male flowers and female flowers separate, but on the same plant.

XXII. TWO HOUSES, *Diaecia*. Male flowers and female flowers separate, on different plants.

XXIII. POLYGAMY, *Polygamina*. Male and female flowers on one or more plants, which have at the same time flowers of both sexes.

The last Class contains the plants whose flowers are not discernible.

XXIV. CLANDESTINE MARRIAGE, *Cryptogamia*.

The Orders of the first thirteen Classes are founded on the number of Females, or Pistils, and distinguished by the names, ONE FEMALE, *Monogynia*. TWO FEMALES, *Digynia*. THREE FEMALES, *Trigynia*. &c. as is seen in No. 1. which represents a plant of one male, one female; and in the first Figure of No. xi. which represents a flower with twelve males, and three females; (for, where the pistils have no apparent styles, the summits, or stigmas, are to be numbered) and in the first Figure of No. xii. which represents a flower with twenty males and many females; and in the last Figure of the same No. which has twenty males and one female; and in No. xiii. which represents a flower with many males and many females.

The Class of TWO POWERS, is divided into two natural Orders; into such as have their seeds nakes at the bottom of the calyx, or flower-cup; and such as have their seeds cover’d; as is seen in No. xiv. Fig. 3. and 5.

The Class of FOUR POWERS, is divided also into two Orders; in one of these the seeds are inclosed in a silicule, as in *Shepher’d purse*. No. xiv. Fig. 5. In the other they are inclosed in a silique, as in *Wall-flower*. Fig. 4.
In all the other Classes, excepting the Classes Confederate Males, and Clandestine Marriage, as the character of each Class is distinguished by the situations of the males; the character of the Orders is mark’d by the numbers of them. In the Class ONE BROTHERHOOD, No. xvi. Fig. 3. the Order of ten males is represented. And in the Class of TWO BROTHERHOODS, No. xvii. Fig. 2. the Order ten males is represented.

In the Class CONFEDERATE MALES, the Orders are chiefly distinguished by the fertility or barrenness of the florets of the disk, or ray of the compound flower.

And in the Class of CLANDESTINE MARRIAGE, the four Orders are term’d FERNS, MOSSES, FLAGS, AND FUNGUSSES.

The Orders are again divided into Genera, or Families, which are all natural associations, and are described form the general resemblances of the parts of fructification, in respect to their number, form, situation, and reciprocal proportion. These are the Calyx, or Flower-cup, as seen in No. iv. Fig. 1. No. x. Fig. 1. and 3. No. xiv. Fig. 1. 2. 3. 4. Second, the Corol, or Blossom, as seen in No. i. ii. &c. Third, the Males, or Stamens; as in No. iv. Fig. 1. and No. viii. Fig. 1. Fourth, the Females, or Pistils; as in No. i. No. xii. Fig. 1. No. xiv. Fig. 3. No. xv. Fig. 3. Fifth, the Pericarp or Fruit-vessel; as No. xv. Fig. 4. 5. No. xvii. Fig. 2. Sixth, the Seeds.

The illustrious author of the Sexual System of Botany, in his preface to his account of the Natural Orders, ingeniously imagines, that one plan of each Natural Order was created in the beginning; and that the intermarriages of these produced one plant of every Genus, or Family; and that the intermarriages of these Generic, or Family plants produced all the Species: and lastly, that the intermarriages of the individuals of the Species produced the Varieties.

In the following POEM, the name or number of the Class, or Order of each plant is printed in italics; as “Two brother swains.” “One House contains them.” and the word “secret.” expresses the Class of Clandestine Marriage.

The Reader, who wishes to become further acquainted with this delightful field of science, is advised to study the words of the Great Master, and is apprized that they are exactly and literally translated into English, by a Society at LICHFIELD, in four Volumes Octavo.

To the SYSTEM OF VEGETABLES is prefix’d a copious explanation of all the Terms used in Botany, translated from a thesis of DR. ELMSGREEN, with the plates referenced from the Philosophia Botanica of Linneus.

To the FAMILIES OF PLANTS is prefix’d a Catalogue of the names of plants, and other Botanic Terms, carefully accented, to shew their proper pronunciation; a work of great labour, and which was much wanted, not only by beginners, but by proficients in BOTANY.
The SYSTEM OF VEGETABLES translated from the Systema Vegetabilim, in two Vols. is sold by LEIGH and SOTHEBY, York Street, Covent-Garden: Price 18 Shillings, in Boards.

DESCEND, yes hovering Sylphs! Aerial Quires,
And sweep with little hands your silver lyres;
With fairy foot-steps print your grassy rings,
Ye Gnomes! Accordant to the tinkling strings;
While in soft notes I tune to oaten reed
Gay hopes, and amorous sorrows of the mead.—
From giant Oaks, that wave their branches dark,
To the dwarf Moss, that clings upon their bark,
What Beaux and Beauties crowd the gaudy groves,
And woo and win their vegetable Loves.²
How Snow-drops cold, and blue-eyed Harebels blend
Their tender tears, as o’er the stream they bend;
The love-sick Violet, and Primrose pale
Bow their sweet heads, and whisper to the gale;
With secret sighs the Virgin Lily droops,
And jealous Cowslips hang their tawny cups.
How the young Rose in beauty’s damask pride
Drinks the warm blushes of his bashful bride;
With honey’d lips enamour’d Woodbines meet,
Clasp with fond arms, and mix their kisses sweet.—

Stay thy soft-murmuring waters, gentle Rill;
Hush, whispering Winds, ye rustling Leaves, be still;
Rest, silver Butterflies, your quivering wings;
Alight, ye Beetles, from your airy rings;
Ye painted Moths, your gold-eyed plumage furl,
Bow your wide horns, your spiral trunks uncurl;
Glitter, ye Glow-worms, on your mossy beds;
Descend, ye Spiders, on your lengthen’d threads;
Slide here, ye horned Snails, with varnish’d shells;
Ye Bee-nymphs, listen in your waxen cells!—

² Vegetable Loves. l. 10. Linneus the celebrated Swedish naturalist, has demonstrated, that all flowers contain families of male of females, or both; and on their marriages has constructed his invaluable system of Botany.
BOTANIC MUSE! Who in this latter age
Led by your airy hand the Swedish sage,
Bad his keen eye your secret haunts explore
On dewy dell, high wood, and winding shore;
Say on each leaf how tiny Graces dwell;
How laugh the Pleasures in a blossom’s bell;
How insect-Loves arise on cob-web wings,
Aim their light shafts, and point their little stings.

“First the tall CANNA lifts his curled brow
Erect to heaven, and plights his nuptial vow;
The virtuous pair, in milder regions born,
Dread the rude blast of Autumn’s icy morn;
Round the chill fair he folds his crimson vest,
And clasps the timorous beauty to his breast.

Thy love, CALLITRICHES, two Virgins share,
Smit with thy starry eye and radiant hair;—
On the green margin sits the youth, and laves
His floating train of tresses in the waves;
Sees his fair features paint the streams that pass,
And bends for ever o’er the watery glass.

Two brother swains of COLLIN’s gentle name,
The same their features, and their forms the same,
With rival love for fair COLLINIA sigh,
Knit the dark brow, and roll the unsteady eye.
With sweet concern the pitying beauty mourns,
And sooths with smiles the jealous pair by turns.

Sweet blooms GENISTA in the myrtle shade,

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3 Canna. l. 39. Cane, or Indian Reed. One male and one female inhabit each flower. It is brought from between the tropics to our hot-houses, and bears a beautiful crimson flower; the seeds are used as shot by the Indians, and are strung for prayer-beads in some Catholic countries.

4 Callitriches. l. 45. Fine-Hair, Star-grass. One male and two females inhabit each flower. The upper leaves grow in form of a star, whence it is called Stellaria Aquatica by Ray and others; its stems and leaves float far on the water, and are often so matted together, as to bear a person walking on them. The male sometimes lives in a separate flower.

5 Collinsonia. l. 51. Two males one female. I have lately observed a very singular circumstance in this flower; the two males stand widely diverging from each other, and the female bends herself into contact first with one of them, and after some time leaves this, and applies herself to the other. It is probable one of the anthers may be mature before the other? See note on Gloriosa, and Genista. The females in Nigella, devil in the bush, are tall compared to the males; and bending over in a circle to them, give the flower some resemblance to a regal crown. The female of the epilobium angustifolium, rose bay willow herb, bends down amongst the males for several days, and becomes upright again, when impregnated.

6 Genista. l. 57. Dyer’s broom. Ten males and one female inhabit this flower. The males are generally united at the bottom in two sets, whence Linneus has names the class “two brotherhoods.” In the Genista, however, they are united in but one set. The flowers of this class are called papilionaceous, from their resemblance to a butterfly, as the pea-blossom. In the Spartium Scoparium, or common broom, I have lately observed a curious circumstance, the males or stamens are in two sets, one set rising a quarter of an
And ten fond brothers woo the haughty maid.
Two knights before they fragrant altar bend,
Adored MELISSA! And two squires attend.  
MEADIA's soft chains five suppliant beaux confess,  
And hand in hand the laughing belle address;
Alike to all, she bows with wanton air,
Rolls her dark eye, and waves her golden hair.

Woo’d with long care, CURCUMA cold and shy

inch above the other; the upper set does not arrive at their maturity so soon as the lower, and the stigma, or head of the female, is produced amongst the upper or immature set; but as soon as the pistil grows tall enough to burst open the keel-leaf, or hood of the flower, it bends itself round in an instant, like a French horn, and inserts its head, or stigma, amongst the lower or mature set of males. The pistil, or female, continues to grow in length; and in a few days the stigma arrives again amongst the upper set, by the time they become mature. This wonderful contrivance is readily seen by opening the keel-leaf of the flowers of broom before they burst spontaneously. See note on Collinsonia, Gloriosa, Draba.

7 Melissa. l. 60. Balm. In each flower there are four males and one female; two of the males stand higher than the other two; whence the name of the class “two powers.” I have observed in the Ballota, and others of this class, that the two lower stamens, or males, become mature before the two higher. After they have shed their dust, they turn themselves away outwards; and the pistil, or female, continuing to grow a little taller, is applied to the upper stamens. See Gloriosa, and Genista.

All the plants of this class, which has naked seeds, are aromatic. The Marum, and Nepeta are particularly delightful to cats; no other brute animals seem pleased with any odours but those of their food or prey.

8 Meadia. l. 61 Dodecatheon, american Cowslip. Five males and one female. The males, or anthers, touch each other. The uncommon beauty of this flower occasioned Linneus to give it a name signifying the twelve heathen gods; and Dr. Mead to affix his own name to it. The pistil is much longer than the stamens, hence the flower-stalks have their elegant bend, that the stigma may hang downwards to receive the fecundating dust of the anthers. And the petals are so beautifully turned back to prevent the rain or dew drops from sliding down and washing off this dust prematurely; and at the same time exposing it to the light and air. As soon as the seeds are formed, it erects all the flower-stalks to prevent them from falling out; and thus loses the beauty of its figure. Is this a mechanical effect, or does it indicate a vegetable storgé to preserve its offspring? See note on Ilex, and Gloriosa.

In the Meadia, the Borago, Cyclamen, Solanum, and many others, the filaments are very short compared with the style. Hence it became necessary, 1st. to furnish the stamens with long anthers. 2d. To lengthen and bend the peduncle or flower-stalk, that the flower might hang downwards. 3d. To reflect the petals. 4th. To erect these peduncles when the germ was fecundated. We may reason upon this by observing, that all this apparatus might have been spared, if the filaments along had grown longer; and that thence in these flowers that the filaments are the most unchangeable parts; and that thence their comparative length, in respect to the style, would afford a most permanent mark of their generic character.

9 Curcuma. l. 65. Turmeric. One male and one female inhabit this flower; but there are besides four imperfect males, or filaments without anthers upon them, called by Linneus eunuchs. The flax of our country has ten filaments, and but five of them are terminated with anthers; the Portugal flax has ten perfect males, or stamens; the Verbena of our country has four males; that of Sweden has but two; the genus Albuca, the Bignoma Catalpa, Gratiola, and hemlock-leaved Geranium have only half their filaments crowned with anthers In like manner the florets, which form the rays of the flowers of the order frustraneous polygamy, of the class syngenesia, or confederate males, as the sunflower, are furnished, with a style only, and no stigma, and are thence barren. There is also a style without a stigma in the whole order dioecia gynandria; the male flowers of which are thence barren. Perhaps all the products of nature are in their progress to greater perfection? an idea countenanced by the modern discoveries and deductions concerning the progressive formation of the solid parts of the terraqueous globe.
Meets her fond husband with averted eye:

*Four* beardless youths the obdurate Beauty move
With soft attentions of Platonic love.¹⁰

With vain desires the pensive ALCEA burns,¹¹
And, like sad ELOISA, loves and mourns.
The freckled IRIS owns a fiercer flame,¹²
And *three* unjealous husbands wed the dame.
CUPRESSUS dark disdains his dusky bride,¹³
One dome contains them, but *two* beds divide.
The proud OSYRIS flies his angry fair,¹⁴
Two houses hold the fashionable pair.

With strange deformity PLANTAGO treads,¹⁵

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¹⁰ **Editor’s Note:** The non-sexual attention of Curcuma’s four antherless-stamens mirrors ancient philosopher Plato’s idea of friendship (*philia*) love as opposed to the physical (*erōs*) love of the one functional male sexual organ. Since the four “beardless youths” are incapable of reproduction, their assignment to the pistil has no immediate purpose. It is possible that the purpose lies in the ability of immature stamens to mature in order to fill in as a backup in the event of damage to the complete stamen.

¹¹ *Alcea*. l. 69. Flore pleno. Double hollyhock. The double flowers, so much admired by the florists, are termed by the botanist vegetable monsters; in some of these the petals are multiply’d three or four times, but without excluding the stamens, hence they produce some seeds, as Campanula and Stramoneum; but in others the petals become so numerous as totally to exclude the stamens, or males; as Caltha, Peonia, and Alcea: these produce no seeds and are termed eunuchs. Philos. Botan. No. 150.

These vegetable monsters are formed in many ways. 1st. By the multiplication of the petals and the exclusion of the nectaries, as in larkspur. 2d. By the multiplication of the nectaries and the exclusion of the petals; as in columbine. 3d. In some flowers growing in cymes, the wheel-shape flowers in the margin are multiplied to the exclusion of the bell-shape flowers in the centre; as in gelder rose. 4th. By the elongation of the florets in the centre. Instances of both these are found in daisy and feverfew; for other kinds of vegetable monsters, see Plantago.

The perianth is not changed in double flowers, hence the genus or family may be often discovered by the calyx, as in Hepatica, Ranunculus, Alcea. In those flowers, which have many petals, the lowest series of the petals remains unchanged in respect to number; hence the natural number of the petals is easily discovered. As in poppies, roses, and Nigella, or devil in a bush. Phil. Bot. p. 128.

¹² *Iris*. l. 71. Flower de Luce. Three males, one female. Some of the species have a beautifully freckled flower; the large stigma or head of the female, covers the three males, counterfeiting a petal with its divisions.

¹³ *Cupressus*. l. 73. Cypress. One House. The males live in separate flowers, but on the same plant. The males of some of these plants, which are in separate flowers from the females, have an elastic membrane; which disperses their dust to a considerable distance, when the anthers burst open. This dust, on a fine day, may often be seen like a cloud hanging round the common nettle. The males and females of all the cone-bearing plants are in separate flowers, either on the same or on different plants; they produce resins, and many of them are supposed to supply the most durable timber, what is called Venice-turpentine is obtained from the larch by wounding the bark about two feet from the ground, and catching it as it exsudes; Sandarac is procured from common juniper; and incense from a juniper with yellow fruit. The unperishable chests, which contain the Egyptian mummies, were of Cypress; and the Cedar, with which black-lead pencils are covered, is not liable to be eaten by worms. See Miln’s Bot. Dict. art. coniferae.

¹⁴ *Osyris*. l. 75. Two houses. The males and females are on different plants. There are many instance on record, where female plants have been impregnated at very great distance from their male; the dust discharged from the anthers, is very light, small, and copious, so that is may spread very wide in the atmosphere, and be carried to the distant pistils, without the supposition of any particular attraction; these plants resemble some insects, as the ants, and cochineal insect, of which the males have wings, but not the female.
A Monster-birth! and lifts his hundred heads;
Yet with soft love a gentle belle he charms,
And clasps the beauty in his hundred arms.
So hapless DESDEMONA, fair and young,
Won by OTHELLO’s captivating tongue,
Sigh’d o’er each strange and piteous tale, distress’d,
And sunk enamour’d on his sooty breast.  

Two gentle shepherds and their sister-wives
With thee, ANTHOXA! lead ambrosial lives;
Where the wide heath in purple pride extends,
And scatter’d furze its golden lustre blends,
Closed in a green recess, unenvy’d lot!
The blue smoak rises from their turf-built cot;
Bosom’d in fragrance blush their infant train,
Eye the warm sun, or drink the silver rain.

The fair OSMUNDA seeks the silent dell;
The ivy canopy, and dripping cell;
There hid in shades clandestine rites approves,
Till the green progeny betrays her loves.

With charms despotic fair CHONDRILLA reigns

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15 Plantago. l. 77. Rosea. Rose-Plantain. In this vegetable monster the bractes, or divisions of the spike, become wonderfully enlarged; and are converted into leaves. The chaffy scales of the calyx in Xeranthemum, and in a species of Dianthus, and the glume in some alpine grasses, and the scales of the ament in the salix rosea, rose-willow, grow into leaves; and produce other kinds of monsters. The double flowers become monsters by the multiplication of their petals or nectaries. See note on Alcea.

16 Editor's Note: Desdemona and Othello are characters from William Shakespeare’s play, The Tragedy of Othello, the Moor of Venice. A spike covered with many stamens of Plantago bursts forth high over the leaf of the plant. The description of the plant here brings to mind that once reproduction has occurred, the male stamen enlarges as the female pistil dwindles and withers away; she sinks “onto his sooty breast.” This resembles the ending scenes of the play when Othello, in his jealous rage, kills Desdemona. His anger enlarges to the point where Desdemona dwindles and withers away.

17 Anthoxanthum. l. 86. Vernal grass. Two males, two females. The other grasses have three males and two females. The flowers of this grass give the fragrant scent to hay. I am informed it is frequently viviparous, that is, that it bears sometimes roots or bulbs instead of seeds, which after a time drop off and strike root into the ground. This circumstance is said to obtain in many of the alpine grasses, whose seeds are perpetually devoured by small birds. The Festuca Dumetorum, fescue grass of the bushes, produces bulbs from the sheaths of its straw. The Allium Magicum, or magical onion, produces onions on its head, instead of seeds. The Polygonum Viviparum, viviparous bistort, rises about a foot high, with a beautiful spike of flowers, which are succeeds by buds or bulbs, which fall off and take root. There is a bush frequently seen on birch-trees, like a bird’s nest, which seems to be a similar attempt of nature, to produce another tree; which falling off might take root in spongy ground.

18 Osmunda. l. 93. This plant grows on moist rocks; the parts of its flower or its seeds are scarce discernible; whence Linneus has given the name of clandestine marriage to this class. The younger plants are of a beautiful vivid green.

19 Chondrilla. l. 97. Of the class Confederate Males. The numerous florets, which constitute the disk of the flowers of this class, contain in each five males surrounding one female, which are connected at top, whence the name of the class. An Italian writer in a discourse on the irritability of flowers asserts, that if the top of the floret be touched, all the filaments which support the cylindrical anther will contract
O’er the soft hearts of five fraternal swains;
If sighs the changeful nymph, alike they mourn;
And, if she smiles, with rival raptures burn.
So, tuned in unison, Eolian Lyre!²⁰
Sounds in sweet symphony they kindred wire;
Now, gently swept by Zephyr’s vernal wings,
Sink in soft cadences the love-sick strings;
And now with mingling chords, and voices higher,
Peal the full anthems of the aerial choir.²¹

Five sister-nymphs to join Diana’s train
With thee, fair LYCHNIS! vow,—but vow in vain;²²
Beneath one roof resides the virgin band,
Flies the fond swain, and scorns his offer’d hand;
But when soft hours on breezy pinions move,
And smiling May attunes her lute to love,
Each wanton beauty, trick’d in all her grace,
Shakes the bright dew-drops from her blushing face;
In gay undress displays her rival charms,
And calls her wondering lovers to her arms.

When the young Hours amid her tangled hair
Wove the fresh rose-bud, and the lily fair,
Proud GLORIOSA led three chosen swains,²³
The blushing captives of her virgin chains.—
—When Time’s rude hand a bark of wrinkles spread

²⁰ Editor’s Note: An Eolian lyre is an instrument played by the wind, and a recurrent symbol of artistic inspiration and production during the Romantic period.
²¹ Editor’s Note: Zephyrus is the Greek god of wind. His gentle breeze will scatter seeds and bring puffs of pollen to the pistils of plants.
²² Lychnis. l. 108. Ten males and five females. The flowers, which contain the five females, and those which contain the ten males, are found on different plants; and often at a great distance from each other. Five of the ten males arrive at their maturity some days before the other five, as may be seen by opening the corol before it naturally expands itself. When the females arrive at their maturity, they rise above the petals, as if looking abroad for their distant husbands, the scarlet ones contribute much to the beauty of our meadows in May and June.
²³ Gloriosa. l. 119. Superba. Six males one female. The petals of this beautiful flower with three of the stamens, which are first mature, hang down in apparent disorder; and the pistil bends at nearly a right angle to insert its stigma amongst them. In a few days, as these decline, the other three stamens bend over, and approach the pistil. In the Fritillaria Persica, the six stamens are of equal lengths, and the anthers lie at a distance from the pistil, and three alternate ones approach first; and, when these decline, the other three approach; in the Lithrum Salicaria, (which has twelve males and one female) a beautiful red flower, which grows on the banks of rivers, six of the males arrive at maturity, and surround the female sometime before the other six; when these decline, the other six rise up and supply their places. Several other flowers have in similar manner two sets of stamina of different ages, as Adoxa Lychnis, Saxifraga. See Genista. Perhaps a difference in the time of their maturity obtains in all those flowers, which have numerous stamens.
Round her weak limbs, and silver’d o’er her head,
*Three* other youths her riper years engage,
The flatter’d victims of her wily age.
So NINON pruned her wither’d charms, and won
With harlot-smiles her gay unconscious son;—
Clasp’d in his arms she own’d a mother’s name,
Shook her grey locks, and tittering mock’d his flame;
With mad despair he plunged the guilty dart,
And life and love gush’d mingled from his heart!

The fell SILENE and her sisters fair,²⁴
Skill’d in destruction, spread the viscous snare.
The harlot-band *ten* lofty braves screen,
And frowning guard the magic nets, unseen.—
Haste, glittering nations, tenants of the air,
Oh, steer from hence your viewless course afar!
If with soft words, sweet blushes, nods and smiles,
The *three* dread Sirens lure you to their toils,
Limed with their art in vain you point your stings,
In vain the efforts of your whirring wings!—
Go, seek your gilded mates and infants hives,
Nor taste the honey purchas’d with your lives!

*Four* of the giant brood with *ILEX* stand,²⁵
Each grasps a thousand arrows in his hand;
A thousand steely points on every scale

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²⁴ *Silene*. l. 131. Catchfly. Three females and ten males inhabit each flower; the viscous material, which surrounds the stalks under the flowers of this plant, and of the *Cucubulus Otitis*, is a curious contrivance to prevent various insects from plundering the honey, or devouring the seed. In the Dionæa *Muscipula* there is a still more wonderful contrivance to prevent the depredations of insects: The leaves are armed with long teeth, like the antennæ of insects, and lie spread upon the ground round the stem; and are so irritable, that when an insect creeps upon them, they fold up, and crush or pierce it to death. The last professor Linneus in his *supplementum plantarum*, gives the following account of the *Arum Muscivorum*. The flower has the smell of carrion; by which the flies are invited to lay their eggs in the chamber of the flower, but in vain endeavour to escape, being prevented by the hairs pointing inwards; and thus perish in the flower, whence its name of fly-eater. P. 411, in the *Dypsacus* is another contrivance for this purpose, a basin of water is placed round each joint of the stem. In the *Drosera* is another kind of fly trap. See *Dypsacus* and *Drosera*; the flowers of *Siléne* and *Cucúbalus* are closed all day, but are open and give an agreeable odour in the night. See *Cerea*.

²⁵ *Ilex*. l. 143. Holly. Four males, four females. Many plants, like many animals, are furnished with arms for their protection; these are either aculei, prickles, as in rose and barberry, which are formed from the outer bark of the plant; or spinae, thorns, as in hawthorn, which are an elongation of the wood, and hence more difficult to be torn off than the former; or stimuli, stings, as in the nettles, which are armed with a venomous fluid for the annoyance of naked animals. The shrubs and trees, which have prickles or thorns, are grateful food to many animals, as gooseberry, and gorse; and would be quickly devoured, if not thus armed; the stings seem a protection against some kinds of insects, as well as the naked mouths or quadrupeds. Many plants lose their thorns by cultivation, as wild animals lose their ferocity; and some of them their horns. A curious circumstance attends the large Hollies in Needwood-forest, they are armed with thorny leaves about eight feet high, and have smooth leaves above; as if they were conscious, that horses and cattle could not reach their upper branches. See note on *Meadia*, and on *Mancinella*.
Form the bright terrors of his bristly mail,—
So arm’d, immortal Moore uncharmed the spell,
And flew the wily dragon of the well.—
Sudden with rage their injur’d bosoms burn,
Retort the insult, or the wound return;
Unwrong’d, as gentle as the breeze, that sweeps
The unbending harvests or undimpled deeps,
They guard, the Kings of Needwood’s wide domains,
Their sister-wives and fair infantine trains;
Lead the lone pilgrim through the trackless glade,
Or guide in leafy wilds the wandering maid.

Gigantic Nymph! the fair KLEINHOVIA reigns
The grace and terror of her wide domains;
O’er her warm cheek the blush of beauty swims,
And nerves herculean bend her sinewy limbs;
With frolic eye she views the affrighted throng,
And shakes the meadows, as she towers along,
With playful violence displays her charms,
And bears her puny lovers in her arms.
So fair THALESTRIS bound her jutting breast
In rigid mail, and shook her plumy crest;—
Poised her long lance amid the walks of war,
And Beauty thunder’d from Bellona’s ear;
Greece arm’d in vain, her captive heroes wove
The chains of conquest with the wreaths of love.

When o’er the cultured lawns and dreary wastes
Retiring Autumn flings her howling blasts,
Bends in tumultuous waves the struggling woods,
And showers their leafy honours on the floods,
In withering heaps collects the flowery spoil,
And each chill insect sinks beneath the foil;
Quick flies fair TULIPA the loud alarms.

26 *Kleinhovia.* l. 157. In this class the males in each flower are supported by the female. The name of the class may be translated “Viragoes.” Or “Feminine Males.”

The largest tree perhaps in the world is of the fame natural order as Kleinhovia, it is Adanfonia, or Ethiopian Sour-gourd, or African Calabash tree. Mr. Adanson says the diameter of the trunk frequently exceeds 25 feet, and the horizontal branches are from 45 to 55 feet long, and so large that each branch is equal to the largest trees of Europe. The breadth of the top is from 120 to 150 feet. And one of the roots bared only in part by the washing away of the earth by the river, near which it grew, measured 110 feet long; and yet these stupendous trees never exceed 70 feet in height. Voyage to Senegal.

27 **Editor’s Note:** Queen Thalestris was the single-breasted Amazonian queen. The plant Thalestris, also known as Justicia, has a large, brightly covered plume that extends from the base and hardy, waxy leaves. It is prevalent in warm climates.

28 *Tulipa.* l. 177. Tulip. What is in common language called a bulbous root, is by Linneus termed the Hybernacle, or Winter-lodge of the young plant. As these bulbs in every respect resemble buds, except in their being produced under ground, and include the leaves and flower in miniature, which are to be expanded in the ensuing spring. By cautiously cutting through the concentric coats of a tulip-root, longitudinally from the top to the base, and taking them off successively, the whole flower of the next
year's tulip is beautifully seen by the naked eye, with its petals, pistil, and stamens; the flowers exist in other bulbs, in the same manner, as in Hyacinths, but the individual flowers of these being less, they are not so easily dissected, or so conspicuous to the naked eye.
And folds her infant closer in her arms;
In some lone cave, secure pavilion, lies,
And waits the courtship of serener skies.—

So to his mossy couch the Dormouse springs,
And Sleep protects him with his cider wings.—

Bright out of earth, amid the driving strom,
Ascends fair COLCHICA! thy roseate form;\(^{20}\)
Warms the cold bosom of the hoary year,
And lights with Beauty’s blaze the dusky sphere.
*Three* blushing Maids the intrepid Nymph attend,
And *fix* gay Youths, enamour’d train! defend.
So shines with silver guards the Georgian star,
And drives o’er Night’s blue arch his glittering car.

Great HELIANTHUS guides o’er twilight plains\(^{30}\)
In gay solemnity his Dervice-trains;
Marshall’d in *fives* each gaudy band proceeds,
Each gaudy band a plumed Lady leads;\(^{31}\)
With zealous step he climbs the upland lawn,
And bows in homage to the rising dawn;
Imbives with eagle-eye the golden ray,
And watches, as it moves, the orb of day.

Queen of the dewy vale, fair DROSERA treads\(^{32}\)

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\(^{20}\) *Colchicum autumnale*. l. 184. Autumnal Meadow-saffron. Six males, three females. The germ is buried within the root, which thus seems to constitute a part of the flower. Families of Plants. p. 242. These singular flowers appear in the autumn without any leaves, whence in some countries they are called Naked Ladies: in the March following the green leaves spring up, and in April the seed-vessel rises from the ground; the seeds ripen in May, contrary to the usual habits of vegetables, which flower in the spring, and ripen their seeds in the autumn. Miller’s Dict. The juice of the root of this plant is so acrid as to produce violent effects on the human constitution, which also prevents it from being eaten by subterranean insects, and thus guards the seed-vessel during the winter. The defoliation of deciduous trees is announced by the flowering of the Colchicum; of these the ash is the last that puts forth is leaves, and the first that looses them. Phil. Bot. p. 275.

The Hamamelis, Witch Hazle, is another plant which flowers in autumn; when the leaves fall off, the flowers come out in clusters from the joints of the branches, and in Virginia ripen their seed in the ensuing spring; but in this country their seeds seldom ripen. Lin. Spec. Plant. Miller’s Dict.

\(^{30}\) *Helianthus*. l. 191. Sun flower. The numerous florets, which constitute the disk of this flower, contain in each five males surrounding one female, the five stamens have their anthers connected at top, whence the name of the class “confederate males;” see note on Chondrilla. The sun flower follows the course of the sun by nutation, not by twisting its stem. (Hales veg. stat.) Other plants, when they are confined in a room, turn the shining surface of their leaves, and bend their whole branches to the light. See Mimosa.

\(^{31}\) *A plumed lady leads*. l. 194. The seeds of many plants of this class are furnished with a plume, by which admirable mechanism they are disseminated by the winds far from their parent stem, and look like a shuttlecock, as they fly. Other seeds are disseminated by animals, of these some attach themselves to their hair or feathers by a gluten, as mistleto; others by hooks, as clevers, burdock, houndstongue; and others are swallowed whole for the sake of the fruit, and voided uninjured, as the hawthorn, juniper, and some grasses. Other seeds again disperse themselves by means of an elastic seed-vessel, as oats, Geranium, and Impatiens; and the seeds of aquatic plants, and of those, which grow on the banks of rivers, are carried many miles by the currents, into which they fall. See Impatiens. Zostera. Cassia. Carlina.
Her moss-wove banks, and rushy-fringed beds;
Redundant folds of glossy silk surround
Her slender waist, and trail upon the ground;
*Five* sister-nymphs collect with graceful ease,
Or spread the floating purple to the breeze;
And *five* fair youths with duteous love comply
With each soft mandate of her moving eye.
As with sweet grace her snowy neck she bows,
A zone of diamonds trembles round her brows;
Bright shines the silver halo, as she turns;
And, as she steps, the living lustre burns.

Fair LONICERA treads the dewy lawn,
And decks with brighter blush the vermil dawn;
Winds round the shadowy rocks, and pansied vales;
And scents with sweeter breath the summer-gales;
With artless grace and native ease she charms,
And bears the Horn of Plenty in her arms.

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32 Drosera. l. 199. Sun-dew. Five males, five females. The leaves of this marsh-plant are purple, and have a fringe very unlike other vegetable productions. And, which is curious, at the point of every thread of this erect fringe stands a pellucid drop of mucilage, resembling a ducal coronet. This mucus is a secretion from certain glands, and like the viscous material round the flower-stalks of Silene, (catchfly) prevents small insects from infesting the leaves. As the ear-wax in animals seems to be in part designed to prevent fleas and other insects from getting into their ears. See Silene. Mr. Wheatly an eminent surgeon in Cateaton-Street, London, observed these leaves to bend upwards when an insect settled on them, like the leaves of the muscipula veneris, and pointing all their globules of mucus to the centre, that they completely intangled and destroyed it.

33 Lonicera. l. 211. Caprifolium. Honeysuckle. Five males, one female. Nature has in many flowers used a wonderful apparatus to guard the nectary, or honey-gland, from insects. In the honey-suckle the petal terminates in a long tube like a cornucopiae, or horn of plenty; and the honey is produced at the bottom of it. In Aconitum, monks hood, the nectaries stand upright like two horns covered with a hood, which abounds with such acrid matter that no infects penetrate it. In Helleborus, hellebore, the many nectaries are placed in a circle, like little pitchers, and add much to the beauty of the flower. In the Columbine, Aquilegia, the nectary is imagined to be like the neck and body of a bird, and the two petals standing upon each side to represent wings; whence its name of columbine, as if resembling a nest of young pigeons fluttering whilst their parent feeds them. The importance of the nectary in the economy of vegetation is explained at large in the note on part the first.

Many infects are provided with a long and pliant proboscis for the purpose of acquiring this grateful food, as a variety of bees, moths, and butterflies: but the Sphinx Convolvoli, or unicorn moth, is furnished with the most remarkable proboscis in this climate. It carries it rolled up in concentric circles under its chin, and occasionally extends it to above three inches in length. This trunk consists of joints and muscles, and seems to have more versatile movements than the trunk of the elephant; and near its termination is split into two capillary tubes. The excellence of this contrivance for robbing the flowers of their honey, keeps this beautiful insect fat and bulky; though it flies only in the evening, when the flowers have closed their petals, and are therefore more difficult of access; at the same time the brilliant colours of the moth contribute to its safety, by making it mistaken by the late sleeping birds for the flower it rests on.

Besides these there is a curious contrivance attending the Ophrys, commonly called the Bee-orchis, and the Fly-orchis, with some kinds of the Delphinium, called Bee larkspurs, to preserve their honey; in these the nectary and petals resemble in form and colour the insects, which plunder them: and thus it may be supposed, they often escape these hourly robbers, by having the appearance of being pre-occupied. See note on Rubia, and Conferva polymorpha.
Five rival Swains their tender cares unfold,
And watch with eye askance the treasured gold.

Where rears huge Teneris his azure crest,
Aspiring DRABA builds her eagle nest; 34
Pleased round the fair four rival Lords ascend
The shaggy steeps, two menial youths attend.
High in the setting ray the beauty stands,
And her tall shadow waves on distant lands.

Stay, bright inhabitant of air, alight,
Ambitious VISCA, from thy eagle-flight!— 35
Scorning the sordid soil, aloft the springs,
Shakes her white plume, and claps her golden wings;
High o'er the fields of boundless ether roves,
And seeks amid the clouds her soaring loves!

Stretch'd on her mossy couch, in trackless deeps,
Queen of the coral groves, ZOSTERA sleeps; 36

34 Draba. l. 220. Alpina. Alpine Whitlow-grass. One female and six males. Four of these males stand above the other two; whence the name of the class "four powers." I have observed in several plants of this class, that the two lower males arise, in a few days after the opening of the flower, to the same height as the other four, not being mature as soon as the higher ones. See note on Gloriosa. All the plants of this class possess similar virtues; they are termed acrid and anti corbutic in their raw state, as mustard, watercress; when cultivated and boiled, they become a mild wholesome food, as cabbage, turnep.

There was formerly a Volcano on the Peake of Tenerif, which became extinct about the year 1684. Philos. Trans. In many excavations of the mountain, much below the summit, there is now found abundance of ice at all seasons. Tench's Expedition to Botany Bay, p. 12. Are these congelations in consequence of the daily solution of the hoar-frost which is produced on the summit during the night?

35 Viscum. l. 226. Misletoe. Two houses. This plant never grows upon the ground; the foliage is yellow, and the berries milk-white; the berries are so viscous, as to serve for bird-lime; and when they fall, adhere to the branches of the tree, on which the plant grows, and strike root into its bark; or are carried to distant trees by birds. The Tillandsia, or wild pine, grows on other trees, like the Misletoe, but takes little or no nourishment from them, having large buckets in its leaves to collect and retain the rain water. See note on Dypsacus. The mosses, which grow on the bark of trees, take much nourishment from them; hence it is observed that trees, which are annually cleared from moss by a brush, grow nearly twice as fast. (Phil. Transact.) In the cider countr[ies the peasants brush their apple-trees annually.

36 Zostera. l. 232. Grass-wrack. Class, Feminine Males. Order, Many Males. It grows at the bottom of the sea, and rising to the surface, when in flower, covers many leagues; and is driven at length to the shore. During its time of floating on the sea, numberless animals live on the under surface of it, and being specifically lighter than the sea water, or being repelled by it, have legs placed as it were on their backs for the purpose of walking under it. As the Scylloea. See Barbut's Genera Vermium. It seems necessary that the marriages of plants should be celebrated in the open air, either because the powder of the anther, or the mucilage on the stigma, or the reservoir of honey might receive injury from the water. Mr. Needham observed, that in the ripe dust of every flower, examined by the microscope some vesicles are perceived, from which a fluid had escaped; and that those, which still retain it, explode if they be wetted, like an eolopile suddenly exposed to a strong heat. These observations have been verified by Spallanzani and others. Hence rainy seasons make a scarcity of grain, or hinder its fecundity, by bursting the pollen before it arrives at the moist stigma of the flower. Spallanzani's Dissertations, v. II. p. 321. Thus the flowers of the male Vallisneria are produced under water, and when ripe detach themselves from the plant, and rising to the surface are wafted by the air to the female flowers. See Vallisneria.
The silvery sea-weed matted round her bed,
And distant surges murmuring o’er her head.—
High in the flood her azure dome ascends,
The crystal arch on crystal columns bends;
Roof’d with translucent shell the turrets blaze,
And far in ocean dart their colour’d rays;
O’er the white floor successive shadows move,
As rise and break the ruffled waves above.—
Around the nymph her mermaid-trains repair,
And weave with orient pearl her radiant hair;
With rapid fins she cleaves the watery way,
Shoots like a silver meteor up to day;
Sounds a loud conch, convokes a scaly band,
Her sea-born lovers, and ascends the strand.

E’en round the pole the flames of Love aspire,
And icy bosoms feel the secret fire!—
Cradled in the snow and fan’d by arctic air
Shines, gentle BAROMETZ! thy golden hair; 37
Rooted in earth each cloven hoof descends,
And round and round her flexile neck she bends;
Crops the grey coral moss, and hoary thyme,
Or laps with rosy tongue the melting rime;
Eyes with mute tenderness her distant dam,
Or seems to bleat, a Vegetable Lamb.

—So, warm and buoyant in his oily mail,

37 Barometz. l. 250. Polypodium Barometz. Tartarian Lamb. Clandestine Marriage. This species of Fern is
a native of China, with a decumbent root, thick, and every where covered with the most soft and dense

This curious stem is sometimes pushed out of the ground in its horizontal situation by
some of the inferior branches of the root, so as to give it some resemblance to a Lamb standing on
four legs; and has been said to destroy all other plants in its vicinity. Sir Hans Sloane describes it
under the name of Tartarian Lamb, and has given a print of it. Philos. Trans. abridged, v. 11. p.
646. but thinks some art had been used to give it an animal appearance. Dr. Hunter, in his
edition of the Terra of Evelyn, has given a more curious print of it, much resembling a sheep. The
down is used in India externally for stopping hemorrhages, and is called golden moss.
The thick downy clothing of some vegetables seems designed to protect them from the injuries of cold,
like the wool of animals. Those bodies, which are bad conductors of electricity, are also bad conductors of
heat, as glass, wax, air. Hence either of the two former of these may be melted by the flame of a blow-pipe
very near the fingers which hold it without burning them; and the last, by being confined on the surface
of animal bodies, in the interstices of their fur or wool, prevents the escape of their natural warmth; to which
should be added, that the hairs themselves are imperfect conductors. The fat or oil of whales, and other
northern animals, seems designed for the same purpose of preventing the too sudden escape of the heat
of the body in cold climates. Snow protects vegetables which are covered by it from cold, both because it is
a bad conductor of heat itself, and contains much air in its pores. If a piece of camphor be immersed in a
snow-ball, except one extremity of it, on setting fire to this, as the snow melts, the water becomes
absorbed into the surrounding snow by capillary, attraction; on this count, when living animals are
buried in snow, they are not most ned by it; but the cavity enlarges as the snow dissolves, affording them
both a dry and warm habitation.
Gambols on seas of ice the unwieldy Whale;
Wide-waving fins round floating islands urge
His bulk gigantic through the troubles surge;
With hideous yawn the flying shoals He seeks,
Or clasps with fringe of horn his massy cheeks;
Lifts o’er the tossing wave his nostrils bare,
And spouts pellucid columns into air;
The silvery arches catch the setting beams,
And transient rainbows tremble o’er the streams.

Weak with nice sense, the chaste MIMOSA stands,
From each rude touch withdraws her timid hands;
Oft as light clouds o’erpass the Summer-glade,
Alarm’d she trembles at the moving shade;
And feels, alive through all her tender form,
The whisper’d murmurs of the gathering storm;
Shuts her sweet eye-lids to approaching night;
And hails with freshen’d charms the rising light.

Veil’d with gay decency and modest pride,
Slow to the mosque she moves, an easter bride;
There her soft vows unceasing love record,
Queen of the bright seraglio of her Lord.—
So sinks or rises with the changeful hour
The liquid silver in its glassy tower.
So turns the needle to the pole it loves,
With fine librations quivering, as it moves.

All wan and shivering in the leafless glade

38 Mimosa. l. 267. The sensitive plant. Of the class Polygamy, one house. Naturalists have not explained the immediate cause of the collapsing of the sensitive plant; the leaves meet and close in the night during the sleep of the plant, or when exposed to much cold in the day-time, in the same manner as when they are affected by external violence, folding their upper surfaces together, and in part over each other like seales or tiles; so as to expose as little of the upper surface as may be to the air; but do not indeed collapse quite so far, since I have found, when touched in the night during their sleep, they fall still further; especially when touched on the foot-stalks between the stems and the leaflets, which seems to be their most sensitive or irritable part. Now as their situation after being exposed to external violence resembles their sleep, but with a greater degree of collapse, may it not be owing to a numbness or paralysis consequent to too violent irritation, like the saintings of animals from pain or fatigue? I kept a sensitive plant in a dark room till some hour after day-break; its leaves and leas-stalks were collapsed as in its most prosound sleep, and on exposing it to the light, above twenty minutes passed before the plant was thoroughly awake and had quite expanded itself. During the night the upper or smoother surfaces of the leaves are appressed together; this would seem to shew that the office of this surface of the leaf was to expose the fluids of the plant to the light as well as to the air. See note on Helianthus. Many flowers close up their petals during the night. See note on vegetable respiration in part 1st.

39 Editor’s Note: The sensitive plant was a favorite source of inspiration for Romantic poets. Caught between the plant and animal kingdoms, the sensitive plant challenges the Linnaean form of classification that Darwin employs. As a “sensitive” or “sensing” plant, it seemed to think and feel like an animal. Of many poets who wrote about the sensitive plant, perhaps most famous is Percy Shelley’s poem “The Sensitive Plant” (1820), where, influenced by Darwin, Shelley imagines the plant as experiencing a love akin to that of humans.
The sad **ANEMONE** reclin'd her head;\(^{40}\)
Grief on her cheeks had paled the roseate hue,
And her sweet eye-lids drop'd with pearly dew.

—"See, from bright regions, borne on odorous gales
"The Swallow, herald of the summer, sails;\(^{41}\)
" Breath, gentle AIR! from cherub-lips impart
"Thy balmy influence to my anguish'd heart;
"Thou, whose soft voice calls forth the tender blooms,
"Whose pencil paints them, and whose breath perfumes;
"O chase the Fiend of Frost, whose leaden mace
"In death-like slumbers seals my hapless race;
"Melt his hard heart, release his iron hand,
"And give my ivory petals to expand.
"So may each bud, that decks the brown of spring,
"Shed all its incense on thy wafting wing!"--

To her fond prayer propitious **Zephyr** yields,
Sweeps on his sliding shell through azure fields,
O' er her fair mansion waves his whispering wand,
Gives with new life her filial train to rise.

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\(^{40}\) **Anemone.** l. 284. Many males, many females. Pliny says this flower never opens its petals but when the wind blows; whence its name: it has properly no calix, but two or three sets of petals, three in each set, which are folded over the stamens and pistil in a singular and beautiful manner, and differs also from *ranunculus* in not having a melilferous pore on the claw of each petal.

\(^{41}\) **The Swallow.** l. 288. There is a wonderful conformity between the vegetation of some plants, and the arrival of certain birds of passage. Linneus observes that the wood anemone blows in Sweden on the arrival of the swallow; and the marsh mary-gold, *Caltha*, when the cuckoo sings. Near the same coincidence was observed in England by Stillingfleet. The word *Coccux* in Greek signifies both a young fig and a cuckoo, which is supposed to have arisen from the coincidence of their appearance in Greece. Perhaps a similar coincidence of appearance in some parts of Asia gave occasion to the story of the loves of the rose and nightingale, so much celebrated by the eastern poets. See *Dianthus*. The times however of the appearance of vegetables in the spring seem occasionally to be influenced by their acquired habits, as well as by their sensibility to heat: for the roots of potatoes, onions, &c. will germinate with much less heat in the spring than in the autumn; as is easily observable where these roots are stored for use; and hence malt is best made in the spring. 2d. The grains and roots brought from more southern latitudes germinate here sooner than those which are brought from more northern ones, owing to their acquired habits. Fordyce on Agriculture. 3d. It was observed by one of the scholars of Linneus, that the apple-trees sent from hence to New England blossomed for a few years too early for that climate, and bore no fruit; but afterwards learnt to accommodate themselves to their new situation. (Kalm's Travels.) 4th. The parts of animals become more sensible to heat after having been previously exposed to cold, as our hands glow on coming into the house after having held snow in them; this seems to happen to vegetables; for vines in grape-houses, which have been exposed to the winter's cold, will become forwarder and more vigorous than those which have been kept during the winter in the house. (Kenedy on Gardening.) This accounts for the very rapid vegetation in the northern latitudes after the solution of the snows.

The increase of the irritability of plants in respect to heat, after having been previously exposed to cold, is further illustrated by an experiment of Dr. Walker's. He cut apertures into a birch-tree at different heights; and on the 26th of March some of these apertures bled, or oozed with the sap-juice, when the thermometer was at 39; which same apertures did not bleed on the 13th of March, when the thermometer was at 44. The reason of this I apprehend was, because on the night of the 25th the thermometer was as low as 34; whereas on the night of the 12th it was at 41; though the ingenious author ascribes it to another cause. Trans. of Royal Soc. of Edinburgh, V. I. P. 19.
And hail with kindling smiles the genial skies.
So shines the Nymph in beauty’s blushing pride,
When Zephyr wafts her deep calash aside;
Tears with rude kiss her bosoms gauzy veil,
And flings the fluttering kerchief to the gale.
So bright, the folding canopy undrawn,
Glides the gild Landau o’er the velvet lawn,
Of beaux and belles displays the glittering throng;
And soft airs fan them, as they roll along.

Where frowning Snowden bends his dizzy brow
O’er Conway, listening to the surge below;\(^{42}\)
Retiring LICHEN climbs the topmost stone,\(^{43}\)
And ’mid the airy ocean dwells alone.—
Bright shine the stars unnumber’d o’er her head,
And the cold moon-beam gilds her flinty bed;
While round the rifted rocks hoarse whirlwinds breath,
And dark with thunder sail the clouds beneath.—
The steepy path her plighted swain pursues,
And tracks her light step o’er the imprinted dews;
Delighted Hymen gives his torch to blaze,
Winds round the craggis, and lights the mazy ways;
Sheds o’er their secret vows his influence chaste,
And decks with roses the admiring waste.

High in the front of heaven when Sirius glares,
And o’er Britannia shakes his fiery hairs;
When no soft shower descends, no dew distills,
Her wave-worn channels dry, and mute her rills;
When droops the sickening herb, the blossom fades,
And parch’d earth gapes beneath the withering glades.
—With languid step fair DYPSACA retreats;\(^{44}\)

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\(^{42}\) **Editor’s Note:** Snowden is the highest mountain in Wales, and it is now a national nature reserve, home to many rare plants. William Wordsworth concludes his epic poem *The Prelude* (1805) with a hike to the top of Mount Snowden, where he experiences a moment of sublime transcendence.

\(^{43}\) *Lichen*. I 315. Calcareum. Liver-wort. Clandestine Marriage. This plant is the first that vegetates on naked rocks, covering them with a kind of tapestry, and draws its nourishment perhaps chiefly from the air; after it perishes, earth enough is left for other mosses to root themselves; and after some ages a soil is produced sufficient for the growth of more succulent and large vegetables. In this manner perhaps the whole earth has been gradually covered with vegetation, after it was raised out of the primeval ocean by subterraneous fires.

\(^{44}\) *Dypsacus*. l. 333. Teasel. One female, and four males. There is a cup around every joint of the stem of this plant, which contains from a spoonful to half a pint of water; and serves both for the nutriment of the plant in dry seasons, and to prevent insects from creeping up to devour its seed. See Silene. The Tillandsia, or wild pine, of the West Indies has every leaf terminated near the stalk with a hollow bucket, which contains from half a pint to a quart of water. Dampier’s Voyage to Campeachy. Dr. Sloane mentions one kind of aloe furnished with leaves, which, like the wild pine and Banana, hold water; and thence afford necessary refreshment to travellers in hot countries. Nepenthes had a bucket for the same purpose at the end of every leaf. Burm. Zeyl. 42. 17.
“Fall gentle dews!” the fainting nymph repeats;
Seeks the low dell, and in the sultry shade
Invokes in vain the Naiads to her aid.—
*Four* sylvan youths in crystal goblets bear
The untasted treasure to the grateful fair;
Pleased from their hands with modest grace she sips,
And the cool wave reflects her coral lips.

With nice selection modest RUBIA blends,
Her vermil dyes, and o’er the cauldron bends;
Warm ’mid the rising steam the beauty glows,
As blushes in a mist the dewy rose.
With chemic art *four* fav’rd youths aloof
Stain the white fleece, or stretch the tinted woof;
O’er Age’s cheek the warmth of youth diffuse,
Or deck the pale-eyed nymph in roseate hues.
So when MEDEA to exulting Greece
From plundered COLCHIS bore the golden fleece;
On the loud shore a magic pile she rais’d,
The cauldron bubbled, and the faggots blaz’d;—
Pleased on the boiling wave old AESON swims,
And feels new vigour stretch his swelling limbs;
Through his thrill’d nerves forgotten ardors dart,
And warmer eddies circle round his heart;
With softer fires his kindling eye-balls glow,
And locks luxuriant wanton round his brow.

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45 *Rubia*. l. 341. Madder. Four males and one female. This plant is cultivated in very large quantities for dying red. If mixed with the food of young pigs or chickens, it colours their bones red. If they are fed alternate fortnights with a mixture of madder, and with their usual food alone, their bones will consist of concentric circles of white and red. Belchier, Phil. Trans. 1736. Animals fed with madder for the purpose of these experiments were found upon dissection to have thinner gall. Comment. de rebus. Lipsiae. This circumstance is worth further attention. The colouring materials of vegetables, like those which serve the purpose of tanning, varnishing, and the various medical purposes, do not seem essential to the life of the plant; but seem given it as a defence against the depredations of insects or other animals, to whom these materials are nauseous or deleterious. To insects and many smaller animals their colours contribute to conceal them from the larger ones which prey upon them. Caterpillars which feed on leaves are generally green; and earth-worms the colour of the earth which they inhabit; Butterflies, which frequent flowers, are coloured like them; small birds which frequent hedges have greenish backs like the leaves, and light coloured bellies like the sky, and are hence less visible to the hawk, who passes under them or over them. Those birds which are much amongst flowers, as the gold-finch (Fringilla carduelis), are furnished with vivid colours. The lark, partridge, hare, are the colour of the dry vegetables or earth on which they rest. And frogs vary their colour with the mud of the streams which they frequent; and those which live on trees are green. Fish, which are generally suspended in water, and swallows, which are generally suspended in air, have their backs the colour of the distant ground, and their bellies of the sky. In the colder climates many of these become white during the existence of the snows. Hence there is apparent design in the colours of animals, whilst those of vegetables seem consequent to the other properties of the materials which possess them.

46 *Editor’s Note*: See note 89.
As dash the waves on India’s breezy strand,
Her flush’d cheek press’d upon her lily hand,
VALLISNER sits, up-turns her tearful eyes,\(^{47}\)
Calls her lost lover, and upbraids the skies;
For him she breathes the silent sigh, forlorn,
Each setting day; for him each rising morn.—

“Bright orbs, that light yon high etherial plain,
Or bath your radiant tresses in the main;
“Pale moon, that silver’st o’er night’s sable brow;
“For ye were witness to his parting vow!—
“Ye shelving rocks, dark waves, and sounding shore,—
“Ye echoed sweet the tender words he swore!—
“Can stars or seas the sails of love retain?
“O guide my wanderer to my arms again!”

Her bouyant skiff the intrepid ULVA guides,\(^{48}\)

\(^{47}\) *Vallisneria*. l. 361. This extraordinary plant is of the class Two Houses. It is found in the East Indies, in Norway, and various parts of Italy. Lin. Spec. Plant. They have their roots at the bottom of the Rhone, the flowers of the female plant float on the surface of the water, and are furnished with an elastic spiral stalk, which extends or contracts as the water rises and falls; this rise or fall, from the rapid descent of the river, and the mountain torrents which flow into it, often amounts to many feet in a few hours. The flowers of the male plant are produced under water, and as soon as their farina, or dust, is mature; they detach themselves from the plant, and rise to the surface, continue to flourish, and are wafted by the air, or borne by the currents to the female flowers. In this resembling those tribes of insects, where the males at certain seasons acquire wings, but not the females, as ants, Cocchus, Lampyris, Phalaen, Brumata, Lichanella. These male flowers are in such numbers, though very minute, as frequently to cover the surface of the river to considerable extent. See Families of Plants translated from Linnéus, P. 677.

\(^{48}\) *Ulva*. l. 373. Clandestine marriage. This kind of sea-weed is buoyed up by bladders of air, which are formed in the duplicatures of its leaves; and forms immense floating fields of vegetation; the young ones, branching out from the larger ones, and borne on similar little air-vessels. It is also found in the warm baths of Patavia; where the leaves are formed into curious cells or labyrinths for the purpose of floating on the water. See *ulva labyrinthis-formis* Lin. Spec. Plant. The air contained in these cells was found by Dr. Priestley to be sometimes purer than common air, and sometimes less pure; the air-bladders of fish seem to be similar organs, and serve to render them buoyant in the water. In some of these, as in the Cod and Haddock, a red membrane, consisting of a great number of leaves or duplicatures, is sound within the air-bag, which probably secretes this air from the blood of the animal. (Monro. Physiol. of Fish. p. 28.) To determine whether this air, when first separated from the blood of the animal or plant, be dephlogisticated air, is worthy inquiry. The bladder-sena (Colutea), and bladder-nut (Staphylaea), have their seed-vessels distended with air; the Ketmia has the upper joint of the stem immediately under the receptacle of the flower much distended with air; these seem to be analogous to the air-vessel at the broad end of the egg, and may probably become less pure as the seed ripens: some, which I tried, had the purity of the surrounding atmosphere. The air at the broad end of the egg is probably an organ serving the purpose of respiration to the young chick, some of whose vessels are spread upon it like a placenta, or permeate it. Many are of opinion that even the placenta of the human setus, and cotyledons of quadropeds, are respiratory organs rather than nutritious ones.

The air in the hollow stems of grasses, and of some umbelliserous plants, bears analogy to the air in the quills, and in some of the bones of birds; supplying the place of the pith, which shrivels up after it has performed its office of protruding the young stem or feather. Some of these cavities of the bones are said to communicate with the lungs in birds. Phil. Trans. The air-bladders of fish are nicely adapted to their intended purpose; for though they render them buoyant near the surface without the labour of using their fins, yet, when they rest at greater depths, they are no inconvenience, as the increased pressure of the water condenses the air which they contain into
And seeks her Lord amid the trackless tides;
Her secret vows the Cyprian Queen approves,
And hovering halcyons guard her infant-loves;
Each in his floating cradle round they throng,
And dimpling Ocean bears the fleet along.—
Thus o’er the waves, which gently bend and swell,
Fair GALATEA steers her silver shell;
Her playful Dolphins stretch the silken rein,
Hear her sweet voice, and glide along the main.
As round the wild meandering coast she moves
By gushing rills, rude cliffs, and nodding groves;
Each by her pine the Wood-nymphs wave their locks,
And wondering Naiads peep amid the rocks;
Pleased trains of Mermaids rise from coral cells,
Admiring Tritons sound their twisted shells;
Charm’d o’er the car pursuing Cupids sweep,
Their snow-white pinions twinkling in the deep;
And, as the lustre of her eye she turns,
Soft sighs the Gale, and amorous Ocean burns.

On DOVE’s green brink the fair TREMELLA stood,49
And view’d her playful image in the flood;
To each rude rock, lone dell, and echoing grove

less space. Thus, if a cork or bladder of air was immersed a very great depth in the ocean, it would be so much compressed, as to become specially as heavy as the water, and would remain there. It is probable the unfortunate Mr. Day, who was drowned in a diving-ship of his own construction, milcarried from not attending to this circumstance; it is probable the quantity of air he took down with him, if he descended much lower than he expected, was condensed into so small a space as not to render the ship buoyant when he endeavoured to ascend.

49 Tremella. l. 393. Clandestine marriage. I have frequently observed fungusses of this Genus on old rails and on the ground to become a transparent jelly, after they had been frozen in autumnal mornings; which is a curious property, and distinguishes them from some other vegetable mucilage; for I have observed that the paste, made by boiling wheat-flour in water, ceases to be adhesive after having been frozen. I suspected that the Tremella Nostoc, or star-jelly, also had been thus produced; but have since been well informed, that the Tremella Nostoc is a mucilage voided by Herons after they have eaten frogs; hence it has the appearance of having been pressed through a hole; and limbs of frogs are said sometimes to be found amongst it; it is always seen upon plains or by the sides of water, places which Herons generally frequent.

Some of the Fungusses are so acrid, that a drop of their juice blisters the tongue; others intoxicate those who eat them. The Ostiacks in Siberia use them for the latter purpose; one Fungus of the species, Agaricus muscarum, eaten raw; or the decoction of three of them, produces intoxication for 12 or 16 hours. History of Russia. V. I. Nichols. 1780. As all acrid plants become less so, if exposed to a boiling heat, it is probable the common mushroom may sometimes disagree from being not sufficiently stewed. The Ostiacks blister their skin by a fungus found on Birch-trees; and use the Agaricus officin. for Soap. ib.

There was a dispute whether the fungusses should be classed in the animal or vegetable department. Their animal taste in cookery, and their animal smell when burnt, together with their tendency to putrefaction, insomuch that the Phallus impudicus has gained the name of stink-horn; and lastly, their growing and continuing healthy without light, as the Liciperoxon tuber or truffle, and the fungus vinosus or mucor in dark cellars, and the esculent mushrooms on beds covered thick with straw, would seem to shew that they approach towards the animals, or make a kind of isthmus connecting the two mighty kingdoms of animal and of vegetable nature.
Sung the sweet sorrows of her secret love.
“Oh, stay!—return!”—along the sounding shore
Cry’d the sad Naiads,—she return’d no more!—
Now girt with clouds the sullen Evening frown’d,
And withering Eurus swept along the ground;
The misty moon withdrew her horned light,
And sunk with Hesper in the skirt of night;
No dim electric streams, (the norther dawn,)
With meek effulgence quiver’d o’er the lawn;
No star benignant shot one transient ray
To guide or light the wanderer on her way.
Round the dark crags the murmuring whirlwinds blow,
Woods groan above, and waters roar below;
As o’er the steeps with pausing foot she moves,
The pitying Dryads shriek amid their groves;
She flys,—she stops,—she pants—she looks behind,
And hears a demon howl in every wind.
—as the bleak blast unfurls her fluttering vest,
Cold beats the snow upon her shuddering breast;
Through her numb’d limbs the chill sensations dart,
And the keen ice-bolt trembles at her heart.
“I sink, I fall! oh, help me, help!” she cries,
Her stiffening tongue the unfinish’d sound denies;
Tear after tear adown her cheek succeeds,
And pearls of ice bestrew the glistening meads;
Congealing snows her lingering feet surround,
Arrest her flight, and root her to the ground;
With suppliant arms she pours the silent prayer,
Her suppliant arms hang crystal in the air;
Pellucid films her shivering neck o’erspread,
Seal her mute lips, and silver o’er her head,
Veil her pale bosom, glaze her lifted hands,
And shrined in ice the beauteous statue stands.
—DOVE’s azure nymphs on each revolving year
For fair TREMELLA shed the tender tear;
With rush-wove crowns in sad procession move,
And sound the sorrowing shell to hapless love.

Here paused the MUSE,—cross the darken’d pole
Sail the dim clouds, the echoing thunders roll;
The trembling Wood-nymphs, as the tempest lowers,
Lead the gay Goddess to their inmost bowers;
Hang the mute lyre the laurel shade beneath,
And round her temples bind the myrtle wreath.
—Now the light swallow with her airy brood
Skims the green meadow, and the dimpled flood;
Loud shrieks the lone thrush from his leafless thorn,
Th’ alarmed beetle sounds his bugle horn;
Each pendant spider winds with fingers fine
His ravel’d clue, and climbs along the line;
Gay Gnomes in glittering circles stand aloof
Beneath a spreading mushroom’s fretted roof;
Swift bees returning seek their waxen cells,
And Sylphs cling quivering in the lily’s bells.
Through the still air descend the genial showers,
And pearly rain-drops deck the laughing flowers.
INTERLUDE.

Bookseller. YOUR verses, Mr. Botanist, consist of pure description, I hope there is sense in the notes.

Poet. I am only a flower-painter, or occasionally attempt a land-skip; and leave the human figure with the portraits of history to abler artists.

B. It is well to know what subjects are within the limits of your pencil; many have failed of success from the want of this self-knowledge. But pray tell me, what is the essential difference between Poetry and Prose? is it solely the melody or measure of the language?

P. I think no solely; for some prose has its melody, and even measure. And good verses, well spoken in a language unknown to the hearer, are not easily to be distinguished from good prose.

B. Is it the sublimity, beauty, or novelty of the sentiments?

P. Not so, for sublime sentiments are often better expressed in prose. Thus when Warwick in one of the plays of Shakespear is left wounded on the field after the loss of the battle, and his friend says to him, “Oh, could you but fly!” what can be more sublime than his answer, “Why then, I would not fly.” No measure of verse I imagine could add dignity to this sentiment. And it would be easy to select examples of the beautiful of new from prose writers, which I suppose no measure of verse could improve.

B. In what then consists the essential difference between Poetry and Prose?

P. Next to the measure of the language, the principal distinction appears to me to consist in this; that Poetry admits of very few words expressive of perfectly abstracted ideas, whereas Prose abounds with them. And as our ideas derived from visible objects are more distinct than those derived from the objects of our other senses, the words expressive of these ideas belonging to vision make up the principal part of poetic language. That is the Poet writes principally to the eye, the Prose-writer uses more abstracted terms. Mr. Pope has written a bad verse in the Windsor Forest.

“And Kennet swift for silver Eels renown’d.”

The word renown’d does not present the idea of a visible object to the mind, and is thence prosaic. But change this line thus,

“And Kennet swift, where silver Graylings play.”

and it becomes poetry, because the scenery is then brought before the eye.

B. This may be done in prose.

P. And when it is done in a single word, it animates the prose; so it is more agreeable to read in Mr. Gibbon’s history, “Germany was at this time over-shadowed” with extensive
forests.” Than Germany was at this time full of extensive forests. But where this mode of expression occurs too frequently, the prose approaches to poetry: and in graver works, where we expect to be instructed rather than amused, it becomes tedious and impertinent. Some parts of Mr. Burk’s eloquent orations become intricate and enervated by superfluity or poetry ornament; which quantity or ornament would have been agreeable in a poem, where much ornament is expected.

B. Is then the office of Poetry only to amuse?

P. The Muses are young ladies, we expect to see them dressed;\textsuperscript{50} though not like some modern beauties with so much gauze and feather, that “the Lady herself is the least part of her.” There are however didactic pieces of poetry, which are much admired, as the Georgics of Virgil, Mason’s English Garden, Hayley’s Epistles; nevertheless Science is best delivered in Prose, as its mode of reasoning is from stricter analogies than metaphors or similies.

B. Do not Personifications and Allegories distinguish poetry?

P. These are other arts of bringing objects before the eye; or of expressing sentiments in the language of vision; and are indeed better suited to the pen than the pencil.

B. That is strange, when you have just said they are used to bring their objects before the eye.

P. In poetry the personification or allegoric figure is generally indistinct, and therefore does not strike us so forceably as to make us attend to its improbability; but in painting, the figures being all much more distinct, their improbability becomes apparent, and seize our attention to it. Thus the person of Concealment is very indistinct, and therefore does not compel us to attend to its improbability, in the following beautiful lines of Shakespear.

\[
\text{“—-She never told her love;}
\text{But let Concealment, like a worm i’ th’ bud,}
\text{Feed on her damask cheek.”—}
\]

But in these lines below the person of Reason obtrudes itself into our company, and becomes disagreeable by its distinctness, and consequent improbability.

\[
\text{“To Reason I flew, and intreated her aid,}
\text{Who paused on my cafe, and each circumstance weigh’d;}
\text{Then gravely reply’d in return to my prayer,}
\text{That Hebe was fairest of all that were fair.}
\text{That’s a truth reply’d I, I’ve no need to be taught,}
\]

\footnote{\textbf{Editor’s Note:} In Greek mythology, the Muses are goddesses who preside over the arts. There are nine Muses, and each has their own form of writing over which they presided. Most of them cover artistic writing, such as epic, tragedy, comedy, but others cover subjects such as history and astronomy. The poet brings them up here both as a pun on the word “amuse” from the bookseller’s previous question and to make his point that the different kinds of writing require different styles.}
I came to you, Reason, to find out a fault.
If that's all, says, Reason, return as you came,
To find fault with Hebe would forfeit my name.”

Allegoric figures are on this account in general less manageable in painting and in statuary than in poetry: and can seldom be introduced in the two former arts in company with natural figures, as is evident from the ridiculous effect of many of the paintings of Rubens in the Luxemburgh gallery; and for this reason, because their improbability becomes more striking, when there are the figures of real persons by their side to compare them with.

Mrs. Angelica Kauffman, well apprised of this circumstance, has introduced no mortal figures amongst her Cupids and her Graces. And the great Roubiliac, in his unrivalled monument of Time and Flame struggling for the trophy of General Flemming, has only hung up a medallion of the head of the hero of the piece. There are however some allegoric figures, which we have so often heard described or seen delineated, that we almost forget, that they do not exist in common life; and hence view them without astonishment; as the figures of the heathen mythology, of angels, devils, death and time: and almost believe them to be realities, even when they are mixed with representations of the natural forms of man. Whence I conclude, that a certain degree of probability is necessary to prevent us from revolting with distaste from unnatural images; unless we are otherwise so much interested in the contemplation of them as not to perceive their improbability.

B. Is this reasoning about degrees of probability just?—When Sir Joshua Reynolds, who is unequaled both in the theory and practice of his art, and who is a great master of the pen as well as the pencil, has asserted in a discourse delivered to the Royal Academy, Decem. 11, 1786, that “the higher styles of painting, like the higher kinds of the Drama, do not aim at anything like deception; or have any expectation, that the spectators should think the events there represented are really passing before them.” And he then accuses Mr. Fielding of bad judgement, when he attempts to compliment Mr. Garrick in one of his novels, by introducing an ignorant man, mistaking the representation of a scene in Hamlet for a reality; and thinks, because he was an ignorant man, he was less liable to make such a mistake.

P. It is a metaphysical question, and requires more attention than Sir Joshua has bestowed upon it.—You will allow, that we are perfectly deceived in our dreams; and that even in our waking reveries, we are often so much absorbed in the contemplation of what passes in our imaginations, that for a while we do not attend to the lapse of time or to our own locality; and thus suffer a similar kind of deception as in our dreams. That is, we believe things present before our eyes, which are not so.

Editor’s Note: Peter Paul Rubens (1577-1640) was a Flemish painter in the Baroque period. His work is generally noted for its lively scenes, sense of movement, and vitality. As well, as Darwin suggests here, Rubens was known for using religious and mythological figures as subjects. At the time of Darwin’s writing, the style associated with the Baroque had fallen out of favor and been supplanted with neoclassical ideals. The poet’s comment here reflects this shift in aesthetic tastes between the Baroque and the neoclassical.
There are two circumstances, which contribute to this compleat deceptions in our dreams. First, because is sleep the organs of sense are closed or inert, and hence the trains of ideas associated in our imaginations are never interrupted or dissevered by the irritations of external objects, and can not therefore be contrasted with our sensations. On this account, tho’ we are affected with a variety of passions in our dreams, as anger, love, joy; yet we never experience surprize.—For surprize in only produced, when any external irritations suddenly obtrude themselves, and dissever ourpassing trains of ideas.

Secondly, because in sleep there is a total suspension of our voluntary power, both over the muscles of our bodies, and the ideas of our minds; for we neither walk about, nor reason in compleat sleep. Hence, as the trains of ideas are passing in our imaginations in dreams, we cannot compare them with our previous knowledge of things, as we do in our waking hours; for this is a voluntary exertion, and thus we cannot perceive their incongruity.

Thus we are deprived in sleep of the only two means by which we can distinguish the trains of ideas passing in our imaginations, from those excited by our sensations; and are led by their vivacity to believe them to belong to the latter. For the vivacity of these trains of ideas, passing in the imagination, is greatly increased by the causes above-mentioned; that is, by their not being disturbed or dissevered either by the appulses of external bodies, as in surprize; or by our voluntary exertions in comparing them with our previous knowledge of things, as in reasoning upon them.

B. Now to apply.

P. When by the art of the Painter or Poet a train of ideas is suggested to our imaginations, which interests us so much by the pain or pleasure it affords, that we cease to attend to the irritations of common external objects, and cease also to use any voluntary efforts to compare these interesting trains of ideas with our previous knowledge of things, a compleat reverie is produced: during which time however short, if it be but for a moment, the object themselves appear to exist before us. This I think has been called by an ingenious critic "the ideal presence," or such objects. (Elements of Criticism by Lord Kames.) And in respect to the compliment intended by Mr. Fielding to Mr. Garrick, it would seem that an ignorant Rustic at the play of Hamlet, who has some previous belief in the appearance of Ghosts, would sooner be liable to fall into reverie, and continue in it longer, than one who possessed more knowledge of the real nature of things, and had a greater facility of exercising his reason.

B. It must require great art in the Painter or Poet to produce this kind of deception.

P. The matter must be interesting from its sublimity, beauty, or novelty; this is the scientific part; and the art consists in bringing these distinctly before the eye, so as produce (as above mentioned) the ideal presence of the object, in which the great Shakespear particularly excells.

B. Then it is not of any consequence, whether the representations correspond with nature.
P. Not if they so much interest the reader or spectator as to induce the reverie above described. Nature may be seen in the market place, or at the card-table; but we expect something more than this in the play-house or picture-room. The further the artist recedes from nature, the greater novelty he is likely to produce; if he rises above nature, he produces the sublime; and beauty is probably a selection and new combination of her more agreeable parts. Yourself will be sensible of the truth of this doctrine by recollecting over in your mind the works of three of our celebrated artists. Sir Joshua Reynolds has introduced sublimity even into his portraits; we admire the representation of persons, whose reality we should have passed by unnoticed. Mrs. Angelica Kauffman attracts our eyes with beauty, which I suppose no where exists; certainly few Grecian faces are seen in this country. And the daring pencil of Fuseli transports us beyond the boundaries of nature, and ravishes us with the charm of the most interesting novelty. And Shakespear, who excels in all these together, so far captivates the spectator, as to make him unmindful of every kind of violation of Time, Place, or Existence. As at the first appearance of the Ghost of Hamlet, “his ear must be dull as the fat weed, which roots itself on Lethe’s brink,” who can attend to the improbability of the exhibition. So in many scenes of the Tempest we perpetually believe the action passing before our eyes, and relapse with somewhat of distaste into common life at the intervals of the representation.

B. I suppose a poet of less ability would find such great machinery difficult and cumbersome to manage.

P. Just so, we should be shocked as the apparent improbabilities. As in the gardens of a Sicilian nobleman, described in Mr. Brydone’s travels, there are said to be six hundred statues of imaginary monsters; which so disgust the spectators, that the state has once a serious design of destroying them; and yet the very improbable monsters in Ovid’s Metamorphoses have entertained the world for many centuries.

B. The monsters in your Botanic Garden, I hope are of the latter kind?

P. The candid reader must determine.
THE
LOVES
OF THE
PLANTS
CANTO II.

Again the Goddess strikes the golden lyre,
And tunes to wilder notes the warbling wire;
With soft suspended step Attention moves,
And Silence hovers o’er the listening groves;
Orb within orb the charmed audience throng,
And the green vault reverberates the song.

“Breathe, soft, ye Gales!” the fair CARLINA cries,
“Bear on broad wings your Votress to the skies.
“How sweetly mutable yon orient hues,
“As Morn’s red hand her opening rose strews;
“How bright, when Iris blending many a ray
“Binds in embroider’d wreath the brow of Day;
“Soft, when the pendent Moon with lustres pale
“O’er heaven’s blue arch unfurls her milky veil;
“While from the north long threads of silver light
“Dart on swift shuttles o’er the tissued night!
“Breathe soft, ye Zephrys! hear my fervent sighs,
“Bear on broad wings your Votress to the skies!”—
On Whale-bone ribs the fair Mechanic joins;
Inlays with eider down the silken strings,

52 Carlina. l. 7. Carline Thistle. Of the class Confederate Males. The feeds of this and of many other plants of the same class are furnished with a plume, by which admirable mechanism they perform long aërial journeys, crossing lakes and deserts, and are thus disseminated far from the original plant, and have much the appearance of a Shuttle-cock as they fly. The wings are of different construction, some being like a diver’s tuft of hairs, others are branched like feathers, some are elevated from the crown of the seed by a slender foot-stalk, which gives them a very elegant appearance, others sit immediately on the crown of the seed.

Nature has many other curious vegetable contrivances for the dispersion of seeds: see note on Helianthus. But perhaps none of them has more the appearance of design than the admirable apparatus of Tillandsia for this purpose. This plant grows on the branches of trees, like the misleto, and never on the ground; the seeds are furnished with many long threads on their crowns; which, as they are driven forwards by the winds, wrap round the arms of trees, and thus hold them last till they vegetate. This is very analogous to the migration of Spiders on the gossamer, who are said to attach themselves to the end of a long thread, and rise thus to the tops of trees or buildings, as the accidental breezes carry them.
And weaves in wide expanse Daedalean wings;\textsuperscript{53}
Round her bold sons the waving pennons binds,\textsuperscript{54}
And walks with angel-step upon the winds.
So on the shoreless air the intrepid Gaul\textsuperscript{55}
Launch’d the vast concave of his bouyant ball.—
Journeying on high, the silken castle glides
Bright as a meteor through the azure tides;
O’er the towns and towers and temples wine its way,
Or mounts sublime, and gilds the vault of day.
Silent with upturn’d eyes unbreathing crowds;
Purfue the floating wonder to the clouds;
And flush’d with transport or benumb’d with fear
Watch, as it rises, the diminsh’d sphere.
—Now less and less!—and now a speck is seen!—
And now the fleeting rack obtrudes between!—
With bended knees, raised arms, and suppliant brow
To every shrine with mingled cries they vow.—
“Save Him, ye Saints! who o’er the good preside;
“Bear Him, ye Winds! ye Stars benignant! guide.”
—The calm Philosopher in ether sails,
Views broader stars, and breathes in purer gales!
Sees, like a map, in many a waving line
Round earth’s blue plains her lucid waters shine;
Sees at his feet the forky lightenings glow,
And hears innocuous thunders roar below.
—Rise, great MONGULFIER! urge thy venturous flight
High o’er the Moon’s pale ice-reflected light;
High o’er the pearly Star, whose beamy horn
Hangs in the eaf, gay harbinger of mourn;
Leave the red eye of Mars on rapid wing,
Jove’s silver guards, and Saturn’s dusky ring;\textsuperscript{56}
Leave the fair beams, which issuing from afar
Play with new lustres round Georgian star;
Shun with strong oars of the Sun’s attractive throne,
The burning zodiac, and the milky zone;
Where headlong Comets with increasing force

\textsuperscript{53} Editor’s Note: Daedalean comes from the classical mythology, Daedalus, the Athenian designer who made the labyrinth for King Minos in Crete. He designed wings for him and his son to escape from Greece. Daedalus comes from the Greek word \textit{Daidalos}, meaning the skillful worker. It is also from Greek \textit{Daidallein}, which is to labor craftily. Daedalus is an indication for contriving and crafting.

\textsuperscript{54} Editor’s Note: Pennon derives from the Latin \textit{penna}, which means feather. In poetry, pennon is a word used for wing. The definition of pennon is the wing of a bird. The Old French \textit{penon} has the similar meaning of feathers of an arrow. It was also used to represent a flag, banner, or streamer.

\textsuperscript{55} Editor’s Note: Gaul was an area in Western Europe during the medieval period. Gaul contained what is now northern Italy, France, Belgium, and southern Netherlands. Gaul was split into two sections, Cisalpine (South of the Appalachian Mountains) and Transalpine (North of the Appalachian Mountains).

\textsuperscript{56} Editor’s Note: Jove is another name for the planet Jupiter. Jove is also the god of the shining sky in Roman mythology, or Zeus in Greek mythology.
Through other systems bend their blazing courte.—
For thee Cassiope her chair withdraws,\(^57\)
For thee the Bear retracts his shaggy paws;\(^58\)
High o’er the North thy golden orb shall roll,
And blaze eternal round the wondering pole.
So Argo, rising from the southern main,
Lights with new stars the blue ethereal plain;
With favoring beams the mariner protects,
And the bold courte, which first it steer’d, directs.

Inventress of the Woof, fair LINA sings\(^59\)
The flying shuttle through the dancing strings;
Inlays the broider’d west with flowery dyes,
Quick beat the reeds, the pedals fall and rise;
Slow from the beam the lengths of warp unwind,
And dance and nod the massy weights behind.—
Taught by her labours, from the fertile soil
Immortal Isis clothed the banks of Nile;
And fair ARACHNE with her rival loom
Found undeserved a melancholy doom.—
Five Sister-nymps with dewy fingers twine
The beamy flax, and stretch the fibre-line;
Quick eddying threads from rapid spindles reel,
Or whirl with beating foot the dizzy wheel.
—Charm’d sound the busy Fair five shepherds press,
Praise the nice texture of their snowy dress,
Admire the Artists, and the art approve,
And tell with honey’d words the tale of love.

So now, where Derwent guides his dusky floods
Through vaulted mountains, and a night of woods,
The Nymph, GOSSYPIA, treads the velvet sod,\(^60\)

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\(^57\) **Editor’s Note:** Cassiope is a genus plant of 9-12 tiny species in the Ericaceae family. They originated from the Arctic and northern regions. The plant is named after Cassiopeia, a queen in Greek mythology, and also the constellation. The plants contain scale-like greenery, and are also shaped like bells, which bloom in late Spring.


\(^59\) **Linum.** l. 67. Flax Five males and five females. It was first found on the banks of the Nile. The Linum Lusitanicum, or portugal flax, has ten males: see the note on Curcuma. Isis was said to invent spinning and weaving: mankind before that time were clothed with the skins of animals. The fable of Arachne was to compliment this new art of spinning and weaving, supposed to surpass in fineness the web of the Spider.

\(^60\) **Gossypia.** l. 87. Gossypium. The cotton plant. On the river Derwent near Matlock in Derbyshire, Sir RICHARD ARKWRIGHT has erected his curious and magnificent machinery for spinning cotton; which had been in vain attempted by many ingenious artists before him. The cotton-wool is first picked from the pods and seeds by women. It is then corded by cylindrical cards which move against each other, with different velocities. It is taken from these by an iron-hand or comb, which has a motion similar to that of scratching, and takes the wool off the cards longitudinally in respect to the fibres or staple, producing a continued line loosely cohering, called the Rove or Roving. This Rove, yet very loosely twisted, is then
And warms with rosy smiles the watery God;  
His ponderous oars to slender spindles turns,  
And pours o’er massy wheels his foamy urns;  
With playful charms her hoary lover wins,  
And wields his trident,—while the Monarch spins.  
—First with nice eye emerging Naiads cull  
From leathery pods the vegetable wool;  
With wiry teeth revolving cords release  
The tangled knots, and smooth the ravell’d fleece;  
Next moves the iron-band with fingers fine,  
Combs the wide card and forms the eternal line;  
Slow, with soft lips, whirling Can aquires  
The tender skeins, and wraps in rising spires;  
With quicken’d pace successive rollers move,  
And these retain, and those extend the roue;  
Then fly the spoles, the rapid axles glow;—  
And slowly circumvolves the labouring wheel below.

PAPYRA, throned upon the banks of the Nile,\(^{61}\)  
Spread her smooth leaf, and waved her silver style.  
—The storied pyramid, the laurel’d bust,


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received or drawn into a whirling canister, and is rolled by the centrifugal force in spiral lines within it;  
being yet too tender for the spindle. It is then passed between two pairs of rollers; the second pair moving  
faster than the first elongate the thread with greater equality than can be done by the hand; and is then  
twisted on spoles or bobbins.  

The great fertility of the Cotton-plant in these fine flexile threads, whilst these from Flax, Hemp,  
and Nettles, or from the bark of the Mulberry-tree, require a previous putrefection of the parenchymatous  
substance, and much mechanical labour, and afterwards bleaching, renders this plant of great importance  
to the world. And since Sir Richard Arkwright’s ingenious machine has not only greatly abbreviated and  
simplefied the labour and art of carding and spinning the Cotton-wool, but performs both these  
circumstances better than can be done by hand, it is probable, that the clothing of this small seed will  
become the principal clothing of mankind; though animal wool and silk may be preferable in colder  
climates, as they are more imperfect conductors of heat, and are thence a warmer clothing.

\(^{61}\) Cyperus. Papyrus. l. 105. Three males, one female. The leaf of this plant was first used for paper, whence  
the word paper; and leaf, or folium, for a fold of a book. Afterwards the bark of a species of mulberry was  
used; whence liber signifies a book, and the bark of a tree. Before the invention of letters mankind may be  
said to have been perpetually in their infancy, as the arts of one age or country generally died with their  
inventors. Whence arose the policy, which still continues in Indostan, of obliging the son to practise the  
profession of his father. After the discovery of letters, the facts of Astronomy and Chemistry became  
recorded in written language, though the antient hieroglyphic characters for the planets and metals  
continue in use at this day. The antiquity of the invention of music, of astronomical observations, and the  
manufacture of Gold and Iron, are recorded in Scripture.  

About twenty letters, ten cyphers, and seven crotches, represent by their numerous combinations  
all our ideas and sensations! the musical characters are probably arrived at their perfection, unless  
emphasis, and tone, and swell could be expressed, as well as note and time. Charles the Twelfth of Sweden  
had a design to have introduced a numeration by squares, instead of by decimation, which might have  
served the purposes of philosophy better than the present mode, which is said to be of Arabic invention.  
The alphabet is yet in a very imperfect state; perhaps seventeen letters could express all the simple sounds  
in the European languages. In China they have not yet learned to divide their words into syllables, and are  
thence necessitated to employ many thousand characters; it is said above eighty thousand. It is to be  
wished, in this ingenious age, that the European nations would accord to reform our alphabet.
The trophy’d aroh had crumbled into dust;
The sacred symbol, and the epic song,
(Unknown the character, forgot the tongue.)
With each unconquer’d chief, or fainted maid,
Sunk undistinguished in Oblivion’s shade.
Sad o’er the shattr’d ruins Genius sigh’d
And infant Arts but learn’d to lisp and died.
Till to astonish’d redhro Papyra taught
To paint in mystic colours Sound and Though.
With Wisdom’s voice to print the page sublime,
And mark in adanient the steps of Time.
—*Three favor’d youths with fond officious care* Learn the strange process, and assist the fair;
*The first* from Alpha and Omega joins
The letter’d tribes along the level lines;
Weighs with nice ear the vowel, liquid, surd,
And breaks in syllables the volant word.
Then forms *the next* upon the marshal’d plain
In deepening ranks his dexterous cypher-train;
And counts, as wheel the decimating bands,
The dews of Egypt, or Arabia’s sands.
And then *the third* on four concordant lines
Prints the lone crotchet, and the quaver joins;
Marks the gay trill, the solemn pause inscribes,
And parts with bars the undulating tribes,
Pleased round her cane-wove throne the applauding crowd
Clap’d their rude hands, their swarthy foreheads bow’d;
With loud acclaim “a present God!” they cried,
“A present God!” rebellowing shores reply’d.—
Then peal’d at intervals with mingled swell
The echoing harp, shrill clarion, horn, and shell;
With Bards ecstatic, bending o’er the lyre,
Struck deeper chords, and wing’d the fong with fire.
Then mark’d Astronomers with keener eyes
The Moon’s refugent journey through the skies;
Watch’d the swift Comets urge their blazing ears,
And weigh’d the Sun with his revolving Stars.
High raised the Chemists their Hermetic wands,
(And changing forms obey’d their waving hands,)
From Earth’s deep chambers tore her golden stores,
Or fused and harden’d her chalybeate ores.
All with bent knee from fair PAPYRA claim
Wove by her hands the wreath of deathless fame.
—Exulting Genius crown’d his darling child,
The young Arts clasp’d her knees, and Virtue smiled.
—So now DELANY forms her mimic bowers,
Her paper foliage, and her silken flowers;
Vein the green leaf, the purple petal dye.
Round wiry stems and flaxen tendril bends,
\[\text{Vein the green leaf, the purple petal dye.}\]
Moss creeps below, and waxen fruit impends,
Cold Winter views amid his realms of snow
\[\text{Cold Winter views amid his realms of snow}\]
DELANY’s vegetable statues blow;
Smooth’s his stern brow, delays his hoary wing,
And eyes with wonder all the blooms of spring.
\[\text{And eyes with wonder all the blooms of spring.}\]

The gentle LAPSANA, Nymphaea fair,
And bright CALENDULA with golden hair,
Watch with nice eyes the Earth’s diurnal way,
Marking her solar and sidereal day,
Her slow nutation, and her varying clime,
And trace with mimic art the march of Time;
\[\text{And trace with mimic art the march of Time;}\]

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62 So now Delany. l. 153. Mrs. Delany has finished nine hundred and seventy accurate and elegant representations of different vegetables with the parts of their flowers, fructification, &c. according with the classification of Linneus, in what she terms paper-mosaic. She began this work at the age of 74, when her sight would no longer serve her to paint, in which she much excelled; between her age of 74 and 82, at which time her eyes quite failed her, she executed the curious Hortus siccus above-mentioned, which 1 suppose contains a greater number of plants than were ever before drawn from the life by any one person. Her method consisted in placing the leaves of each plant with the petals, and all the other parts of the flowers, on coloured paper, and cutting them with scissors accurately to the natural size and form, and then pasting them on a dark ground; the effect of which is wonderful, and their accuracy less liable to sallacy than drawings. She is at this time (1788) in her 89th year, with all the powers of a fine understanding still unimpaired. I am informed another very ingenious lady, Mrs. North, is constructing a similar Hortus siccus, or Paper-garden; which she executes on a ground of vellum with such elegant taste and scientific accuracy, that it cannot fail to become a work of inestimable value.

63 Lapsana, Nymphaea alba, Calendula. l. 163. And many other flowers close and open their petals at certain hours of the day; and thus constitute what Linneus calls the Horologe, or Watch of Flora. He enumerates 46 flowers, which possess this kind of sensibility. I shall mention a few of them with their respective hours of rising and setting, as Linneus terms them. He divides them first into meteoric flowers, which less accurately observe the hour of unfolding, but are expanded sooner or later, according to the cloudiness, moisture, or pressure of the atmosphere. 2d. Tropical flowers open in the morning and close before evening every day; but the hour of the expanding becomes earlier or later, as the length of the day increases or decreases. 3dly. Aequinoctial flowers, which open at a certain and exact hour of the day, and for the most part close at another determinate hour.


As these observations were probably made in the botanic gardens at Upsal, they must require further attention to suit them to our climate. See Stillingfleet’s Calendar of Flora.
Round his light foot a magic chain they fling,
And count the quick vibrations of his wing.—
First in its brazen cell reluctant roll'd
Bends the dark spring in many a steely fold;
On spiral brass in stretch'd the wiry throng,
Tooth urges tooth, and wheel drives wheel along;
In diamond-eyes the polish'd axles flow,
Smooth slides the hand, the ballance pants below.
Round the white circlet in relievo bold
A Serpent twines his scaly length in gold;
And brightly pencil'd on the enamel'd sphere
Live the fair trophies of the passing year.
—Here Time's huge fingers grasp his giant-mace,
And dash proud Superstition from her base,
Rend her strong towers and gorgeous fanes, and shed
The crumbling fragments round her guilty head.
There the gay Hours, whom wreaths of roses deck,
Lead their young trains amid the cumberous wreck;
And, flowly purpling o'er the mighty waste,
Plant the fair growths of Science and of Taste.
While each light Moment, as it dances bye
With feathery foot and pleasure-twinkling eye,
Feeds from its baby-hand, with many a kiss,
This callow nestlings of domestic Bliss.

As yon gay clouds, which canopy the skies,
Change their thin forms, and loose their lucid dyes;
So the soft bloom of Beauty's vernal charms
Fades in our eyes, and withers in our arms.
—Bright as the silvery plume. or pearly shell,
The snow-white rose, or lily's virgin hell,
The fair Helleboras attractive shone, 64
Warm'd every Sage, and every Shepherd won.—
Round the gay sisters press the enamour'd bands,
And seek with soft sollicitude their hands.
—Ere while how changed!—in dim suffusion lies
The glance divine, the lighten'd in their eyes;
Cold are those lips, where smile seductive hung,
And the weak accents linger on their tongue;

64 Helleborus. l. 199. Many males, many females. The Helleborus niger, or Christmas rose, has a large beautiful white flower, adorned with a circle of tubular two-lipp'd nectaries. After impregnation the flower undergoes a remarkable change, the nectaries, drop off, but the white corol remains, and gradually becomes quite green. This curious metamorphos of the corol, when the nectaries fall off, seems to shew that the white juices of the corol were before carried to the nectaries, for the purpose of producing honey: because when these nectaries fall off, no more of the white juice is secreted in the corol, but it becomes green, and degenerates into a calyx. See note on Lonicera. The nectary of the Tropaeolum, garden nasturtien, is a coloured horn growing from the calyx.
Each roseat feature fades to livid green,—
—Disgust with brow averted shuts the seene.

So from his gorgeous throne, which awed the world,
The mighty Monarch of the east was hurl’d
To dwell with brutes beneath the midnight storm,
By Heaven’s just vengeance changed in mind and form.
—Prone to the earth He bends his brow superb,
Crops the young floret and the bladed herb;
Lolls his red tongue, and from the reedy side
Of flow Euphrates laps the muddy tide.
Long eagle-plumes his arching neck invest,
Steal round his arms, and clasp his sharpen’d breast;
Dark brinded hairs in bristling ranks, behind,
Rife o’er his back, and rustle in the wind,
Clothe his lank sides, his shrivel’d limbs surround,
And human hands with talons print the ground.
Silent in shining troops the Courtier-throng
Pursue their monarch, as he crawls along;
E’en beauty pleads in vain with smiles and tears,
Nor Flattery’s self can pierce his pendent ears.

Two Sister-Nymphs to Ganges’ flowery brink
Bend their light steps, the lucid water drink,
Wind through their dewy rice, and nodding canes,
(As eight black Eunuchs guard the sacred plains,)
With playful malice watch the scaly brood,
And shower the inebriate berries on the flood.—
Stay in your crystal chambers, silver tribes!
Turn your bright eyes, and shun the dangerous bribes;
The tramel’d net with less destruction sweeps;
Your curling shallows, and your azure deeps;
With less deceit, the gilded fly beneath,
Lurks the fell hook unseen,—to taste is death!—
—Dim your slow eyes, and dull your pearly coat,
Drunk on the wave your languid forms shall float,
On useless sins in giddy circles play,
And Herons and Otters seize you for their prey.—

65 Two Sister-Nymphs 1. 227. Menispermum. Cocculus. Indian Berry. Two houses, twelve males. In the female flower there are two styles and eight filaments without anthers on their summits; which are called by Linnaeus eunuchs. See the note on Curcuma. The berry intoxicates fish. Saint Anthony of Padua, when the people refused to hear him, preached to the fish, and converted them. Addison’s travels in Italy.
66 Editor’s Note: This section refers to men that were castrated. Eunuchs typically worked as dependable servants for royalty in ancient civilizations. They could easily be trusted because they were unable to reproduce and were therefore unable to create their own exclusive dynasty. Eunuchs were effortlessly removed, and, in some cases, killed, without any consequences.
So, when the Saint from Padua’s graceless land
In silent anguish sought the barren strand,
High on the shatter’d beech sublime He stood,
Still’d with his waving arm the babbling flood;
“To Man’s dull ear,” He cry’d, “I call in vain,
“Hear me ye scaly tenants of the main!”—
Mishapen Seals approach in circling flocks,
In dusky mail the Tortoise climbs the rocks,
Torpedoes, Sharks, Rays, Turbots, Dolphins pour
Their twinkling squadrons round the glittering shore;
With tangled fins, behind, huge Phocae glide,
And Whales and Grampi swell the distant tide.
Then kneel’d the hoary Seer, to heaven address’d
His fiery eyes, and smote his sounding breast;
“Bless ye the Lord!” with thundering voice he cry’d,
“Bless ye the Lord!” the bending shores reply’d;
The winds and waters caught the sacred word,
And mingling echoes shouted “Bless the Lord!”
The listening shoals the quick contagion fee
Pant on the floods, inebriate with their zeal,
Ope their wide jaws, and bow their slimy heads,
And dash with frantic fins their foamy beds.

Sopha’d on silk, amid her charm-built towers,
Her meads of asphodel, and amaranth bowers,
Where Sleep and Silence guard the soft abodes,
In sullen apathy PAVAVER nods.
Faint o’er her couch in scintillating streams
Pass the thin forms of Fancy and of Dreams;
Froze by enchantment on the velvet ground
Fair youths and beauteous ladies glitter round;
On crystal pedestals they seem to sigh,
Bend the stiff knee, and lift the unmoving eye.
—And now the Sorceress bares her shrivell’d hand,
And circles thrice in air her ebon wand;

67 Editor’s Note: This section alludes to the faithful Catholic, Saint Anthony. On one occasion, he used the fish of the sea to scold the foolishness of the multiple heretics that lacked faith. At the shore, he spoke to the fish, telling them to listen to God’s word, and, instantly, fish in all shapes and sizes appeared out of the water and swam close to the bank. As he spoke to them, he praised God and claimed that the fishes of the ocean honor God more than the many faithless men.

68 Papaver. 1. 268. Poppy. Many males, many females. The plants of this class are almost all of them poisonous; the finest opium is procured by wounding the heads of large poppies with a three-edged knife, and tying muscle shells to them to catch the drops. In small quantities it exhilarates the mind, raises the passions, and invigorates the body; it large ones it is succeeded by intoxication, languor, stupor and death. It is customary in India for a messenger to travel above a hundred miles without rest or food, except an appropriated bit of opium for himself, and a larger one for his horse at certain stages. The emaciated and decrepit appearance with the ridiculous and idiotic gestures of the opium-eaters in Constantinople is well described in the memoirs of Baron de Tott.
Fill’d with new life descending statues talk,
The pliant marble softening as they walk;
With warmer lips relenting damsels speak,
And brighter blushes tinge and Parian cheek;
To viewless lutes aerial voices sing,
And hovering Loves are heard on rustling wing.
—She waves her wand again!—fresh horrors seize
Their stiffening limbs, their vital currents freeze;
By each cold nymph her marble lover lies,
And iron slumbers seal their glassy eyes.
So with his dread Caduceus HERMES led
From the dark regions of the imprison’d dead,
Or drove in silent shoals the lingering train
To night’s dull shore, and Pluto’s dreary reign.69

So with her waving pencil CREWE commands70
The realms of taste, and Fancy’s fairy Lands;
Calls up with magic voice the shapes, that sleep
In earth’s dark bosom, or unfathom’d deep;
That shrined in air on viewless wings aspire,
Or blazing bathe in elemental fire.
As with nice touch her plastic hand she moves,
Rise the fine forms of Beauties, Graces, Loves;
Kneel to the fair Inchantress, smile or sigh,
And fade or flourish, as she turns her eye.

Fair CISTA, rival of the rosy dawn,71
Call’d her light choir, and trod the dewy lawn;
Hail’d with rude melody the new-born May,
As cradled yet in April’s lap she lay.

69 Editor’s Note: Caduceus is a staff in Greek mythology used by Hermes. It represented both negotiation and commerce. Its appearance is that of a small staff with two snakes intertwined and wings directly above their heads.

70 So with her waving pencil. 1. 291. Alluding to the many beautiful paintings by Miss Emma Crewe. To whom the author is indebted for the very elegant Frontispiece, where Flora at play with Cupid is loading him with garden-tools.

71 Cistus lubdaniferus. 1.301. Many males, one female. The petals of this beautiful and fragrant shrub, as well as of the Oenothera, tree primrose, and others, continue expanded but a few hours, falling off about noon, or soon after in hot weather. The most beautiful flower of the Cactus grandiflorus, (see Cerea) are of equally short duration, but have their existence in the night. And the flowers of the Hibiscus trionum are said to continue but a single hour. The courtship between the males and females in these flowers might be easily watched; the males are said to approach and recede from the females alternately. The flowers of the Hibiscus sinensis, mutable rose, live in the West Indies, their native climate, but one day; but have this remarkable property, they are white at the first expansion, then change to deep red, and become purple as they decay.

The gum or resin of this fragrant vegetable is collected from extensive underwoods of it in the East by a singular contrivance. Long leathern thongs are tied to poles and cords, and drawn over the tops of these shrubs about noon; which thus collect the dust of the anthers, which adheres to the leather, and is occasionally scraped off. Thus in some degree is the manner imitated, in which the bee collects on his thighs and legs the same material for the construction of his combs.
I.
“Born in yon blaze of orient sky,
“Sweet May! thy radiant form unfold;
“Unclose thy blue voluptuous eye,
“And wave thy shadowy locks of gold.

II.
“For Thee the fragrant zephyrs blow,
“For Thee descends the sunny shower;
“The rills in softer murmurs flow,
“And brighter blossoms gem the bower.

III.
“Light Graces dress’d in flowery wreaths
“And tiptoe Joys their hands combine;
“And Love his sweet contagion breathes,
“And laughing dances round thy shrine.

IV.
“Warm with new life the glittering throngs
“On quivering fin and rustling wing
“Delighted join their votive songs
“And hail thee, Goddess of the Spring.”

O’er the green brinks of Severn’s oozy bed,
In changeful rings, her sprightly troop She led;
Pan tripped before, where Eudness shades the mead,
And blew with glowing lip his sevenfold reed;\(^2\)
Emerging Naiads swell’d the jocund strain,
And aped with mimic step the dancing train.—
“I faint, I fall!”—at noon the Beauty cried,
“Weep o’er my tomb, ye Nymphs!”—and sunk and died.
—Thus, when white Winter o’er the shivering clime
Drives the still snow, or showers the silver rime;
As the lone shepherd o’er the dazzling rocks
Prints his steep step, and guides his vagrant flocks;
Views the green holly veil’d in network nice,
Her vermil clusters twinkling in the ice;
Admires the lucid vales, and slumbering floods,
Fantastic cataracts, and crystal woods,
Transparent towns, with seas of milk between
And eyes with transport the refulgent scene: --
If breaks the sunshine o’er the spangled trees,
Or flits on tepid wing the western breeze,

\(^2\) Stevenfold reed. 1. 324. The sevenfold reed, with which Pan is frequently described, seems to indicate, that he was the inventor of the musical gamut.
In liquid dewa descends the transient glare,
And all the glittering pageant melts in air.

Where Andes hides his cloud-wreath’d crest in snow,
And roots his base on burning sands below;
CINCHONA, fairest of Peruvian maids,73
To Health’s bright Goddess in the breezy glades
On Quito’s temperate plain an altar rear’d,
Trill’d the loud hymn, the solemn prayer prefer’d:
Each balmy bud she cull’d, and honey’d flower,
And hung with fragrant wreaths the sacred bower;
Each pearly sea she search’d, and sparkling mine,
And piled their treasures on the gorgeous shrine;
Her suppliant voice for sickening Loxa raised,—
Sweet breath’d the gale, and bright the censor blazed.
—“Divine HYGIEA! on thy votaries bend
“Thy angel-looks, oh, hear us, and descend!
“While streaming o’er the night with baleful glare
“The star of Autumn rays his misty hair;
“Fierce from his fens the Giant Ague springs,
“And wrap’d in fogs descends on vampire-wings;
“Before, with shuddering limbs cold Tremor reels,
“And Fever’s burning nostril dogs his heels;
“Loud claps the grinning Fiend his iron hands,
“Stamps with his marble feet, and shouts along the lands;
“Withers the damask cheek, unnerves the strong,
“And drives with scorpion-lash the shrieking throng.74
“Oh, Goddess! on thy kneeling votaries bend
“Thy angel-looks, oh, hear us, and defend!”
—HYGIEA, leaning from the blest abodes,
The crystal mansions of the immortal gods,
Saw the sad Nymph uplift her dewy eyes,
Spread her white arms, and breathe her fervid sighs;
Call’d to her fair associates, Youth, and Joy,
And shot all-radiant through the glittering sky;
Loose waved behind her golden train of hair,
Her sapphire mantle swam diffus’d in air.—
O’er the grey matted moss, and pansied sod,
With step sublime the glowing Goddess trod,
Gilt with her beamy eye the conscious shade,

73 Cinchona. 1. 345. Peruvian bark-tree. Five males, and one female. Several of these trees were sell’d for other purposes into a lake, when an epidemic fever of a very mortal kind prevailed at Loxa in Peru, and the woodmen accidentally drinking the water were cured, and thus were discovered the virtues of this famous drug.
74 Editor’s Note: Lines 359-66 allude to ague, a form of malaria that entails high fever and severe shivering. Many individuals have also experienced bone and joint pain caused by the fever. The disease was typically spread through insects and needed professional care to be treated.
And with her smile celestial bless’d the maid.
“Come to my arms,” with seraph voice she cries,
“Thy vows are heard, benignant Nymph! arise;
“Where yon aspiring trunks fantastic wreath
“Their mingled roots, and drink the rill beneath,
“Yield to the biting axe thy sacred wood,
And strew the bitter foliage on the flood.”
In silent homage bow’d the blushing maid,—
Five youths athletic hasten to her aid,
O’er the scar’d hills re-echoing strokes refound,
And headlong forests thunder on the ground.
Round the dark roots, rent bark, and shatter’d boughs,
From ocherous beds the swelling fountain flows;
With streams austere its winding margin laves,
And pours from vale to vale its dusky waves.
—As the pale squadrons, bending o’er the brink,
View with a sigh their alter’d forms, and drink;
Slow-ebbing life with refluent crimson breaks
O’er their wan lips, and paints their haggard cheeks;
Through each fine nerve rekindling transports dart,
Light the quick eye, and swell the exulting heart.
—Thus ISRAEL’s heaven-taught chief o’er trackless sands
Led to the sultry rock his murmuring bands.
Bright o’er his brows the forky radiance blazed,
And high in air the rod divine He rais’d.—
Wide yawns the cliff!—amid the thirsty throng
Rush the redundant waves, and shine along;
With gourds and shells and helmets press the bands,
Ope their parch’d lips, and spread their eager hands,
Snatch their pale infants to the exuberant shower,
Kneel on the shatter’d rock, and bless the almighty Power.

Bolster’d with down, amid a thousand wants,
Pale Dropsy rears his bloated form, and pants;
“Quench me, ye cool pellucid rills!” he cries,
Wets his parch’d tongue, and rolls his hollow eyes.
So bends tormented TANTALUS to drink,
While from his lips the refluent waters shrink;
Again the rising stream his bosom laves,
And Thirst consumes him ’mid circumfluent waves.
—Divine HYGIEA, from the bending sky
Descending, listens to his piercing cry;
Assumes bright DIGITALIS’ dress and air.\

75 Digitalis. 1. 421. Of the class Two Powers. Four males, one female, Foxglove. The effect of this plant is that kind of Dropsy, which is termed anasarca, where the legs and thighs are much swelled, attended with great difficulty of breathing, is truly astonishing. In the ascites accompanied with anasarca of people past the meridian of life it will also sometime succeed. The method of administering it requires some caution,
Her ruby cheek, white neck, and raven hair;  
*Four* youths protect her from the circling throng,  
And like the Nymph the Goddess steps along.—  
—O'er Him She waves her serpent-wreathed wand,  
Cheers with her voice, and raises with her hand,  
Warms with rekindling bloom his visage wan,  
And charms the shapeless monster into man.

So when Contagion with mephitic breath  
And wither’d Famine urged the work of death;  
Marseille’s good Bishop, London’s generous Mayor,  
With food and faith, with medicine and with prayer,  
Raised the weak head and stay’d the parting sigh,  
Or with new life relumed the swimming eye.—  
—And now, BENEVELONCE! thy rays divine  
Dart round the globe from Zembla to the Line;  
O’er each dark prison plays the cheering light,  
Like northern lustres o’er the vault of night.—  
From realm to realm, with cross or crescent crown’d,  
Where’ere Mankind and Misery are found,  
O’er burning sands, deep waves, or wilds of snow,  
Thy HOWARD journeying seeks the house of woe.  
Down many a winding step to dungeons dank,  
Where anguish wails aloud, and fetters clank;  
To caves bestrew’d with many a mouldering bone,  
And cells, whose echoes only learn to groan;  
Where no kind bars a whispering friend disclose,

as it is liable in greater doses to induce very violent and debilitating sickness, which continues one or two days, during which time the dropsical collection however disappears. One large spoonful, or half an ounce, of the following decoction, given twice a day, will generally succeed in a few days. But in more robust people, one large spoonful every twelve hours till four spoonfuls are taken, or till sickness occurs, will evacuate the dropsical swellings with greater certainty, but is liable to operate more violently. Boil four ounces of the fresh leaves of purple Foxglove (which leaves may be had at all seasons of the year) from two pints of water to twelve ounces, add to the strained liquor, while yet warm, three ounces of rectified spirit of wine. A theory of the effects of this medicine with many successful cases may be seen in a pamphlet called, “Experiments on mucilaginous and purulent matter,” published by Dr. Darwin in 1780. Sold by Cadel, London.

76 Marseille’s good Bishop. 1. 431. In the year 1720 and 1722, the Plague made dreadful havoc at Marseilles. At which time the Bishop was indefatigable in the execution of his pastoral office, visiting, relieving, encouraging, and absolving them with extreme tenderness. (Geograph. Dict. printed for Coot, Lond.) and though perpetually exposed to the infection like Sir John Lawrence mentioned below, they both are said to have escaped the disease.

London’s generous Mayor. 1. 431. During the great Plague at London in the year 1665, Sir John Lawrence, the then Lord Mayor, continued the whole time in the city, heard complaints and redressed them, enforced the wisest regulations then known, and saw them executed. The day after the disease was known with certainty to be the Plague, above 40,000 servants were dismissed, and turned into the streets to perish, for no one would receive them into their houses; and the villages near London drove them away with pitch-forks and fire-arms. Sir John Lawrence supported them all, as well as the needy who were sick, at first by expending his own fortune, till subscriptions could be solicited and received from all parts of the nation. *Journal of the Plague-year. Printed for E. Nut. & at the R. Exchange.* 1722.
No sunbeam enters, and no zephyr blows,
He treads, inemulous of fame or wealth,
Profuse of toil, and prodigal of health;
With soft assuasive eloquence expands
Power’s rigid heart, and opes his clenching hands;
Leads stern-eye’d Justice to the dark domains,
If not to sever, to relax the chains;
Or guides awaken’d Mercy through the gloom,
And shews the prison, sister to the tomb!—
Gives to her babes the self-devoted wife,
To her fond husband liberty and life!—
—The Spirits of the Good, who bend from high
Wide o’er these earthly scenes their partial eye,
When first, array’d in Virtue’s purest robe,
They saw her Howard traversing the globe;
Saw round his brows her fun-like Glory blaze
In arrowy circles of unwearied rays;
Mistook a Mortal for an Angel-Guest,
And ask’d what Seraph-foot the earth imprest.
—Onward he moves!—Disease and Death retire,
And murmuring Demons hate him, and admire.

Here paused the Goddess,—on HYGIEA’s shrine,
Obsequious Gnomes repose the lyre divine;
Descending Sylphs relax the trembling strings,
And catch the rain-drops on their shadowy wings.77
—And now her vase a modest Naiad fills
With liquid crystal from her pebbly rills;
Piles the dry cedar round her silver urn,
(Bright climbs the blaze, the crackling faggots burn,)
Culls the green herb of China’s envy’d bowers,
In gaudy cups the steamy treasure pours;
And, sweetly-smiling, on her bended knee
Presents the fragrant quintessence of Tea.

77 Editor’s Note: Sylphs are mythological, invisible, winged creatures. Most sylphs are associated with angels and are portrayed as cloud-like beings. They are thin female spirits of the air that are typically shy and are said to be incredibly curious. According to the myth, they are said to reside at the highest peaks of mountains.
INTERLUDE. II.

Bookseller. The monsters of your Botanic Garden are as surprising as the bulls with the brazen feet, and the fire-breathing dragons, which guarded the Hesperian fruit; yet are they not disgusting, nor mischievous: and in the manner you have chained them together in your exhibition, they succeed each other amusingly enough, like the prints of the London Cries, wrapped upon rollers, with a glass before them. In this at least they resemble the monsters in Ovid’s Metamorphoses; but your similies, I suppose, are Homeric?  

Poet. The great Bard well understood how to make use of this kind of ornament in Epic Poetry. He brings his valiant heroes into the field with much parade, and sets them a fighting with great fury; and then after a few thrusts and parries he introduces a long string of similies. During this the battle is supposed to continue; and thus the time necessary for the action is gained in our imaginations; and a degree of probability produced, which contributes to the temporary deception or reverie of the reader.

But the similies of Homer have another agreeable characteristic; they do not quadrate, or go upon all fours, (as it is called) like the more formal similies of some modern writers; any one resembling feature seems to be with him a sufficient excuse for the introduction of this kind of digression; he then proceeds to deliver some agreeable poetry on this new subject, and thus converts every similie into a kind of short episode.

B. Then a simile should not very accurately resemble the subject?

P. No, it would then become a philosophical analogy, it would be ratiocination instead of poetry: it need only so far resemble the subject, as poetry itself ought to resemble nature. It should have so much sublimity, beauty, or novelty, as to interest the reader, and should be expressed in picturesque language, so as to bring the scenery before his eye; and should lastly bear so much veri-similitude as not to awaken him by the violence of improbability or incongruity.

B. May not the reverie of the reader be dissipated or disturbed by disagreeable images being presented to his imagination, as well as by improbable or incongruous ones?

P. Certainly, he will endeavour to rouse himself from a disagreeable reverie, as from the night-mare. And from this may be discovered the line of boundary between the Tragic and the Horrid: which line however will veer a little this way or that according to the prevailing manners of the age or country, and the peculiar associations of ideas, or idiosyncracy of mind, of individuals. For instance, is an artist should represent the death of an officer in battle by shewing a little blood on the bottom of his shirt, as if a bullet had there penetrated, the dying figure would affect the beholder with pity; and if

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78 **Editor's Note:** The Homeric simile, also called an epic simile, is a type of extended simile commonly used in epic poetry. This type of simile is named after Homer, purported author of the epic poems the *Iliad* and the *Odyssey*. A typical epic simile is several lines long, and generally serves to present the subject of the simile in a heroic fashion.

79 **Editor's Note:** Ratiocination is the process of using one’s reason, typically meant in a philosophical or logical sense.
fortitude was at the same time expressed in his countenance, admiration would be added to our pity. On the contrary, if the artist should chuse to represent his thigh as shot away by a cannon ball, and should exhibit the bleeding flesh and shattered bone of the stump, the picture would introduce into our minds ideas from a butcher’s shop, or a surgeon’s operation-room, and we should turn from it with disgust. So if characters were brought upon the stage with their limbs disjointed by torturing instruments, and the floor covered with clotted blood and scattered brains, our theatric reverie would be destroyed by disgust, and we should leave the play-house with detestation.

The Painters have been more guilty in this respect than the Poets; the cruelty of Apollo in flaying Marcias alive is a favorite subject with the antient artists; and the tortures of expiring martyrs have disgraced the modern ones. It requires little genius to exhibit the muscles in convulsive action either by the pencil or the chissel, because the interstices are deep, and the lines strongly defined: but those tender gradations of muscular action, which constitute the graceful attitudes of the body, are difficult to conceive or to execute, except by a master of nice discernment and cultivated taste.

B. By what definition would you distinguish the Horrid from the Tragic?

P. I suppose the latter consists of Distress attended with Pity, which is said to be allied to Love, the most agreeable of all our passions: and the former in Distress accompanied with Disgust, which is allied to Hate, and is one of our most disagreeable sensations. Hence when horrid scenes of cruelty are represented in pictures, we wish to disbelieve their existence, and voluntarily exert ourselves to escape from the deception: whereas the bitter cup of true Tragedy is mingled with some sweet consolatory drops, which endear our tears, and we continue to contemplate the interesting delusion with a delight, which it is not easy to explain.

B. Has this not been explained by Lucretius, where he describes a shipwreck; and says, the Spectators receive pleasure from feeling themselves safe on land? and by Akinside in his beautiful poem on the Pleasures of Imagination, who ascribes it to our finding objects for the due exertion of our passions?80

P. We must not confound our sensations at the contemplation of real misery with those, which we experience at the scenical representations of tragedy. The spectators of a shipwreck may be attracted by the dignity and novelty of the object; and from these may be said to receive pleasure, but not from the distress of the sufferers. But at the exhibition of a good tragedy, we are not only amused by the dignity and novelty and beauty of the objects before us; but, if any distressful circumstances occur too forceable for our sensibility, we can voluntarily exert ourselves, and recollect, that the scenery is not real: and thus not only the pain, which we had received from the apparent distress, is lessened; but a new source of pleasure is opened to us, similar to that which we frequently have felt on awaking from a distressful dream; we are glad that it is not

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80 Editor’s Note: Lucretius (c. 99-59 BCE) was an adherent of Epicureanism, a philosophy that espoused withdrawing from the world and its concerns. The passage referenced by the bookseller comes from Lucretius’s *De rerum natura*, book 2, lines 1-22. In the passage, Lucretius extends the idea of taking pleasure in one’s separation from events beyond the immediate tragedy of a shipwreck, to mankind’s desire for power and wealth and other problems that Lucretius believed arise from society.
true. We are at the same time unwilling to relinquish the pleasure, which we receive from the other interesting circumstances of the drama; and on that account quickly permit ourselves to relapse into the delusion; and thus alternately believe and disbelieve, almost every moment, the existence of the objects represented before us.

B. Have those two Sovereigns of poetic land, Homer and Shakespeare, kept their works entirely free from the Horrid?—or even yourself in your second Canto?

P. The descriptions of the mangled carcasses of the companions of Ulysses, in the cave of Polypheme, is in this respect certainly objectionable, as is well observed by Scaliger. And in the play of Titus Andronicus, if that was written by Shakespear (which from its internal evidence I think very improbable,) there are many horrid and disgusting circumstances. The following Canto is submitted to the candour of the critical reader, to whose opinion I shall submit in silence.
THE
LOVES
OF THE
PLANTS

CANTO III.

AND now the Goddess sounds her silver shell,
And shakes with deeper tones the inchanted dell;
Pale, round her grassy throne, bedew’d with tears,
Flit the thin forms of Sorrows, and of Fears;
Soft Sighs responsive whisper to the chords,
And Indignations half-unsheath their swords.

Thrice round the grave CIRCAEA prints her tread,
And chants the numbers, which disturb the dead;
Shakes o’er the holy earth her sable plume,
Waves her dread wand, and strikes the echoing tomb!
—Pale shoot the stars across the troubled night,
The timorous moon withholds her conscious light;
Shrill scream the famish’d bats, and shivering owls,
And loud and long the dog of midnight howls!—
—Then yawns the bursting ground!—two imps obscene
Rise on broad wings, and hail the baleful queen;
Each with dire grin salutes the potent wand,
And leads the sorceress with his sooty hand;

81 Circaea. 1.7. Enchanter’s Nightshade. Two males, one female. It was much celebrated in the mysteries of witchcraft, and the purpose of raising the devil, as its name imports. It grows amid the mouldering bones, and decayed coffins, in the ruinous vaults of Sleaford-church in Lincolnshire. The superstitious ceremonies or histories belonging to some vegetables have been truly ridiculous; thus the Druids are said to have cropped the Mistletoe with a golden axe or sickle; and the Bryony or Mandrake, was said to utter a scream, when its root was drawn from the ground; and that the animal which drew it up, became diseased and soon died: on which account, when it was wanted for the purpose of medicine, it was usual to loosen and remove the earth about the root, and then to tie it by means of a cord to a dog’s tail; who was whipped to pull it up, and was then supposed to suffer for the impiety of the action. And ever at this day bits of dried root of Peony are rubbed smooth, and strung, and sold under the name of Anodyne necklaces, and tied round the necks of children, to facilitate the growth of their teeth! add to this that in Price’s History of Cornwall, a book published about ten years ago, the Virga divinatoria, or driving rod, has a degree of credit given to it. This rod is of hazle, or other light wood, and held horizontally in the hand, and is said to bow towards the ore, whenever the Conjurer walks over a mine, A very few years ago in France, and even in England, another kind of divining rod has been used to discover springs of water in a similar manner, and gained some credit. And in the very last year, there were many in France and some in England, who underwent an enchantment without any divining rod at all, and believed themselves to be affected by an invisible agent; which the Enchanter called Animal Magnification!
Onward they glide, where sheds the sickly yew
O'er many a mouldering bone its nightly dew;
The ponderous portals of the church unbar,—
Hoarse on their hinge the ponderous portals jar;
As through the colour'd glass the moon-beam falls,
Huge shapeless spectres quiver on the walls;
Low murmurs creep along the hollow ground,
And to each step the pealing ailes resound;
By glimmering lamps, protecting saints among,
The shrines all tremble as they pass along,
O'er the still choir with hideous laugh they move,
(Fiends yell below, and angels weep above!) Their impious march to God's high altar bend,
With feet impure the sacred steps ascend;
With wine unbless'd the holy chalice stain,
Assume the mitre, and the cope profane;
To heaven their eyes in mock devotion throw,
And to the cross with horrid mummering bow;
Adjure by mimic rites the powers above,
And plite alternate their Satanic love.

Avaunt, ye Vulgar! from her sacred groves
With maniac step the Pythian LAURA moves;[^82]
Full of the God her labouring bosom sighs,
Foam on her lips, and fury in her eyes,
Strong writhe her limbs, her wild dishevell'd hair
Starts from her laurel-wreath, and swims in air.—
While twenty Priests the gorgeous shrine surround
Cinctur'd with ephods, and with garlands crown'd,
Contending hosts and trembling nations wait
The firm immutable behests of Fate;
—She speaks in thunder from her golden throne
With words unwilling, and wisdom not her own.

So on his NIGHTMARE through the evening fog
Flits the squab Fiend o'er fen, and lake, and bog;
Seeks some love-wilder'd Maid with sleep oppress'd,
Alights, and grinning sits upon her breast.
—Such as of late amid the murky sky
Was mark’d by Fuseli’s poetic eye;\(^{83}\)
Whose daring tints, with Shakespeare’s happiest grace,
Gave to the airy phantom form and place—
Back o’er her pillow sinks her blushing head,
Her snow-white limbs hang helpless from the bed;
While with quick sighs, and suffocative breath,
Her interrupted heart-pulse swims in death.
—Then shrieks of captured towns, and widows’ tears,
Pale lovers stretch’d upon their blood-stain’d biers,
The headlong precipice that thwarts her flight,
The trackless desert, the cold starless night,
And stern-eye’d Murderer with his knife behind,
In dread succession agonize her mind.
O’er her fair limbs convulsive tremors fleet,
Start in her hands, and struggle in her feet;
In vain to scream with quivering lips she tries,
And strains in palsy’d lids her tremulous eyes;
In vain she wills to run, fly, swim, walk, creep;
The WILL presides not in the bower of SLEEP.\(^{84}\)
—On her fair bosom sits the Demon-Ape
Erect, and balances his bloated shape;
Rolls in their marble orbs his Gorgon-eyes,

\(^{83}\) Editor’s Note: Darwin uses Henry Fuseli’s (1741-1825) famous painting *The Nightmare* (1781) as his inspiration to explore the idea of nightmares. Darwin’s interpretation explores how sleep can delay or obstruct the power of choice and free will. Darwin believes this desire to move during sleep is what causes the nightmares. In other words, “the Demon-Ape” sitting on her chest is not a figure of the nightmare but an external representation of her subdued body. Darwin’s interpretation demonstrates the paralysis of sleep and the inability to cry out in this alternate reality (or nightmare).

\(^{84}\) The Will presides not. l.74. Sleep consists in the abolition of all voluntary power, both over our muscular motions and our ideas; for we neither walk nor reason in sleep. But at the same time, many of our muscular motions, and many of our ideas continue to be excited into action, in consequence of internal irritations, and of internal sensations; for the heart and arteries continue to beat, and we experience variety of passion, and even hunger and thirst in our dreams. Hence I conclude, that our nerves of sense are not torpid or inert during sleep; but that they are only precluded from the perception of external objects, by their external organs being rendered unfit to transmit to them the appulses of external bodies, during the suspension of the power of volition; thus the eyelids are closed in sleep, and I suppose the tympanum of the ear is not stretched, because they are deprived of the voluntary exertions of the muscles appropriated to these purposes; and it is probable something similar happens to the external apparatus of our other organs of sense, which may render them unfit for their office of perception during sleep: for milk put into the mouths of sleeping babes occasions them to swallow and suck; and, if the eyelid is a little opened in the day-light, by the exertions of disturbed sleep, the person dreams of being much dazzled. See first Interlude.

When there are arises in sleep, a painful desire to exert the voluntary motions, it is called the Nightmare, or Incubus.—When the sleep becomes so imperfect, that some muscular motions obey this exertion of desire, people have walked about and even performed some domestic offices in sleep: one of these sleep-walkers I have frequently seen; once she smelt of a tube -rose, and fungi and drank a dish of tea in this state; her awakening was always attended with prodigious surprize and eve fear; this disease had daily periods, and seemed to be of the epileptic kind.
And drinks with leathern ears her tender cries.

Arm’d with her ivory beak, and talon-hands,
Descending FICA dives into the sands;85
Chamber’d in earth with cold oblivion lies;
Nor heeds, ye Suitor-train, your amorous sighs;
Erewhile with renovated beauty blooms,
Mounts into air, and moves her leafy plumes.
—Where HAMPS and MANIFOLD, their cliffs among,
Each in his flinty channel winds along;
With lucid lines the dusky Moor divides,
Hurrying to intermix their sister tides.
Where still their silver-bosom’d Nymphs abhor,
The blood-smear’d mansion of gigantic THOR—86
—Erst, fires volcanic in the marble womb
Of cloud-wrapp’d WETTON raised the massy dome;
Rocks rear’d on rocks in huge disjointed piles
From the tall turrets, and the lengthen’d ailes;
Broad ponderous piers sustain the roof, and wide
Branch the vast rain-bow ribs from side to side.
While from above descends in milky streams
One scanty pencil of illusive beams,
Suspended crags and gaping gulphs illumes,
And gilds the horrors of the deepen’d glooms.
—Here oft the Naiads, as they chanced to play87

85 *Ficus indica*. l.80. Indian Fig-tree. Of the class Polygamy. This large tree rises with opposite branch on all sides, with long egged leaves; each branch emits a slender flexile depending appendage from its summit like a cord, which roots into the earth and rises again. Sloan. Hift. of Jamaica. Lin. Spec. Plant. See *Capri-ficus*.

86 *Gigantic Thor*. l.90. Near the village of Wetton, a mile or two above Dove-Dale near Ashburn in Derbyshire, there is a spacious cavern about the middle of the ascent of the mountain, which still retains the name of Thor’s house; below is an extensive and romantic common, where the rivers Hamps and Manifold sink into the earth, and rise again in Ilam gardens, the seat of John Port, Eig. about three miles below. Where these rivers rise again, there are impressions resembling Fish, which appear to be of Jasper bedded in Limestone. Calcareous Spars, Shells converted into a kind of Agate, coral lines in Marble, ores of Lead, Copper, and Zine and may strata of Flint, or Chert, and of Toadstone, or Lava, abound in this part of the country. The Druids are said to have offered human sacrifices inclosed in wicker idols to Thor. Thursday had its name from the Deity.

The broken appearance of the surface of many parts of this country; with the Swallows, as they are called, or basons on some of the mountains, like volcanic Craters, where the rain water sinks into the earth; and the numerous large stones, which seem to have been thrown over the land by volcanic explosions; as well as the great masses of Toadstone or Lava; evince the existence of violent earthquakes at some early period of the world. At this time the channels of these subterraneous rivers seem to have been formed, when a long tract of rocks were raised by the sea flowing in upon the central fires, and thus producing an irresistible explosion of steam; and when these rocks again subsided, their parts did not exactly correspond, but left a long cavity arched over in this operation of nature. The cavities at Castleton and Buxton in Derbyshire, seem to have had a similar origin, as well as this cavern termed Thor’s house. See Mr. Whitehurst’s and Dr. Hutton’s Theories of the Earth.

87 **Editor’s Note**: In Greek Mythology, Naiads were nymphs that resided in fresh bodies of water (streams, lakes, fountains, etc). They depended on their body of water for survival, meaning if the lake
Near the dread Fane on THOR’s returning day,
Saw from red altars streams of guiltless blood
Stain their green reed-beds, and pollute their flood;
Heard dying babes in wicker prisons wail,
And shrieks of matrons thrill the affrighted Gale;
While from dark caves infernal Echoes mock,
And Fiends triumphant shout from every rock!
—So still the Nymphs emerging lift in air
Their snow-white shoulders and their azure hair;
Sail with sweet grace the dimpling streams along,
Listening the Shepherd’s or the Miner’s song;
But, when afar they view the giant-cave,
On timorous fins they circle on the wave,
With streaming eyes and throbbing hearts recoil,
Plunge their fair forms, and dive beneath the soil.—
Closed round their heads reluctant eddies sink,
And wider rings successive dash the brink.—
Three thousand steps in sparry clefts they stray,
Or seek through sullen mines their gloomy way;
On beds of Lava sleep in coral cells,
Or sigh o’er jasper fish, and agate shells.
Till, where famed ILAM leads his boiling floods
Through flowery meadows and impending woods,
Pleased with light spring they leave the dreary night,
And ’mid circumfluent surges rise to light;
Shake their bright locks, the widening vale pursue,
Their sea-green mantles fringed with pearly dew;
In playful groups by towering THORP they move,
Bound o’er the foaming wears, and rush into the Dove.

With fierce distracted eye IMPATIENS stands, 88

dried up, the Naiad would die. The Greeks worshiped the Naiads because they believed the waters held medicinal powers that promoted growth and fertility. Naiads often seduced mortals as well as various Greek Gods. The stories involving Naiads generally ended without a happy ending, often with a scorned lover (the Naiad) and a tormented mortal.

88 *Impatiens*. l.131. Touch me not. The feed vessel consists of one cell with five divisions; each of these, when the feed is ripe, on being touched, suddenly folds itself into a spiral form, leaps from the stalk, and disperses the feeds to a great distance by its elasticity. The capsule of the geranium and the beard of wild oats are twisted a similar purpose, and dislodge their feeds on wet days, when the ground is best fitted to receive the purpose of an hygrometer, twisting itself more or less according to the moisture of the air.

The awn of barley is furnished with stiff points, which like the teeth of a few are all turned towards the point of it; as this long awn lies upon the ground, it extends itself in the moist air of night, and pushes forwards the barley corn, which it adheres to; in the day it shortens as it dries, and as these points prevent it from receding, it draws up its pointed end; and thus creeping like a worm will travel many feet from the parent stem. That very ingenious Mechanic Philosopher Mr. Edgeworth once made on this principle a wooden automaton; its black consisted of soft Fir-wood, about an inch square and four feet long, made of pieces cut the cross way in respect to the fibres of the wood, and glued together; it had two feet before, and two behind, which supported the back horizontally; but were placed with their extremities, which were armed with sharp points of iron, bending backward. Hence in moist weather the
Swells her pale cheeks, and brandishes her hands,  
With rage and hate the astonish’d groves alarms,  
And hurls her infants from her frantic arms.
—So when MEDAEA left her native soil
Unaw’d by danger, unsubdued by toil;
Her weeping sire and beckoning friends withstood,
And launch’d enamour’d on the boiling flood;
One ruddy boy her gentle lips caress’d,
And one fair girl was pillow’d on her breast
While high in air the golden treasure burns,
And Love and Glory guide the prow by turns.
But, when Thessalia’s inauspicious plain
Received the matron-heroine from the main;
While horns of triumph found, and altars burn,
And shouting nations hail their Chief’s return;
Aghast, She saw new deck’d the nuptial bed,
And proud CREUSA to the temple led;
Saw her in JASON’s mercenary arms
Deride her virtues, and insult her charms;
Saw her dear babes from fame and empire torn,
In foreign realms deserted and forlorn;
Her love rejected, and her vengeance braved,
By Him her beauties won, her virtues saved.—
With stern regard she eyed the traitor-king,
And felt, Ingratitude! thy keenest sting;
“Nor Heaven,” She cried, “nor Earth, nor Hell can hold
“A Heart abandon’d to the thirst of Gold!”
Stamp’d with wild foot, and shook her horrent brow,
And call’d the furies from their dens below.
—Slow out of earth, before the festive crowds,
On wheels of fire, amid a night of clouds,
Drawn by fierce fiends arose a magic car,
Received the Queen, and hovering flamed in air.—
As with raised hands the suppliant traitors kneel
And fear the vengeance they deserve to feel,
Thrice with parch’d lips her guiltless babes she presr’d,
And thrice she clasp’d them to her tortur’d breast;
Awhile with white uplifted eyes she stood,
Then plung’d her trembling poniards in their blood.
“Go, kiss your sire! go, share the bridal mirth!”
She cry’d, and hurl’d their quivering limbs on earth.
Rebellowing thunders rock the marble towers,
And red-tongued lightnings shoot their arrowy showers;

back lengthened and the two foremost feet were pushed forwards; in dry weather the hinder feet were drawn after; as the obliquity of the points of the feet prevented it from receeding. And thus in a month or two it walked across the room, which it inhabited. Might not this machine be applied as an Hygrometer to some meteorological purpose?
Earth yawns!—the crashing ruin sinks!—o’er all
Death with black hands extends his mighty Pall;
Their mingling gore the Fiends of Vengeance quaff,
And Hell receives them with convulsive laugh.  

Round the vex’d isles where fierce tornados roar,
Or tropic breezes sooth the sultry shore;
What time the eve her gauze pellucid spreads
O’er the dim flowers, and veils the misty meads;
Slow, o’er the twilight sands or leafy walks,
With gloomy dignity DICTAMNA stalks;
In sulphurous eddies round the weird dame
Plays the light gas, or kindles into flame.
If rests the traveller his weary head,
Grim MANCINELLA haunts the mossy bed.

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89 **Editor’s Note:** This section (ll. 135-78) alludes to a story from Greek mythology. Medea was a witch who helped Jason and the Argonauts get the Golden Fleece from her father, King Aeetes of Colchis. She cut her brother up into pieces to stall her father long enough for them to get away. Medea and Jason married and had two children before he left her for the daughter of King Creon of Corinth. In revenge to Jason’s abandonment, Medea murdered Creon and his daughter as well as her own two sons. Medea then fled to Athens and married King Aegeus and bore a son with him named Medus. She tried to trick Aegeus into killing his other son Theseus but failed and had to flee once again. Her son Medus became the country’s king. The country was later renamed Media and the citizens called themselves Medes.

Creusa was the daughter of King Creon of Corinth. Medea’s husband Jason left her for Creusa. After Jason and Creusa were married, Medea killed her by giving her a poisoned gown that stuck to her body when she wore it. Creusa’s father Creon died from the poison as well when he embraced her lifeless body.

Jason was Aeson’s son and the leader of the Argonauts. King Pelias sent Jason on an impossible quest to retrieve the Golden Fleece from Colchis because he feared the prophecy that said Jason would one day do him harm. Jason and the Argonauts were the first mortals to sail through the Clashing Rocks (Symolegades) and also freed Phineys from Harpies Curse. When they reached Colchis, King Aeetes refused to give them the Golden Fleece until they completed several tasks: first, he had to get a herd of fire-breathing Oxen to plow a field with them, then plant dragon teeth in the field and kill the armored men that formed from the seeds, and finally, he had to defeat the dragon guarding the Fleece. Aeetes daughter Medea, fell in love with Jason and helped him complete the tasks with her magic. Aeetes chased them after they fled Colchis with the Fleece. Medea and Jason were married and had two sons that Medea later killed as revenge when Jason left her for Creusa. Jason was killed later when he was hit on the head with a piece of his own ship, the Argo.

90 **Dictamnus.** l.184. Fraxinella. In the still evenings of dry seasons, this plant emits n inflammable air or gas, and flashes on the approach of a candle. There are instances of human creatures who have taken fire spontaneously, and been totally consumed. Phil. trans.

The odours of many flowers so delightful to our sense of smell, as well as the disagreeable scents of others, are owing to the exhalation of their essential oils. These essential oils have greater or less volatility, and are all inflammable; many of the are poisons to us, as these of Laurel and Tobacco; others possess a narcotic quality; as is evinced by the oil of cloves instantly relieving slight tooth-aches; from oil of cinnamon relieving the hiccup; and balsam of peru relieving the pain of some ulcers. They are all deleterious to certain insects, and hence their use in the vegetable economy, being produced in flowers or leaves to protect them from the depredations of their voracious enemies. The shops of medicine are supplied with resins, balsams, and essential oils; and the tar and pitch for mechanical purposes are produced from these vegetable secretions.

91 **Mancinella.** l.188. Hyppomane. With the milky juice of this tree the Indians poison their arrows; the dew-drops, which fall from it, are so caustic as to blister the skin, and produce dangerous ulcers; whence
Brews her black hebenon, and, stealing near.
Pours the curst venom in his tortured ear—
Wide o’er the mad’ning throng URTICA slings
Her barbed shafts, and darts her poison’d stings.
And fell LOBELIA’s suffocating breath
Loads the dank pinion of the gale with death.
—With fear and hate they blast the affrighted groves,
Yet own with tender care their kindred Loves!—

So, where PALMIRA ’mid her wasted plains,
Her shatter’d aqueducts, and prostrate fanes,
(As the bright orb of breezy midnight pours
Long threads of silver through her gaping towers,
O’er moulder ing tombs, and tottering columns gleam,
And frosts her deserts with diffusi ve beams,) 
Sad o’er the mighty wreck in silence bends,
Lifts her wet eyes, her tremulous hands extends.—

many have found their death by sleeping under its shade. Variety of noxious plants abound in all countries, in our own the deadly nightshade, henbane, houndstongue, and many others are seen in almost every high-road untouched by animals. Some have asked what is the use of such abundance of poisons? the nauseous or pungent juices of some vegetables, like the thorns of others are given them for their defence from the depredations of animals; hence the thorny plants are in general wholesome, and agreeable food to graminivorous animals. See note on Ilex. The fragrance of plants is thus a part of their defence. These pungent or nauseous juices of vegetables have supplied the science of medicine with its principal materials. Such as purge, vomit, intoxicate, &c.

92 Urtica. l.191. Nettle. The sting has a bag at its base, and a perforations near its point, exactly like the stings of wasps, and the teeth of adders; Hook. mierogr.p.142. Is the fluid contained in this bag, and pressed through the perforation into the wound made by the point, a caustic essential oil, or a concentrated vegetable acid? The vegetable poisons like the animal ones produce more sudden and dangerous effects, when instilled into a wound than when taken into the stomach; whence the families of Marsi and Psili in ancient Rome sucked the poison without injury out of wounds made by vipers; and were supposed to be inducted with supernatural powers for this purpose. by the experiments related by Beocaria it appears, that four or five times the quantity taken by the mouth had about equal effects with that infused into a wound. The male flowers of the nettle are separate from the female, and the anthers are seen in fair weather to burst with force and to discharge a dust, which hovers about the plant like a cloud.

93 Lebelia. l.193. Longiflora. Grows in the Weft Indies, and spreads such deleterious exhalations around it; that an oppression of the breast is felt on approaching it at many feet distance, when placed in the corner of a room or hot-house. Indenhouz exper. on air, p.146. Jacquini hort botanic. Vindeb. The exhalations from ripe fruit, or withering leaves, are proved much to injure the air in which they are confined; and it is probable all those vegetables which emit a strong scent may do this in a greater or less degree, from the Rose to the Lobelia. Whence the unwholesomeness in living perpetually in such an atmosphere of perfume, as some people wear about their hair, or carry in their handkerchiefs. Either Boerhave or Dr. Mead have affirmed they were acquainted with a poisonous fluid, whose vapour would presently destroy the person, who sat near it. And it is well known that the gas from fermenting liquors, or obtained from limestone, will destroy animals immersed in it; as well as the vapour of the Grotto del Cani near Naples.

94 So, where Palmira. l. 197. Among the ruins of Palmira, which are dispersed not only over the plains but even in the deserts, there is one single colonade above 2600 yards long, the bases of the Corinthian columns of which exceed the height of a man. And yet this row is only a small part of the remains of that one edifice! Volney’s travels.

95 Editor’s Note: Palmira refers to the ancient city located in Syria on the edge of the Syrian Desert. Better known today as Palmyra, or, before Roman takeover, as Tadmor, as it is called in the Bible. The city
If from lone cliffs a bursting rill expands
Its transient course, and sinks into the sands;
O'er the most rock the fell Hyaena prowls,
The Leopard hisses, and the Panther growls;
On quivering wing the famish'd Vulture screams,
Dips his dry beak, and sweeps the gushing streams;
With foamy jaws, beneath, and sanguine tongue
Laps the lean Wolf, and pants, and runs along;
Stern stalks the Lion, on the rustling brink;
Hears the dread Snake, and trembles as he drinks;
Quick darts the scaly Monster o'er the plain,
Fold after fold, his undulating train;
And, bending o'er the lake his crested brow,
Starts at the Crocodile, that gapes below.

Where seas of glass with gay reflections smile
Round the green coasts of Java's palmy isle;
A spacious plain extends its upland scene,
Rocks rise on rocks, and fountains gush between;
Soft breathes the breeze, eternal summers reign,
And showers prolific bless the soil,—in vain!
—No spicy nutmeg scents the vernal gales,
Nor towering plantain shades the mid-day vales;
No grassy mantle hides the sable hills,
No flowery chaplet crowns the trickling rills,
Nor tufted moss, nor leathery lichen creeps
In russet tapestry o'er the crumbling steeps.
—No step retreating, on the sand impress'd,
Invites the visit of a second guest;
No refluent fin the unpeopled stream divides,
No revolant pinion cleaves the airy tides;
Nor handed moles, nor beaked worms return,
That mining pass the irremeable bourn.—
Fierce in dread silence on the blasted heath
Fell UPAS fits, the HYDRA-TREE of death.96

96 Upas. L.238. There is a poison-tree in the island of Java, which is said by its effluvia to have depopulated the country for 12 or 14 miles around the place of its growth. It is called in the Malayan language Bohon-Upas; with the juice of it the most poisonous arrows are prepared; and to gain this the condemned criminals are sent to the tree with proper direction to get the juice, and to secure themselves from the malignant exhalations of the tree; and are pardoned if they bring back a certain quantity of the poison. But the register there kept, not one in four are said to return. Not only animals of all kinds both
dates back to the 11th century BCE and prospered in ancient times due to its perfect location for trade.
Lo! from one root, the envenom'd foil below,
A thousand vegetative serpents grow;
In shining rays the scaly monster spreads
O'er ten square league his far-diverging heads;
Or in one trunk entwists his tangled form,
Looks o'er the clouds, and hisses in the storm.
Steep'd in fell poison, as his sharp teeth part,
A thousand tongues in quick vibration dart;
Snatch the proud Eagle towering o'er the heath,
Or pounce the Lion, as he stalks beneath;
Or strew, as marshal'd hosts contend in vain,
With human skeletons the whiten'd plain.
—Chain'd at his root two infant Demons dwell,
Breath at the soft hiss, or try the tender yell;
Rise, fluttering in the air on callow wings,
And aim at insect-prey their little stings.
So Time's strong arms with sweeping scythe erase
Art's cumberous works, and empires, from their base;
While each young Hour its fickle fine employs,
And Crops the sweet buds of domestic joys!

Two Harlot-Nymphs, the fair CUSCUTAS, please
With labour'd negligence, and studied ease;

quadrupeds, fish, and birds, but all kind of vegetables also are destroyed by the effluvia of the noxious tree, so that in a district of 12 or 14 miles round it, the face of the earth is quite barren, and rocky, intermixed only with skeletons of men and animals; affording a scene of melancholy beyond what poets have described, or painters delineated. Two younger trees of its own species are said to grow near it. See London Magazine for 1783, or 1783. Translated from a description of the poison tree of the island of Java, written in Dutch by N. P. Foersh. For a further account of it see a note at the end of the work.

Cuscuta. l. 327. Dodder. Four males, two females. This parasite plant (the seed splitting without cotyledons), protrudes a spiral body, and not endeavouring to root itself in the earth ascends the vegetables in its vicinity, spirally W. S. E. or contrary to the movement of the sun; and absorbs its nourishment by vessels apparently inserted into its supporters. It bears no leaves, except here and there a scale, very small membranous and close under the branch. Lin. Spec. Plant. edit. a Reichard. Vol. I. p. 352. The Rev. T. Martyn in his elegant letters on botany adds, that not content with support, where it lays hold, there it draws its nourishment; and at length in gratitude for all this strangles its entertainer. Let. xv. A contest for air and light obtains throughout the whole vegetable world; shrubs rise above herbs; and by precluding the air and light from them, injure or destroy them; trees suffocate or incommode shrubs; the parasite climbing plants, as Ivy, Clematis, incommode the taller trees; and other parasites, which exist without having roots on the ground, as Misletoe, Tillandsia, and the mosses and funguses, incommode them all.

Some of the plants with voluble stems ascend other plants spirally east-south-west, as Humulus, Hop, Lonicer, Honey-suckle, Tamus, black Bryony, Helxine. Others turn their spiral stems W.S.E. as Convulvulus, Corn-suckle, Phaseolus, kidneybean, Basella, Cynanche, Euphorbia, Eupatorium. The proximate or final causes of this difference have not been investigated. One of the Indian grasses, Panicum arborescens, whose stem is no thicker than a goose-quill, rises as high as the tallest trees in this contest for light and air. Spec. Plant a Reichard, Vol. I. p. 161. The tops of many climbing plants are tender from their quick growth; and, when deprived of their acrimony by boiling, are an agreeable article of food. The Hop-tops are in common use; I have eaten the tops of white Bryony, Bryonia alba, and found them nearly as grateful as Asparagus, and think this plant might be profitably cultivated as an early garden-vegetable. The Tamus, (called black Bryony), was less agreeable to the taste when boiled. See Galanthus.
In the meek garb of modest worth disguised,  
The eye averted, and the smile chastised,  
With sly approach they spread their dangerous charms,  
And round their victim wind their wiry arms.  
So by Scamander when LAOCOON stood,  
Where Troy’s proud turrets glitter’d in the flood,  
Raised high his arm, and with prophetic call  
To shrinking realms announced her fated fall;  
Whirl’d his fierce spear with more than mortal force,  
And pierced the thick ribs of the echoing horse;  
Two Serpent-forms incumbent on the main,  
Lashing the white waves with redundant train,  
Arch’d their blue necks, and shook their towering crests,  
And plough’d their foamy way with speckled breasts;  
Then darting fierce amid the affrighted thongs,  
Roll’d their red eyes, and shot their forked tongues.—
—Two daring Youths to guard the hoary fire  
Thwart their dread progress, and provoke their ire.  
Round fire and sons the scaly monster roll’d,  
Ring above ring, in many a tangled fold,  
Close and more close their writhing limbs surround,  
And fix with foamy teeth the invenom’d wound.  
—With brow upturn’d to heaven the holy Sage  
In silent agony sustains their rage;  
While each fond Youth, in vain, with piercing cries  
Bends on the tortured Sure his dying eyes.

“Drink deep, sweet youths,” seductive VITIS cries,  
The maudlin tear-drop glittering in her eyes;

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98 Editor’s Note: According to Ancient Greek mythology, Laocoön was a priest of either Apollo, the God of the Sun, or Poseidon, the God of the Sea (there is variation according to which myth is read). At the end of the Trojan war, Laocoön saw through the Greek’s deceptive gift of the Trojan Horse. Laocoön knew it not to be a homage to Athena, the Goddess of Wisdom and Military Victory, as the Trojans were told, and suspected a trick, famously, quoted as saying, “I fear the Greeks, even those bearing gifts.” Laocoön attempted to persuade the Trojan leaders to destroy the horse. While a decision was being made on what to do with the construct, two sea serpents were sent to land from heaven to kill Laocoön and his sons. In the most popular version of the myth, Laocoön bravely fought the serpents off but his sons died. The god who sent the serpents varies with each account, from Poseidon punishing Laocoön for being right about the horse, to many other gods for unrelated reasons. The Trojan leaders saw the event as a sign from the Gods to ignore Laocoön’s argument and brought the wooden horse inside Troy, leading to the city’s downfall.

99 Vitis. 1:287. Vine. Five males, one female. The juice of the ripe grape is a nutritive and agreeable food, consisting chiefly of sugar and mucilage. The chemical process of fermentation converts this sugar into spirit, converts food into poison! And it has thus become the curse of the Christian world, producing more than half of our chronic diseases; which Mahomet observed, and forbade the use of it to his disciples. The Arabians invented distillation; and thus, by obtaining the spirit of fermented liquors in a less diluted state, added to its destructive quality. A theory of the Diabates and Dropsy, produced by drinking fermented or spirituous liquors, is explained in a treatise on the inverted motions of the lymphatic system, published by Dr. Darwin. Cadell.
Green leaves and purple clusters crown her head,
And the tall Thyrsus stays her tottering tread.
—*Five* hapless swains with soft assuasive smiles
The harlot meshes in her deathful toils;
“Drink deep,” she carols, as she waves in air
The mantling goblet, “and forget your care.”—
O'er the dread feast malignant Chemia scowls,
And minglest poison in the nectar’d bowls;
Fell Gout peeps grinning through the flimsy scene,
And bloated Dropolis pants behind unseen;
Wrap’d in his robe whit Lepra hides his stains,
And silent Frenzy writhing bites his chains.

So when PROMETHEUS, fearless of his ire,
Stole from the throne of JOVE forbidden fire;
And, lantern’d in his breast, from realms of day,
Bore the bright treasure to his Man of clay; —
High on cold Caucasus by VULCAN bound,
The lean impatient Vulture fluttering round,
His writhing limbs in vain he twists and strains
To break to loose the adamantine chains.
The glutinous bird, regardless of his pangs,
Tears his swoln liver with remorseless fangs.

The gentle CYCLAMEN with dewy eye
Breathes o'er her lifeless babe the parting sigh;
And, bending low to earth, with pious hands
Inhumes her dear Departed in the sands.
“Sweet Nursling! withering in thy tender hour,

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100 *Prometheus.* l.301. The antient story of Prometheus, who concealed in his bosom the fire he had stolen, and afterwards had a vulture perpetually gnawing his liver, affords so apt an allegory for the effects of drinking spirituous liquors, that one should be induced to think the art of distillation, as well as some other chemical processes, (such as calcining gold,) had been known in times of great antiquity, and lost again. The swallowing drams cannot be better represented in hieroglyphic language than by taking fire into one's bosom; and certain it is, that the general effect of drinking fermented or spirituous liquors is an inflamed, schirrous, or paralytic liver, with its various critical or consequential diseases, as leprous eruptions on the face, gout, dropsy, epilepsy, insanity. It is remarkable that all the diseases from drinking spirituous or fermented liquors are liable to become hereditary, even to the third generation; gradually increasing, if the cause be continued, till the family becomes extinct.

101 *Cyclamen.* l.311. Shew-bread, or Sow-bread. When the seeds are ripe, the stalk of the flower gradually twists itself spirally downwards, till it touches the ground, and forcibly penetrating the earth lodges its seeds; which are thought to receive nourishment from the parent root, as they are said not to be made to grow in any other situation.

The Trifolium subterraneum, subterraneous trefoil, is another plant, which buries its seed, the globular head of the seed penetrating the earth; which however, in this plant may be only an attempt to conceal its seeds from the ravages of birds; for there is another trefoil, the trifolium globosum, or globular wolly-headed trefoil, which has a curious manner of concealing its seeds; the lower florets only have corols and are fertile; the upper ones wither into a kind of wool, and forming a head compleatly conceal the fertile calyxes. Lin. Spec. Plant. a Reichard.
“Oh, sleep,” She cries, “and rise a fairer flower!”
—So when the Plague o’er London’s gasping crowds
Shook her dank wing, and steer’d her murky clouds;
When o’er the friendless bier no rites were read,
No dirge slow-chanted, and no pall out-spread;
While Death and Night piled up the naked throng,
And Silence drove their ebon cars along;
Six lovely daughter, and their father, swept
To the throng’d grave CLEONE saw, and wept;
Her tender mind, with meek Religion fraught,
Drank all-resigned Affliction’s bitter draught;
Alive and listening to the whisper’d groan
Of other’s woes, unconscious of her own! —
One smiling boy, her last sweet hope, she warms
Hushed on her bosom, circled in her arms,—
Daughter of woe! ere morn, in vain caress’d,
Clung the cold Babe upon they milkless breast,
With feeble cries they last sad aid required,
Stretch’d its stiff limbs, and on thy lap expired!—
—Long with wide eye-lids on her Child she gazed,
And long to heaven their tearless orbs she raised;
Then with quick foot and throbbing heart she found
Where Chartreuse open’d deep his holy ground;[102]
Bore her last treasure through the midnight gloom,
And kneeling drop’d it in the mighty tomb;
“I follow next!” the frantic mourner said,
And living plunged amid the festering dead.

Where vast Ontario rolls his brineless tides,
And feeds the trackless forests on his sides,
Fair CASSIA trembling hears the howling woods,[103]
And trusts her tawny children to the floods.—
Cinctured with gold while ten fond brothers stand,
And guard the beauty on her native land,
Soft breathes the gale, the current gently moves,
And bears to Norway’s coasts her infant-loves.
— So the sad mother at the noon of night
From bloody Memphis stole her silent flight;
Wrap’d her dear babe beneath her folded vest,
And clasp’d the treasure to her throbbing breast,
With soothing whispers hushed its feeble cry,
Pressed the soft kiss, and breathed the secret sigh.—
—With dauntless step she seeks the winding shore,
Hears unappall’d the glimmering torrents roar;
With Paper-flags a floating cradle weaves,
And hides the smiling boy in Lotus-leaves;
Gives her white bosom to his eager lips,
The salt tears mingling with the milk he sips;
Waits on the reed-crown’d brink with pious guile,
And trusts the scaly monsters of the Nile.—
—Erewhile majestic from his lone abode,
Embassador of Heaven, the Prophet trod;
Wrench’d the red Scourge from proud Oppression’s hands,
And broke, curst Slavery! thy iron bands.

Hark! heard ye not that piercing cry,
Which shook the waves, and rent the sky! —

E’en now, e’en now, on yonder Western shores

of the trade-winds, which blowing always in the same direction, carry the waters of the atlantic ocean to
the westward, till they are stopped by the opposing continent on the west of the Gulf of Mexico, and are
thus accumulated there, and run down the Gulf of Florida. Philos. Trans. V. 71, p. 335. Governor Pownal
has given an elegant map of this Gulf-stream, tracing it from the Gulf of Florida northward as far as Cape
Sable in Nova Scotia, and then across the Atlantic ocean to the coast of Africa between the Canary-islands
and Senegal, increasing in breadth as it runs, till it occupies five or six degrees of latitude. The Governor
likewise ascribes this current to the force of the trade-winds protruding the waters westward, till they are
opposed by the continent, and accumulated in the Gulf of Mexico. He very ingeniously observes that a
great eddy must be produced in the Atlantic ocean between this Gulf-stream and the westerly current
protruded by the tropical winds, and in this eddy are found the immense fields of floating vegetables,
called Saragosa weeds, and Gulfweeds, and some light woods, which circulate in these vast eddies, or are
occasionally driven out of them by the winds. Hydraulic and nautical observations by Governor Pownal,
1787. Other currents are mentioned by the Governor in this ingenious work, as those in the Indian Sea,
northward of the line, which are ascribed to the influence of the Monsoons. It is probable, that in process
of time the narrow tract of land on the west of the Gulf of Mexico may be worn away by this elevation of
water dashing against it; by which this immense current would cease to exist; and a wonderful change
take place in the Gulf of Mexico and West Indian islands, by the subsiding of the sea.

Editor’s Note: Darwin refers to the famous figure of Moses, born just after the Egyptian Pharaoh had
ordered that all male Hebrew children be drowned in the river Nile. In the Biblical story, Jochebed,
Moses’s mother, put Moses in an ark and hid him among the plants aside the river. Moses was found by
the Pharaoh’s daughter and coincidentally given back to Jochebed to nurse. Moses was raised as an
Egyptian prince but became a religious Prophet that freed the Israelites from Egyptian slavery.
Weeps pale Despair, and writhing Anguish roars:
E'en now in Afric's groves with hideous yell
Fierce SLAVERY stalks, and flips the dogs of hell;
From vale to vale the gathering cries rebound,
And sable nations tremble at the sound!—
—Ye BANDS OF SENATORS! whose suffrage sways
Britannia’s realms, whom either Ind obeys;
Who right the injured, and reward the brave,
Stretch your strong arm, for ye have power to save!
The close recesses of the heart within,
Stern CONSCIENCE sits, the arbiter of Sin;
With still small voice the plott's of Guilt alarms,
Lights his dark mind, his lifted hand disarms;
But, wrap'd in night with terrors all his own,
He speaks in thunder, when the deed is done.
Hear him, ye Senators! hear the truth sublime,
“HE, WHO ALLOWS OPPRESSION, SHARES THE CRIME.”

No radiant pearl, which crested Fortune wears,
No gem that twinkling hangs from Beauty’s ears,
Not the bright stars, which night's blue arch adorn,
Nor the vernal suns, that gild the rising morn,
Shine with such lustre as the tear, that breaks
For other's woe down Virtue's manly cheeks.

Here ceased the Muse, and drop’d her tuneful shell,
Tumultuous woes her rising bosom swell,
O'er her flushed cheek her gauzy veil she throws,
Folds her white arms, and bends her laurel'd brows;
For human guilt awhile the Goddess sighs,
And human sorrows dim celestial eyes.

105 Editor's Note: In perhaps the most controversial section of the poem (ll. 377-88), Darwin asserts an abolitionist argument. Darwin writes against the slave trade in Britain, a position that places him in the revolutionary groups that opposed Britain’s ruling conservative party. Opposition to the slave trade had been building in the late eighteenth century: the Abolition society was formed in 1787 and many writers such as William Blake criticized the trade in their work. In 1784 the Vice-Chancellor for Cambridge University had their dissertation competition focus on the issue with the topic entitled “Is it lawful to make slaves of others against their will?” Thomas Clarkson won the competition, and he went on to become one of the leaders in the anti-slavery movement. Darwin directly references an attempted Bill in Parliament to abolish the slave trade that was debated in 1791: “ye bands of senators.” Despite the bill receiving the support of the greater speakers and characters in the House of Commons, even having the Prime Minister's support, the bill was defeated 163 votes to 88. At the time it was argued that the income Britain received from the West Indies was greater than the rest of the Empire combined. Another argument put forth was that men should be generous with their own “property” but not with others. The Slave Trade Act of 1807 abolished the slave trade in the entire British Empire; slavery itself was not abolished until 1833.
INTERLUDE. III.

Bookseller. Poetry has been called a sister-art both to Painting, and to Music; I wish to know, what are the particulars of their relationship?

Poet. It has been already observed, that the principal part of the language of poetry consists of those words, which are expressive of the ideas, which we originally receive by the organ of sight; and in this it nearly indeed resembles painting; which can express itself in no other way, but by exciting the ideas or sensations belonging to the sense of vision. But besides this essential similitude in the language of the poetic pen and pencil, these two sisters resemble each other, if I may so say, in many of their habits and manners. The painter to produce a strong effect makes a few parts of his picture large, distinct, and luminous, and keeps the remainder in shadow, or even beneath its natural size and colour, to give eminence to the principal figure. This is similar to the common manner of poetic composition, where the subordinate characters are kept down, to elevate and give consequence to the hero or heroine of the piece.

In the south aile of the cathedral church at Lichfield, there is an antient monument of a recumbent figure; the head and neck of which lie on a roll of matting in a kind of niche or cavern in the wall; and about five feet distant horizontally in another opening or cavern in the wall are seen the feet and ankles, with some folds of garment, lying also on a matt; and tho' the intermediate space is a solid stone-wall, yet the imagination supplies the deficiency, and the whole figure seems to exist before our eyes. Does this not resemble one of the arts both of the painter and the poet? The former often shews a muscular arm amidst a group of figures, or an impassioned face; and, hiding the remainder of the body behind other objects, leaves the imagination to compleat it. The latter describing a single feature or attitude in picturesque words produces before the mind an image of the whole.

I remember seeing a print, in which was represented a shriveled hand stretched through an iron gate, in the stone floor of a prison-yard, to reach at a mess of porrage; which affected me with more horrid ideas of the distress of the prisoner in the dungeon below, than could have been perhaps produced by an exhibition of the whole person. And in the following beautiful scenery from the Midsummer-night’s dream, (in which I have taken the liberty to alter the place of a coma,) the description of the swimming step and prominent belly bring the whole figure before our eyes, with the distinctness or reality.

When we have laugh’d to see the sails conceive,
And grow big-bellied with the wanton wind;
Which she with pretty and with swimming gate,
Following her womb, (then rich with my young squire)
Would imitate, and sail upon the land.

There is a third sister-feature, which belongs both to the pictorial and poetic art; and that is the making sentiments and passions visible, as it were, to the spectator; this is done in both arts by describing or portraying the effects or changes, which those sentiments or passions produce upon the body. At the end of the unaltered play of Lear,
there is a beautiful example of poetic painting; the old King is introduced as dying from
grief for the loss of Cordelia; at this crisis, Shakespear, conceiving the robe of the King to
be held together by a clasp, represents him as only saying to an attendant courtier in a
faint voice, “Pray, Sir, undo this button,—thank you, Sir,” and dies. Thus by the art of
the poet, the oppression at the bosom of the dying King is made visible, not described in
words.

B. What are the features, in which these Sister-arts do not resemble each others?

P. The ingenious Bishop Berkley in his treatise on Vision, a work of great ability, has
envinced; that the colours, which we see, are only a language suggesting to our minds
the ideas of solidity and extension; which we had before received by the sense of
touch. Thus when we view the truck of a tree, our eye can only acquaint us with the
colours or shades, and from the previous experience of the sense of touch, these suggest
to us the cylindrical form, with the prominent or depressed wrinkles on it. From hence
it appears, that there is the strictest analogy between colours and sounds; as they are
both but languages, which do not represent their correspondent ideas; but only suggest
them to the mind from the habits or associations or previous experience. It is therefore
reasonable to conclude, that the more artificial arrangements of these two languages by
the poet and the painter bear a similar analogy.

But in one circumstance the Pen and Pencil differ widely from each other; and
that is the quantity of Time, which they can include in their respective
representations. The former can unravel a long series of events, which may constitute
the history of days or years; while the latter can exhibit only the actions of a
moment. The Poet is happier in describing successive scenes, the Painter in
representing stationary ones. Both have their advantages.

Where the passions are introduced, as the Poet on one hand has the power
gradually to prepare the mind of his reader by previous climacteric circumstances; the
Painting on the other hand can throw stronger illumination and distinctness on the
principal moment or catastrophe of the action; besides the advantage he has in using an
universal language, which can be read in an instant of time. Thus where a great number
of figures are all seen together, supporting or contrasting each other, and contributing to
explain or aggrandize the principal effect, we view a picture with agreeable surprize, and
contemplate it with unceasing admiration. In the representation of the sacrifice of
Jeptha’s Daughter, a print done from a painting of Ant. Coupel, at one glance of the eye
we read all the interesting passages of the last act of a well-written tragedy; so much
poetry is there condensed into a moment of time.

B. Will you oblige me with an account of the relationship between Poetry, and her other
sister, Music?

P. In the poetry of our language I dont think we are to look for any thing analogous to
the notes of the gamut; for except perhaps in a few exclamations, or interrogations, we
are at liberty to raise or sink our voice an octave or two at pleasure, without altering the
sense of the words. Hence if either poetry or prose be read in melodious tones of voice,
as is done in recitativo, or in chaunting, it must depend on the speaker, not on the
writer. For though words may be selected, which are less harsh than others; that is,
which have fewer sudden stops or abrupt consonants amongst the vowels, or with fewer
sibilant letters, yet this does not constitute melody; which consists of agreeable
successions of notes referable to the gamut; or harmony, which consists of agreeable
combinations of them. If the Chinese language has many words of similar articulation,
which yet signify different idea, when spoken in a higher or lower musical note, as some
travellers affirm; it must be capable of much finer effect in respect to the audible part
of poetry than any language, we are acquainted with.

There is however another affinity, in which poetry and music more nearly
resemble each other than has generally been understood, and that is in their measure or
time. There are but two kinds of time acknowledged in modern music, which are called
triple time, and common time. The former of these is divided by bars, each bar
containing three crotchets, or a proportional number of their subdivisions into quavers,
and semiquavers. This kind of time is analogous to the measure of our heroic or iambic
verse. Thus the two following couplets are each of them divided into five bars of triple
time, each bar consisting of two crotchets and two quavers; nor can they be divided into
bars analogous to common time without the bars interfering with some of the crotchets,
so as to divide them.

34 Soft-warbling beaks │ in each bright blos │ som move,
And vo │ cal rosebuds thrill │ the inchanted grove, │

In these lines there is a quaver and a crotchet alternately in every bar; except in
the last, in which the in make two semiquavers; the e is supposed by grammarians to be
cut off, which any one’s ear will readily determine to be true.

34 Life buds or breathes │ from Indus to │ the poles,
And the │ vast surface kind │ les, as it rolls.

In these lines there is a quaver and a crotchet alternately in the first bar; a quaver
two crotchets and a quaver make the second bar. In the third bar there is a quaver a
crotchet and a rest after the crotchet, that is after the word poles, and two quavers begin
the next line. the fourth bar consists of quavers and crotchets alternately. In the last
bar there is a quaver, and a rest, after it, viz. after the word kindles, and then two
quavers and a crotchet. You will clearly perceive the truth of this if you prick the
musical characters above mentioned under the verses.

The common time of musicians is divided into bars, each of which contains four
crotchets, or a proportional number of their subdivision into quavers and
semiquavers. This kind of musical time is analogous to the dactyle verses of our
language, the most popular instances of which are in Mr. Anstie’s Bath-guide. In this
kind of verse the bar does not begin till after the first of second syllable; and where the
verse is quite compleat, and written by a good ear, these first syllables added to the last
compleat the bar, exactly in this also corresponding with many pieces of music;

24 Yet │ if one may guess by the │ size of his calf, Sir,
He │ weighs about twenty-three │ stone and a half, Sir.

24 Master │ Mamozet’s head was not │ finished so soon,
For it │ took up the barber a │ whole afternoon.
In these lines each bar consists of a crotchet, two quavers, another crotchet, and two more quavers: which are equal to four crotchets, and like many bars of common time in music may be subdivided into two in beating time without disturbing the measure.

The following verses from Shenstone belong to common time.

24

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<th>A</th>
<th>river or a sea</th>
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<td>Was to him a dish</td>
<td>of tea,</td>
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<tr>
<td>And a king</td>
<td>dom bread and butter.</td>
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The first and second bars consist each of a crotchet, a quaver, a crotchet, a quaver, a crotchet. The third bar consists of a quaver, two crotchets, a quaver, a crotchet. The last bar is not compleat without adding the letter A, which begins the first line, and then it consists of a quaver, a crotchet, a quaver, a crotchet, two quavers.

It must be observed, that the crotchets in triple time are in general played by musicians slower than those of common time, and hence minuets are generally pricked in triple time, and country dances generally in common time. So the verses above related, which are analogous to triple time, are generally read slower, than those analogous to common time; and are thence generally used for graver compositions. I suppose all the different kinds of verses to be found in our odes, which have any measure at all, might be arranged under one or other of these two musical times; allowing a note or two sometimes to precede the commencement of the bar, and occasional rests, as in music compositions; if this was attended to by those, who set poetry to music, it is probable, the sound and sense would oftener coincide. Whether these musical times can be applied to the lyric and heroic verses of the greek and latin poets, I do not pretend to determine; certain it is that the dactyle verse of our language, when it is ended with a double rhime, much resembles the measure of Homer and Virgil, except in the length of the lines.

B. Then there is no relationship between the other two of these sister-ladies, Painting and Music?

P. There is at least a mathematical relationship, or perhaps I ought rather to have said a metaphysical relationship between them. Sir Isaac Newton has observed, that the breadth of the seven primary colours in the Sun’s image refracted by a prism are proportional to the seven musical notes of the gamut, or to the intervals of the eight sounds contained in an octave, that is proportional to the following numbers:

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<tr>
<td>Red.</td>
<td>Orange</td>
<td>Yellow</td>
<td>Green</td>
<td>Blue</td>
<td>Indigo</td>
<td>Violet</td>
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<td></td>
<td>19</td>
<td>116</td>
<td>110</td>
<td>19</td>
<td>116</td>
<td>116</td>
<td>19</td>
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Newton’s Optics, Book I. part 2. prop. 3 and 6. Dr. Smith in his Harmonics has an explanatory note upon this happy discovery, as he terms it, on Newton. Sect. 4. Art. 7.
From this curious coincidence it has been proposed, to produce a luminous music, consisting of successions or combinations of colours, analogous to a tune in respect to the proportions above mentioned. This might be performed by a strong light, made by means of Mr. Argand’s lamps, passing through coloured glasses, and falling on a defined part of a wall; with moveable blinds before them, which might communicate with the keys of a Harpsichord; and thus produce at the same time visible and audible music in unison with each other.

The execution of this idea is said by Mr. Guyot to have been attempted by Father Castel without much success.

If this should again by attempted, there is another curious coincidence between the sounds and colours discovered by Dr. Darwin of Shrewsbury, and explained in a paper on what he calls Ocular Spectra in the Philosophical Transactions, Vol. 76, which might much facilitate the execution of it. In this treatise the Doctor had demonstrated, that we see certain colours, not only with greater ease and distinctness, but with relief and pleasure after having for some time contemplated other certain colours; as green after red, or red after green; orange after blue, or blue after orange; yellow after violet, or violet after yellow. This he shews arises from the ocular spectrum of the colour last viewed coinciding with the irritation of the colour now under contemplation. Now as the pleasure we receive from the sensation of melodious notes, independent of the previous associations of agreeable ideas with them, must arise from our hearing some proportions of sounds after other more easily, distinctly, or agreeably; and as there is a coincidence between the proportions of the primary colours, and the primary sounds, if they may be so called. He argues, that the same laws must govern the sensations of both. In this circumstance therefore consists the sisterhood of Music and Painting; and hence they claim a right to borrow metaphors from each other; musicians to speak of the brilliancy of sounds, and the light and shade of a concerto; and Painters of the harmony of colours, and the tone of a picture. Thus it was not quite so absurd, as was imagined, when the blind man asked, if the colour scarlet was like the sound of a trumpet. As the coincidence or opposition of these ocular spectra, (or colours which remain in the eye after having for some time contemplated a luminous object;) are more easily and more accurately ascertained, now their laws have been investigated by Dr. Darwin, than the relicts of evanescent sounds upon the ear; it is to be wished that some ingenious musician would further cultivate this curious field of science: for if visible music can be agreeably produced, it would be more easy to add sentiment to it by the representations of groves and Cupids and sleeping nymphs amid the changing colours, than is commonly done by the words of audible music.

B. You mentioned the greater length of the verses of Homer and Virgil. Had not these poets great advantage in the superiority of their languages compared to our own?

P. it is probable, that the introduction of philosophy into a country must gradually affect the language of it; as philosophy converses in more appropriated and abstracted terms; and thus by degrees eradicates the abundance of metaphor, which is used in the more early ages of

106 Editor’s Note: The article mentioned here, fully titled “New Experiments on the Ocular Spectra of Light and Colours,” was reprinted in Erasmus Darwin’s Zoonomia, Volume One, Section XL. Dr. Darwin of Shrewsbury is Dr. Robert Waring Darwin, who is Erasmus Darwin’s son. The article is notable for containing the first observational evidence of microsaccades.
society. Otherwise though the greek compound words have more vowels in proportion to their consonants than the english ones, yet the modes of compounding them are less general; as may be seen by variety of instances given in the preface of the Translators, prefixed to the System of Vegetables by the Lichfield society; which happy property of our own language rendered that translation of Linneus as expressive and concise, perhaps more so, than the original.

And in one respect, I believe, the english language serves the purpose or poetry better than the ancient ones; I mean in the greater ease of producing personifications: For as our nouns have in general no genders affixed to them in prose-compositions, and in the habits of conversation; they become easily personified only by the addition of a masculine or feminine pronoun, as

Pale Melancholy sits, and round her throws
A deathlike silence, and a dread repose.

Pope’s Abelard.

And secondly as most of our nouns have the article a or the prefixed to them in prose-writing, and in conversation, they in general become personified even by the omission of these articles; as is the bold figure of Shipwreck in Miss Seward’s Elegy on Capt. Cook,

But round the steepy rocks, and dangerous strand
Rolls the white surf; and Shipwreck guards the land.

Add to this, that if the verses in our heroic poetry by shorter than those of the ancients; our words likewise are shorter; and in respect to their measure or time; which has erroneously been called melody and harmony; I doubt from what has been said above, whether we are so much inferior, as is generally believed. Since many passages, which have been stolen from antient Poets, have been translated into our language without loosing any thing of the beauty of the versification.

B. I am glad to hear you acknowledge the thefts of the modern poets from the ancient ones, whose works I suppose have been reckoned lawful plunder in all ages. But have not you borrowed epithets, phrases, and even half a line occasionally from modern poem?

P. It may be difficult to mark the exact boundary of what should be termed plagiarism: where the sentiment and expression are both borrowed without due acknowledgement, there can be no doubt;—single words on the contrary taken from other authors cannot convict a writer of Plagiarism, they are lawful game, wild by nature, the property of all who capture them;—and perhaps a few common flowers of speech may be gathered, as we pass over our neighbour’s inclosure, without stigmatising us with the title of thieves; but we must not therefore plunder his cultivated fruit.

The four lines at the end of the plant Upas are imitated from Dr. Yonge’s Night-thoughts. The line in the episode adjoined to Cassia “The salt tear mingling with the milk he sips,” is from an interesting and humane passage in Langhorn’s Justice of Peace. There are probably many others; which, if I could recollect them, should here be acknowledged. As it is,—like exotic plants, their mixture with the native ones, I hope adds beauty to my Botanic Garden.—And such as it is, Mr. Bookseller, I now leave it to you to desire the Ladies and Gentlemen to walk in; but please to apprise them, that, like
the spectators at an unskilful exhibition in some village-barn, I hope they will make Good Humor one of their party; and thus themselves supply the defects of the representation.
THE
LOVES
OF THE
PLANTS

CANTO IV.

Now the broad Sun his golden orb unshrouds,
Flames in the west, and paints the parted clouds;
O’er heaven’s wide arch refracted lustres flow,
And bend in air the many-colour’d bow.–
–The tuneful Goddess on the glowing sky
Fix’d in mute extacy her glistening eye;
And then her lute to sweeter tones she strung,
And swell’d with softer chords the Paphian song.

Long ailes of Oaks return’d the silver sound,
And amorous Echoes talk’d along the ground;
Pleas’d Lichfield listen’d from her sacred bowers;
Bow’d her tall groves, and shook her stately towers.

Nymph! not for thee the radiant day returns,
Nymph! not for thee the golden solstice burns,
Refulgent CERIA!—at the dusky hour
She seeks with pensive step the mountain-bower,

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107 Pleas’d Lichfield. l. 11. The scenery described at the beginning of the first part, or economy of vegetation, is taken from a botanic garden about a mile from Lichfield.
108 Ceria. l. 15. Cactus grandiflorus, or Cereus. Twenty males, one female. This flower is native to Jamaica and Veracrux. It expands a most exquisitely beautiful corol, and emits a most fragrant odour for a few hours in the night, and then closes to open no more. The flower is nearly a foot in diameter, the inside of the calyx of a splendid yellow and the numerous petals of a pure white: it begins to open about seven or eight o’clock in the evening, and closes before sun rise in the morning. Martyn’s Letters, p. 294. The Cistus labdiniferus, and many other flowers lose their petals after having been a few hours expanded in the day time; for in these plants the stigma is soon impregnated by the numerous anthers; in many flowers of the Cistus labdaniferus I observed two or three of the stamens were perpetually bent in contact with the pistil.

The Nyctanthes, called Arabian Jasmine, is another flower which expands a beautiful corol, and gives out a most delicate perfume during the night, and not in the day in its native, whence its name; botanical philosophers have not yet explained this wonderful property; perhaps the plant sleeps during the day as some animals do; and its odoriferous glands only emit their fragrance during the expansion of the petals; that is, during its waking hours: the Geranium triste has the same property of giving up its fragrance only in the night. The flowers of the Cucurbita lagenaria are said to close when the sun shines upon them. In our climates many flowers, as tragopogon, and hibiscus, close their flowers before the hottest part of the day comes on; and the flowers of some species of cucubalus, and Silene, viscous companion, are closed all day; but when the sun leaves them they expand, and emit a very agreeable scent; whence such plants are termed noctiflora.
Bright as the blush of rise morn, and warms
The dull cold eye of Midnight with her charms.
There to the skies she lifts her pencil’d brows,
Opes her fair lips, and breathes her virgin vows;
Eyes the white zenith; counts the suns, that roll
Their distant fires, and blaze around the Pole;
Or marks where Jove directs his glittering car
O’er Heaven’s blue vault,—Herself a brighter star.
—There as soft Zephyrs sweep with pausing airs
Thy snowy neck, and part thy shadowy hairs,
Sweet Maid of Night! to Cynthia’s sober beams
Glows thy warm cheek, thy polish’d bosom gleams.
In crowds around the gaze the admiring swains,
And guard in silence the enchanted plains.
Drop the still tear, or breathe the impassion’d sigh
And drink inebriate rapture from thine eye.
Thus, when old Needwood’s hoary scenes the Night
Paints with blue shadow, and with milky light;
Where MUNDY pour’d, the listening nymphs among,\textsuperscript{109}
Loud to the echoing vales his parting song;
With measured step the Fairy Sovereign treads,
Shakes her high plume, and glitters o’er the meads;
Round each green holly leads her sportive train,
And littler footsteps mark the circled plain.
Each haunted rill with silver voices rings,
And Night’s sweet bird in livelier accents sings.

Ere the bright star, which leads the morning sky,
Hangs o’er the blushing east his diamond eye,
The chaste TROPAEO leaves her secret bed;\textsuperscript{110}
A faint-like glory trembles round her head;
\textit{Eight} watchful swains along the lawns of night
With amorous steps pursue the virgin-light;
O’er her fair form the electric lustre plays,
And cold she moves amid the lambent blaze.

\textsuperscript{109} \textit{Where Mundy.} l. 35. Alluding to an unpublished poem by F.N. Mundy, Esq. on his leaving Needwood-Forest.
\textsuperscript{110} \textit{Tropaeolum.} l. 45. Majis. Garden Nasturtion, or greater Indian cress. Eight males one female. Miss E.C. Linneus first observed the tropaeolum Majus, to emit sparks or flashes in the mornings before sunrise, during the months of June or July, and also during the twilight in the evening, but not after total darkness came on; these singular seintillations were shewn to her father and other philosophers, and Mr. Wilcke, a celebrated electricians, believed them to be electric. Lin. Spec. Plantar. P. 490. Swedish acts for the year 1762. Pulteney’s view of Linneus, P. 220. Nor is this more wonderful, than that the electric eel and torpedo should give voluntary shocks of electricity; and in this plants perhaps, as in those animals, it may be a mode of defence, by which it harasses or destroys the night-flying insects, which infest it; and probably, it may emit the same smarks during the day, which must be then invisible. This curious subject deserves further investigation. See Dictamnus. The nectary of this plant grows from what is supposed to be the calyx, and not from the corol.
So shins the glow-fly, when the sun retires,
And gems the night-air with phosphoric fires;
Thus o'er the marsh aerial lights betroy
And charm the unwary wanderer from his way.
So when thy King, Assyria, fierce and proud,
Three human victims to his idol vow'd;
Rear'd a vast pyre before the golden shrine
Of sulphurous coal, and pitch-exsuding pine;—
—Load roar the flames, the iron nostrils breathe,
And the huge bellos pant and heave beneath;
Bright and more bright the blazing deluge flows,
And white with sevenfold heat the furnace glows.
And now the Monarch fix'd with dread surprize
Deep in the burning vault his dazzled eyes.
“Lo! Three bound amid the frightful glare,
“Unscorched their sandals, and unsinged their hair!
“And now a fourth with seraph-beauty bright
“Descends, accosts them, and outshines the light!
“Fierce flames innocuous, as they step, retire;
“And calm they moved amid a world of fire!”
He spoke,—to Heaven his arms repentant spread,
And kneeling bow'd his gem-incircled head.¹¹¹

Two Sister-Nymphs, the fair AVENAS, lead¹¹²
Their fleecy squadrons on the lawns of Tweed;
Pass with light step his wave-worn banks along,
And wake his Echoes with their silver tongue;

¹¹¹ Editor's Note: This section (ll. 55-72) alludes to the biblical story of Shadrach, Meshach, and Abednego in Daniel 3:1-30. The king of Assyria, Nebuchadnezzar, instructed that an image of gold be built for his subjects to worship. If they did not worship the image, they would be thrown into a fiery furnace. Shadrach, Meshach, and Abednego refused to worship the image, so they were thrown into the furnace, which was heated seven times more than usual. Rather than being immediately scorched to death, the three were unbound, and a fourth with the aspect of an angel was seen to be with them in the furnace. Nebuchadnezzar had the three taken from the furnace and ordered his subjects to worship the God that saved them.

¹¹² Avena. l. 73. Oat. The numerous families of grasses have all three males, and two females, except Anthoxanthum, which gives the grateful smell to hay, and has but two males. The herbs of this order of vegetables support the countless tribes of graminivorous animals. The seeds of the smaller kinds of grasses, as of aira, poa, briza, stipa, &c. are the sustenances of many sorts of birds. The seeds of the large grasses, as of wheat, barley, rye, oats, supply food to the human species.

It seems to have required more ingenuity to think of feeding nations of mankind with so small a seed, than with the potatoe of Mexico, or the bread fruit of the southern islands; hence Ceres in Egypt, which was the birth-place of our European arts, was deservedly celebrated amongst their divinities, as well as Osyris, who invented the Plough.

Mr. Wahlborn observes, that as wheat, rye, and many of the grasses, and plantain, lift up their anthers on long filments, and thus expose the enclosed fecundating dust to be washed away by the rains, a scarcity of corn is produced by wet summers; hence the necessity of a careful choice of seed-wheat, as that, which had not received the dust of the anthers, will not grow through it may appear well to the eye. The straw of the oat seems to have been the first musical instrument, invented during the pastoral ages of the world, before the discovery of metals. See note on Cistus.
Or touch the reed, as gentle Love inspires,
In notes accordant to their chaste desires.

I.
“Sweet Echo! sleeps thy vocal shell, 
“Where this high arch o’erhangs the dell; 
“While Tweed with sun-reflecting streams 
“Chequers thy rocks with dancing beams?– 

II.
“Here may no clamours hash intrude, 
“No brawling hound or clarion rude; 
“Here no fell beast of midnight prowl, 
“And teach thy tortured cliffs to howl!

III.
“Be thine to pour these vales along 
“Some artless Shepherd’s evening song; 
“While Night’s sweet bird, from yon high spray 
“Responsive, listens to his lay.

IV.
“And if, like me some love-lorn maid 
“Should sing her forrows to thy shade, 
“Oh, sooth her breast, ye rocks around! 
“With softest sympathy of sound.”

From ozier bowers the brood Halcyons peep, 
The swans pursuing cleave the glassy deep, 
On hovering wings the wondering Reed-larks play, 
And silent Bitterns listen to the lay.–
Three shepherd-swains beneath the beachen shades 
Twine rival garlands for the tuneful maids; 
On each smooth bark in mystic love-knots frame, 
Or on white sand inscribe, the favour’d name.

Warm with sweet blushes bright GALANTHA glows,113

113 Galanthus, l. 103. Nivalis. Snowdrop. Six males, one female. The first flower that appears after the winter solstice. See Stillingfleet’s calendar of Flora.
Some snowdrop-roots taken up in winter, and boiled had the insipid mucilaginous taste of the Orchis, and if cured in the same manner would probably make as good as salep. Gmelin in his history of Siberia says the Martigon Lily makes a part of the food of that country, which is of the same natural order as the snowdrop. Some roots of Crocus which I boiled had a disagreeable flavour.
The difficulty of raising the Orchis from seed has perhaps been a principal reason of its not being cultivated in this country as an article of food. It is affirmed by one of the Linnean school in the Amaenit. academ. that seeds of Orchis will ripen, if you destroy the new bulb, and that Lily of the Valley, Convallaria, will produce many more seeds and ripen them, if the roots be crouded in a garden pot, so as to prevent them from producing many bulbs. It is probable either of these methods may succeed with
And prints with frolic step the melting snows;
O’er silent floods, white hills, and glittering meads
Six rival swains the playful beauty leads,
Chides with her dulcet voice the tardy Spring,
Bids slumbering Zephyr stretch his folded wing,
Wakes the hoarse Cuckoo in his gloomy cave,
And calls the Wondering Dormouse from his grave,
Bids the mute Redbreast cheer the budding grove,
And plaintive Ringdove tune her notes to love.

Spring! with thy own sweet smile, and tuneful tongue,
Delighted BELLIS calls in her infant throng.\(^{114}\)
Each on his reed astride, the Cherub-train
Watch her kind looks, and circle o’er the plain;
Now with young wonder touch the sliding snail,
Admire his eye-tip’d horns, and painted mail;
Chase with quick step, and eager arms outspread,
The pausing Butterfly from mead to mead;
Or twine green oziers with the fragrant gale,\(^ {115}\)
The azure harebel, and the primrose pale,
Join hand in hand, and in procession gay
Adorn with votive wreaths the shrine of May.
–So moves the Goddess to the Idalian groves,
And leads her gold-hair’d family of Loves.
These, from the flaming furnace, strong and bold
Pour the red steel into the sandy mould;
On tinkling anvils, (with Vulcanian art,)
Turn with hot tongs, and forge the dreadful dart;
The barbed head on whirling jaspers grind,
And dip the point in poison for the mind;
Each polish’d shaft with snow-white plumage wing,
Or strain the bow reluctant to its string.
Those on light wing, above, with busy hands
From bough to bough extend the flowery bands;
Scar the dark beetle, as he wheels on high,

\(^{114}\) Bellis prolifera. l. 114. Hen and chicken Daisy, in this beautiful monster not only the impletion of doubling of the petals takes place, as described in the note on Alcea; but a numerous circlet of less flowers on peduncles, or footstalkes, rise from the sides of the calyx, and surround the proliferous parent. The same occurs in Calendula, marigold, in Heracium, hawk-weed, and in Scabiosa, Scabious. Phil. Botan. p. 82.

\(^{115}\) The fragrant Gale. l. 121. The buds of the Myrica Gale possess an agreeable aromatic fragrance, and might be worth attending to as an article of materia medica. Mr. Sparman suspects, that the green waxlike substance, with which at certain times of the year the berries of the Myrica cerifera, or candle-berry Myrtle, are covered, are deposited there by insects. It is used by the inhabitants for making candles, which he says burn rather better than those made of tallow. Voyage to the Cape, V. 1. p. 345.
Or catch in silken nets the gilded fly;
Call the young Zephyrs to their fragrant bowers,
And stay with kisses sweet the Vernal Hours.

Where, as proud Masson rises rude and bleak,
And with mishapen turrets crests the Peak,
Old Matlock gapes with marble jaws, beneath,
And o’er scar’d Derwent bends his flinty teeth;
Deep in wide caves below the dangerous soil
Blue sulphurs flame, imprison’d water boil.
Impetuous steams in spiral columns rise
Through rifted rocks, impatient for the skies;
Or o’er bright seas of bubbling lavas blow,
As heave and toss the billowy fires below;
Condensed on high, in wandering rills they glide
From Masson’s dome, and burst his sparry side;
Round his grey towers, and down his fringed falls;
From cliff to cliff, the liquid treasure falls;
In beds of stalactite, bright ores among,
O’er corals, shells, and crystals, winds along;
Crusts the green mosses, and the tangled wood,
And sparkling plunges to its parent flood.
–O’er the warm wave a smiling youth presides,
Attunes its murmurs, its meanders guides,
(The blooming Fucus,) in her sparry coves

116 Deep in wide caves. l. 145. The arguments which tend to shew, that the warm springs of this country are produced from steam raised by deep subterraneous fires, and afterwards condensed between the strata of the mountains, appear to me much more conclusive, than the idea of their being warmed by chemical combinations near the surface of the earth, for 1st their heat has kept accurately the same perhaps for many centuries, certainly as long as we have been possessed of good thermometers; which can not be well explained without supposing, that they are first in a boiling state. For as the heat of boiling water is 212, and that of the internal parts of the earth 48, it is easy to understand, that they steam raised from boiling water after being condensed in some mountain, and passing from thence through a certaine space of the cold earth, must be cooled always to a given degree, and it is probable the distance from the exit of the spring, to the place where the steam is condensed, might be guessed by the degree of its warmth.

2. In the dry summer of 1780, when all other springs were either dry, or much diminished, those of Buxton and Matlock, (as I was well informed on the spot,) had suffered no diminution; which proves, that the sources of these warms springs are at great depths below the surface of the earth.

3. There are numerous perpendicular fissures in the rocks of Derbyshire, in which the ores of lead, and copper, are found; and which pass to unknown depths; and might thence afford a passage to steam from great subterranean fires.

4. I these waters were heated by the decomposition of pyrites, there would be some chalybeate, taste, or sulphurcous smell in them. See note in part 1. on the existence of central fires.

117 Fucus. l. 161. Clandestine marriage. A species of Fucus, or Conferva, soon appears in all basons, which contain water. Dr. Priestly found that great quantities of pure dephogisticated air were given up in water at the points of this vegetable, particularly in the sunshine, and hence it contributed to preserve the waters in reservoirs from becoming putrid. The minute divisions of the leaves of subaquatic plants, as mentioned in the note of Trapa, and of the gills of fish, seem to serve another purpose besides that of increasing their surface, which has not I believe been attended to, and that is to facilitate the separation of the air, which is mechanically mixed, or chemically dissolved in water by their points or edges. This appears on immersing
To amorous Echos sings his *secret* loves,
Bathes his fair forehead in the misty stream,
And with sweet breath perfumes the rising steam.

So, erst, an Angel o’er Bethesda’s springs, \textsuperscript{118}
Each morn descending, shook his dewy wings;
And as his bright translucent form he laves,
Salubrious powers enrich the troubled waves.

Amphibious Nymph, from Nile’s prolific bed
Emerging TRAPA lifts her pearly head; \textsuperscript{119}
Fair glows her virgin cheek and modest breast,
A panoply of scales deforms the rest;
Her quivering fins and panting gills she hides,
a dry heary leaf in water fresh from a pump, innumerable globules like quicksilver appear on almost every point, for the extremities of these points attract the particles of water less forcible, that those particles attract each other; hence the contained air, whose elasticity was but just balanced by the attractive power of the surrounding particles of water to each other, finds as the point of each fiber a place, where the resistance to its expansion is less; and in consequence it there expands, and becomes a bubble of air. It is easy to foresee that the rays of the sunshine by being refracted in part reflected by the two surfaces of these minute air-bubbles must impart to them much more heat than to the transparent water; and thus facilitate their ascent by further expanding them, that the points of vegetables attract the particles of water less than they attract each other is seen by the spherical form of dewdrops on the points of grass. See note on Vegetable Respiration in part 1.

\textsuperscript{118} Editor's Note: According to John 5:2-4, there once was a pool in Jerusalem called Bethesda near the Sheep Gate. Many sick and physically deformed people would sojourn around this pool because an angel of the Lord would occasionally stir the pool, giving it healing properties that would restore the first person who stepped into the pool. Darwin uses this allusion to place importance upon how vital the existence of Fucus is to the cleanliness of bodies of water across the earth, particularly that of the British Isles.

\textsuperscript{119} Trapa. l. 170. Four males, one female. The lower leaves of this plant grow under water, and are divided into minute capillary ramifications; while the upper leaves are broad and round, and have air-bladders in their footstalks to support them above the surface of the water. As the aerial leaves of vegetables do the office of lungs, by exposing a large surface of vessels with their contained fluids to the influence of the air; so these aquatic leaves anser a fimilar purpose, like the gills of a fish; and perhaps gain from water or give to it a fimilar material. As the material thus necessary to life seems to about more in air than in water, the subaquatic leaves of this plant and of sisybrium, cenanthe, ranunculus aquatilis, water crowfoot, and some others, are cut into fine divisions to increase the surface; whilst those above water are undivided. So the plants on high mountains have their upper leaves more divided, as pimpinella, petroselinum, and others, because here the air is thinner, and thence a larder surface of contact is required. The stream of water also passes but once along the gills of fish, as it is sooner deprive of its virtue; whereas the air is both received and ejected by the action of the lungs of land-animals. The whale seems to be an exception to the above, as he receives water, and spouts it out again from an organ, which I suppose to be a respiratory one. As spring-water is nearly of the same degree of heat in all climates, the aquatic plants, which grow in rills or fountains, are found equally in the the torrid, temperate, and frigid zones, as water-cress, water-parsnip, ranunculus, and many others.

In warmer climates the watery grounds are usefully cultivated, as with rice, and the roots of some aquatic plants are said to have supplied food, as the ancient Lotus of Egypt, which some have supposed to be the *Nymphaeae.*—In Siberia the roots of the Butomus, or flowering rush, are eaten, which is well worth further inquiry, as they grow spontaneously in our ditches, and rivers; which at present produce no esculent vegetables; and might thence become an article of useful cultivation. Herodotus affirms that the Egyptian Lotos grows in the Nile, and resembles a Lily. That the natives dry in the sun, and take the pulp out of it, which grows like the head of a poppy, and bake it for bread. Enterpe. Many grit stones and coals, which I have seen, seem to bear an impression of the roots of the *Nymphaeae,* which are often three or four inches thick, especially the white flowered one.
But spreads her silver arms upon the tides;
Slow as she fails, her ivory neck she laves,
And shakes her golden tresses o’er the waves.
Charm’d round the Nymph, in circling gambols glide
Four Nereid-forms, or shoot along the tide;
Now all as one they rise with frolic spring,
And beat the wondering air on humid wing;
Now all descending plunge beneath the main,
And lash the foam with undulating train;
Above, below, they wheel, retreat, advance,
In air and ocean weave the mazy dance;
Bow their quick heads, and point their diamond eyes,
And twinkle to the sun with ever-changing dyes.

With net-wove sash and fluttering gorget dress’d,
And scarlet robe lapell’d upon her breast,
Stern ARA frowns, the measured march assumes,
Trails her long lance, and nods her shadow plumes;
While Love’s soft beams illumine her treacherous eyes,
And beauty lightens through the thin disguise.
So erst, when Hercules, as untamed by toil,
Own’d the soft power of Dejanira’s smile;
His lion-spoils the laughing Fair demands,
And gies the distaff to his awkward hands;
O’er her white neck the bristly mane she throws,
And binds the gaping whiskers on her brows;
Fits round her slender waste the shaggy vest,
And clasps the velvet paws across her breast.
Next with soft hands the knotted club she rears,
Heaves up from earth, and on her shoulder bears.
Onward with loftier step the Beauty treads,
And trails the brinded ermine o’er the meads;
Wolves bears and pards forsake the affrighted groves,
And grinning Satyrs tremble, as she moves.

120 Arum. l. 189. Cuckow-pint, of the class Gynandria, or masculine ladies. The pistil or female part of the flower rises like a club, is covered above or clothed as it were by the anthers or males; and some of the species have a large scarlet blotch in the middle of every leaf.

The singular and wonderful structure of this flower has occasioned many disputes amongst botanists. See Tourniss. Malpig. Dillen. Rivin. &c. The receptacle is enlarged into a naked club, with the germs at its base, the stamens are affixed to the receptacle amidst the germs, (a natural prodigy) and thus do not need the assistance of elevating filaments. Hence the flower may be said to be inverted. Families of Plants translated from Linneus, p 618.

The spadix of this plant is frequently quite white, or coloured, and the leaves liable to be streaked with white, and to have black, or scarlet blotches on them. As the plant has no corol or blossom, it is probable the coloured juices in the petals of other flowers; from which I suppose the honey to be prepared. See note Hellerborus. I am informed that these tulip roots, which have a red cuticle, produce red flowers. See Rubia.

121 Editor’s Note: In this extended simile (ll. 193-206), Darwin alludes to the Greeky mythology of Hercules, a divine hero and the son of Zeus and Alcemene (a mortal). Hercules is known for his enormous
Caryo’s sweet smile DIANTHUS proud admires,
And gazing burns with unallow’d desires;
With sighs and and sorrows her compassion moves,
And wins the damsel to illicit loves.
The monster-offspring heirs the father’s pride,
Mask’d in the damask beauties of the bride.
So, when the Nightingale in eastern bowers
On quivering pinion woos the Queen of flowers;
Inhales her fragrance, as he hangs in air,
And melts with melody the blushing fair;
Half-rose, half-bird, a beauteous Monster springs,
Waves his thin leaves, or claps his glossy wings;
Long horrent thorns his mossy legs surround,
And tendril-talons root him to the ground;
Green films of rind his wrinkled neck o’erspread,
And crimson petals crest his curled head;
Soft warbling beaks in each bright blossom move,
And vocal Rosebuds thrill the enchanted grove!–
Admiring Evening stays her beamy star,

strength and daring, often lengthy, adventures. In one story, Hercules saves his wife, Dejanira, from a Centaur who tries to sexually assault her. Hercules kills the Centaur with a poisonous arrow. The name “Dejanira” is translated as “man-destroyer,” because she unknowingly kills Hercules with a mixture of the Centaur's poisoned blood and olive oil, having been tricked by the Centaur before his death into believing it is a love potion. She rubs this mixture onto Hercules’ lion-skin tunic when she believes Hercules is unfaithful to her. The mixture dreadfully burns Hercules, the pain causing him to burn himself upon a funeral pyre. Darwin uses this allusion to emphasize how powerful and deadly the pistil of Arum is in comparison to the stamens.

122 DIANTHUS. l. 207. Superbus. Proud Pink. There is a kind of pink called Fairchild’s mule, which is ere supposed to be produced between a Dianthus superbus, and the Caryophyllus, Clove. The Dianthus superbus emits a most fragrant odour particularly at night. Vegetable mules supply an irrefragable argument in favour of the sexual system of botany. They are said to be numerous, and like the mules of the animal kingdom not always to continue their species by seed. There is an account of a curious mule from the Antirrhinum linaria, Toad-flax, in the Amaeni. acadm. V. l. No. 3. and many hybrid plants described in No. 32. The Unica alienata is an evergreen plant, which appears to be a nettle from the male flowers, and a Pellitory (Parictaria) from the female ones and the fruit; and is hence between both. Murray. Syst. Veg. Amongst the English indigenous plants the veronica hybrida mule Speekwel is supposed to have originated from the officinal one, and the spiked one, and the Sibthorbia europaea to have for its parents the golden saxifrage, and marsh pennywort. Pulteney’s view of Linneus, p. 250. Mr. Graburd, Mr. Schreber, and Mr. Ramstrom seem of opinion, that internal structure or parts of fructification in mule plants resemble the female parent, but that the habit or external structure resembles the male parent. See treaties under the above names in V. 6. Amaeni. academic. The mule produced from a horse and the ass resembles the horse externally with his ears, main, and tail; but with the nature or manners of an ass: but the Hinnus, or creature produced from a male ass, and a mare, resembles the father externally, in stature, ash-colour, and black cross, but with the nature or manners of a horse. The breed from Spanish rams and Swedish ewes resembled the Spanish sheep in wool, stature and external form; but was as hardy as the Swedish sheep; and the contrary of those, which were produced from Swedish rams and Spanish ewes. The offspring from the male goat of Angora and the Swedish female goat had long soft camel’s-hair; but that from the male Swedish goat, and the female on of Angora, had no improvement of their wool. An English ram without horns, and a Swedish horned ewe produced sheep without horns, Amaen. academ. V. 6. p. 13.
And still Night listens from his ebon ear;
While on white wings descending Houries throng,
And drink the floods of odour and of song.

When from his golden urn the Solstice pours
O’er Afric’s sable sons the sultry hours;
When not a gale flits o’er her tawny hills,
Save were the dry Harmattan breathes and kills;\(^{123}\)
When stretch’d in dust her gasping panthers lie,
And writh’d in foamy folds her serpents die;
Indignant Atlas mourns his leafless woods,
And Gambia trembles for his sinking floods
Contagion stalks along the briny sand,
And Ocean rolls his sickening shoals to land.\(^{124}\)

—Fair CHUNDA smiles amid the burning waste,\(^{125}\)

\(^{123}\) The dry Harmattan. l. 230. The Harmattan is a singular wind blowing from the interior parts of Africa to the Atlantic Ocean, sometimes for a few hours, sometimes for several days without regular periods. It is always attended with a fog or haze, so dense as to render those objects invisible, which are at the distance of a quarter of a mile, the sun appears through it only about noon, and then of a dilute red, and very minute particles subside from the misty air so as to make the fass, and the skins of Negroes appear whitish. The extreme dryness, which attends this wind or fog without dews, withers and quite dries the leaves of vegetables, and is said of Dr. Lind at some seasons to be fatal and malignant to mankind, probably after much preceding wet; when it may become loaded with the exhalations from putrid marshes; at other seasons it is said to check epidemic diseases, to cure fluxes and to heal ulcers, and cutaneous eruptions; which is probably affected by its yielding no moisture to the mouths of the external absorbent vessels, by which the action of the other branches of the absorbent system is increased to supply the deficiency. Account of the Harmattan. Phil. Transact. V. 71.

In many circumstance this wind seems much to resemble the dry fog, which covered most parts of Europe for many weeks in the summer of 1780, which has been supposed to have had a volcanic origin, as it succeeded the violent eruption of Mount Hecla, and its neighbourhood. From the subsidence of a white powder it seems probable, that the Harmattan has a similar origin, from the unexplored mountains of Africa. Nor is it improbable, that the epidemic coughs, which occasionally traverse immense tracts of country, may be the products of volcanic eruptions; nor impossible, that at some future time contagious miasmata may be thus emitted from subterraneous furnaces, in such abundance as to contaminate the whole atmosphere, and depopulate the earth!

\(^{124}\) His Sickening shoals. l. 236. Mr. Marsden relates, that in the island of Sumatra, during the November of 1775, the dry monsoons, or S.E. winds, continued so much longer than usual, that the large rivers became dry; and prodigious quantities of sea-fish, dead and dying, were seen floating for leagues on the sea, and driven on the beach by the tides. This was supposed to have been caused by the great evaporation, and the deficiency of fresh water rivers having rendered the sea too salt for its inhabitants. The season then became so sickly as to destroy great numbers of people both foreigners and natives. Phil. Trans. V. 71. p. 384.

\(^{125}\) Chunda. l. 237. Chundali Borrum is the name, which the natives give to this plant; it is the Hedysarum movens, or moving plant; its class is two brotherhoods ten males. Its leaves are continually in spontaneous motion, some rising and others falling, and others whirling circularly by twisting their stems; this spontaneous movement of the leaves, when the air is quite still, and very warm, seems to be necessary to the plant, as perpetual respiration is to animal life.

There are many other instances of spontaneous movements of the parts of vegetables. In the Marchantia polymorpha some yellow wool proceeds from the flower-bearing anthers, which moves spontaneously in the anther, while its drops its dust like atoms. Add to this, that as the sleep of animals conflicts in a suspension of voluntary motion, and as vegetables are likewise subject to sleep; there is reason to conclude, that the various actions of opening and closing their petals and foliage may be justly
Her brow unturban’d and her zone unbrac’d;
Ten brother-youths with light umbrella’s shade,
Or fan with busy hands the panting maid;
Loose wave her locks, disclosing, as they break,
The rising bosom and averted cheek;
Clasp’d round her ivory neck with studs of fold
Flows her thin vest in many a silky fold;
O’er her light limbs the dim transparence plays,
And the air, it seems to hide, betrays. 240

Where leads the northern Star his lucid train
High o’er the snow-clad earth, and icy main,
With milky light the white horizon streams,
And to the moon each sparkling mountain gleams.– 250
Slow o’er the printed snows with silent walk
Huge shaggy forms across the twilight stalk;
And ever and anon with hideous sound
Burst the thick ribs of ice, and thunder round.– 126
There, as old Winter flaps his hoary wing,
And lingering leaves his empire to the Spring,
Pierced with quick shafts of silver-shooting light
Fly in dark troops the dazzled imps of night.–
“Awake my love!” enamour’d MUSCHUS cries,127
“Stretch thy fair limbs, refulgent Maid! arise;
“Ope thy steep eye-lids to the rising ray,
“And hail with ruby lips returning day.
“Down the white hills dissolving torrents pour,
“Green springs the turf, and purple blows the flower;
“His torpid wing the Rail exulting tries,
“Mounts the soft gale, and wantons in the skies;
“Rise, let us mark how bloom the awaken’d groves,

ascribed to a voluntary power: for without the faculty of volition, sleep would not have been necessary to them.

126 Burst the thick ribs of ice. l. 254. The violent cracks of ice heard from the Glaciers seem to be caused by some of the snow being melted in the middle of the day; and the water thus produced running down into vallies of ice, and congealing again in a few house forces off, by its expansion, large precipices from the ice-mountains.
127 Muschus. l. 259. corallinus, or lichen rangiferinus. Coral-moss. Clandestine marriage. This moss vegetates beneath the snow, where the degree of heat is always about 40, that is in the middle between the freezing point, and the common heat of the earth; and is for many months of the winter the sole food of the rain-deer; who digs furrows in the snow to find it; and as the milk and flesh of this animal is almost the only sustenance, which can be procured during the long winters of the higher latitudes, this moss may be said to support some millions of mankind.

The quick vegetation, that occurs in the solution of the snows in high latitudes, appears very astonishing; it seems to arise from two causes, 1. the long continuance of the approaching sun above the horizon, 2. the increase irritability of plants, which have been long exposed to the cold. See notes on part 1.

All the water-fowl on the lakes of Siberia are said by Professor Gmelin to retreat southwards on the commencement of the frosts except the Rail; which sleeps buried in the snow. Account of Siberia.
“And ‘mid the banks of roses hide our loves.”

Night’s tinsel beams on smooth Lock-lomond dance,
In vain her eyes the passing floods explore,
Wave after wave rolls freightless to the shore.
Now dim amid the distant foam she spies
A rising speck,—”tis he! ’tis he!” she cries;
As with firm arms he beats the streams aside,
And cleaves with rising chest the tossing tide,
With bended knee she prints the humid sands,
Up-turns her glistening eyes, and spreads her hands;
—“’Tis he, ’tis he!—My Lord, my life, my love!—
“Slumber ye winds; ye billows, cease to move!
“Beneath his arms your bouyant plumage spread,
“Ye Swans! Ye Halcyons, hover round his head!”—
—With eager step the boiling surf she braves,
And meets her refluent lover in the waves;
Loose o’er the flood her azure mantle swims,
And the clear stream betrays her snowy limbs.

So on her sea-girt tower fair HERO stood
At parting day, and mark’d the dashing flood;
While high in air, the glimmering rocks above,
Shone the bright lamp, the pilot-star of Love.
—With robe outspread the wavering flame behind
She kneels, and guards it from the shifting wind;
Breathes to her Goddess all her vows, and guides
Her bold LEANDER o’er the dusky tides;
Wring his wet hair, his briny bosom warms,
And clasps her panting lover in her arms.

Deep, in wide caverns and unfathom’d cells,
Daughter of Earth, the chaste TRUFFELIA dwells;

128 Aega. l. 270. Conserva aegagropila. It is found loose in many lakes in a globular form, from the size of a walnut to that of a melon, much resembling the balls of hair found in the stomachs of cows; it adheres to nothing, but rolls from one part of the lake to another. The conserva vagabonda dwells on the European seas, travelling along in the midst of waves; (Spec. Plant.) these may not improperly be called itinerant vegetables. In a familiar manner the Facus natans (swimming) strikes no roots into the earth, but floats on the sea, in very extensive masses, and may be said to be a plant of passage, as it is wafted by the winds from one shore to another.

129 Editor’s Note: In this extended allusion (ll. 287-96), Darwin draws again from Greek mythology, referencing the story of Hero and Leander (from the poetry of Ovid and Virgil). Hero was a priestess of Aphrodite (Venus); she had to remain a virgin and was forbidden to marry. Leander was a youth from Abydos, located across a narrow strip of water called Hellespont. Hero and Leander met at a festival and fell in love. They decided to see each other secretly. Every night Hero left a lamp burning in a window of her tower; Leander swam across Hellespont, using the light to guide his way. One night, the wind blew out the flame and Leander lost his way and drowned. Hero saw his lifeless body washed up on the shore the next morning and killed herself by jumping out of the tower.
On silvery beds, of soft asbestus wove,
Meets her Gnome-husband, and avows her love. 300
—High o’er her couch impending diamonds blaze,
And branching gold the crystal roof inlays;
With verdant light the modest emeralds glow,
Blue sapphires glare, and rubies blush, below;
Light piers of lazuli the dome surround,
And pictured mochoes tesselate the ground;
O’er the gay ailes delighted Cupids stray,
And shed from odorous lamps celestial day.—

So, cavern’d round in vast Polandish mines,
With crystal walls a gorgeous city shines; 310
Scoop’d in the briny rock long streets extend131
Their hoary course, and glittering domes ascend.
Down the bright steps, emerging into day,
Impetuous fountains burst their headlong way,
O’er milk-white vales in ivory channels spread,
And wondering seek their subterranean bed.
Form’d in pellucid salt with chisel nice,
The pale lamp glimmering through the sculptur’d ice,
With wild reverted eyes fair LOTTA stands,
And spreads to heaven, in vain, her glassy hands;
Cold dews condense upon her pearly breast,
And the big tear rolls lucid down her vest.
Far-gleaming o’er the town, transparent sanes
Rear their white towers, and wave their golden vanes;
Long lines of Lusters pour their trembling rays,
And the bright vault returns the mingled blaze. 325

130 Truffelia. l. 298. (Lycoperdon Tuber) Truffle. Clandestine marriage. This fungus never appears above
ground, requiring little air and perhaps no light. It is found by dogs or swine, who hunt it by the smell.
Other plants, which have no buds or branches on their stems, as the grasses, shoot out numerous stoles or
scions underground; and this the more, as their tops or herbs are eaten by cattle; and thus preserve
themselves.

131 Scoop’d in the briny rock. l. 311. There is a town in the immense salt-mines of Crackow in Poland, with
a market-place, a river, a church, and a famous statue, (here supposed to be of Lot’s wife) by the moist or
dry appearance of which the subterranean inhabitants know, when the weather is fair above ground, these
immense masses of rock salt seem to have been produced by the evaporation of sea-water in the early
periods of the world by subterranean fires. Dr. Hutton’s Theory of the Earth.

Salts of various kinds are produced from the recrements of animal and vegetable bodies, such as
phosphoric, ammoniacal, marine salt, and others; these are washed from the earth by rains, and carried
down our rivers into the sea; they seem all here to decompose each other except the marine salt; which
has therefore from the beginning of the habitable world been perpetually accumulating; as an article of
diet it seems to be simply a stimulus, not containing any nourishment; and like all other unnatural stimuli
is not necessary to people in health, and contributes to weaken our system; thought it may be useful as a
medicine. It seems to be an immediate cause of the sea-scurvy, as these patients get well by the use of
fresh provisions; and is probably a remote cause of the serophula, (which consists in the want of
irritability of the absorbent system,) and is therefore useful to these patients; as wine is necessary to those
whose stomachs have been weakened by its use. The universality of the use of salt with our food and in
our cookery has rendered it difficult to prove the truth of these observations.
Closed in an azure fig by fairy spells,
Bosom’d in down, fair CAPRIFICA dwells;—
So sleeps in silence the Curculio, shut
In the dark chambers of the cavern’d nut,
Erodes with ivory beak the vaulted shell,
And quits on filmy wings its narrow cell. 
So the pleased Linnet in the moss-wove nest,
Waked into life beneath its parent’s breast,
Chirps in the gaping shell, bursts forth elelong,
Shakes its new plumes, and tries its tender song.—
—And now the talisman she strikes, that charms
Her husband—Sylph,—and calls him to her arms.—
Quick, the light Gnat her airy Lord bestrides,
With cobweb reins the flying courser guides,
From crystal steeps of viewless ether springs,
Cleaves the soft air on still expanded wings;
Darts like a sunbeam o’er the boundless wave,
And seeks the beauty in her secret cave.
So with quick impulse through all nature’s frame

\[132\] Caprificus. l. 328. Wild fig, The fruit of the fig is not a seed-vessel, but a receptacle inclosing the flower within it. As these trees bear some male and others female flowers, immured on all sides by the fruit, the manner of their fecundation was very unintelligible, till Tournefort and Pontedera discovered, that a kind of gnat produced in the male figs, carried the secundating dust on its wings, (Cynips Psenes Syst. Nat. 919) and penetrating the female fig, thus impregnated the flowers; for the evidence of this wonderful fact see the word Caprification, in Milne’s botanical dictionary. The figs of this country are all female, and their seeds not prolific; and therefore they can only be propagated by layers and suckers.

Monsieur de la Hire has shewn in the Memoir. de l’Academ des Science, that the summer figs at Paris, in Provence, Italy, and Malta have all perfect stamina, and ripen not only their fruits, but their seed; from which seed other fig-trees are raised; but that the stamina of the autumnal figs are abortive, perhaps owing to the want of due warmth. Mr. Milne, in his botanical dictionary, (art. Caprification), says that the cultivated fig-trees have a few male flowers placed above the female, within the same covering or receptacle; which in warmer climates perform their proper office, but in colder ones become abortive. And Linneus observes, that some figs have the navel of the receptacle open, which was one reason, that induced him to remove this plant from the class, clandestine marriage, to the class Polygamy. Lin. Spec. Plant.

From all these circumstances I should conjecture, that those female fig-flowers, which are closed on all sides in the fruit or receptacle without any male ones, are monsters; which have been propagated for their fruit, like barberries, and grapes without seeds in them, and that the caprification is either an antient process of imaginary use, and blindly followed in some countries, or that it may contribute to ripen the fig by decreasing its vigour; like cutting off a circle of the bark from the branch of a pear-tree. Tournefort seems inclined to this opinion, who says, that the figs in Provence and at Paris ripen sooner, if their buds be pricked with a straw dipped in olive-oil. Plumbs and pears punctured by some insects ripen sooner, and the part round the puncture is sweeter. Is not the honey-dew produced by the puncture of insects? will not wounding the branch of a pear-tree, which is too vigorous, prevent the blossoms from falling off; as from some fig-trees the fruit is said to fall off unless they are wounded by caprification? I had last spring six young trees of the Ischia fig with fruit on them in pots in a stove; on removing them into larger boxes, they protruded very vigorous shoots, and the figs all fell off; which I ascribed to the increased vigour of the plants.

133 Editor’s Note: The curculio is a snout beetle and a major pest of pome and stone fruits. White, oval eggs are laid in newly developing fruit. Once hatched, the larvae feed either up to the stone of stone fruits or on the seeds of pome fruits. The pupae are white.
Shoots the electric air its subtle flame.
So turns the impatient needle to the pole,
Tho’ mountains rise between, and oceans roll.

Where round the Orcades white torrents roar,
Scooping with ceaseless rage the incumbent shore,
Wide o’er the deep a dusky cavern bends
Its marble arms, and high in air impends;
Basaltic piers the ponderous roof sustain,
And steep their massy sandals in the main;
Round the dim walls, and through the whispering ailes
Hoarse breathes the wind, the glittering water boils.
Here the charm’d BYSSUS with his blooming bride
Spreads his green sails, and braves the foaming tide;
The star of Venus gilds the twilight wave,
And lights her votaries to the secret cave;
Light Cupids flutter round the nuptial bed,
And each coy sea-maid hides her blushing head.

Where cool’d by rills, and curtain’d round by woods,
Slopes the green dell to meet the briny floods,
The sparkling noon-beams trembling on the tide,
The PROTEUS-LOVER woos his playful bride
To win the fair he tries a thousand forms,
Basks on the sands, or gambols in the storms.—
A Dolphin now, his scaly sides he laves,
And bares the sportive damsel on the waves;
She strikes the cymbal, as he moves along,
And wondering Ocean listens to the song.
—And now a spotted pard the Lover stalks,

**Editor’s Note:** In ancient literature, Orcades refers to the Orkney Islands in Scotland. The Orcades are made up of about 70 islands and islets, though only about 20 are inhabited. The islands are located about 20 miles north of the Scottish mainland across the Pentland Firth strait.

**Basaltic piers.** l. 353. This description alludes to the cave of Fingal in the island of Staffa. The basaltic columns, which compose the Giants causeway on the coast of Ireland, as well as those which support the cave of Fingal are evidently of volcanic origin, as is well illustrated in an ingenious paper of Mr. Keir in the Philos. Trans. Vol. who observed in the glass, which had been long in a fusing heat at the bottom of the pots in the glass houses at Stourbridge, that chrystals were produced of a form similar to the parts of the basaltic columns of the Giant’s causeway.

**Byssus.** l. 357. Clandestine marriage. It floats on the sea in the day, and sinks a little during the night, it is found in caverns on the northern shores, of a pale green colour, and as thin as paper.

**The Proteus-lover.** l. 366. Conserva-polymorpha. This vegetable is put amongst the cryptagamia, or clandestine marriages, by Linneus; but according to Mr. Ellis the males and females are on different plants. Philos. Trans. V. 57. It twice changes its colour, from red to brown, and then to black; and changes its form by losing its lower leaves, and elongating some of the upper ones, so as to be mistaken by the unskilful for different plants, it grows on the shores of this country.

There is another plant, Medicago polymorpha, which may be said to assume a great variety of shapes; as the seed-vessels resemble sometimes snail-horns, at other times caterpillars with or without long hair upon them, by which means it is probable they sometimes elude the depredations of those insects. Salicornia also assumes an animal similitude. Phil. Bot. p. 87. See note on Rubia.
Plays round her steps, and guards her favour’d walks; 375
As with white teeth he prints her hand, caress’d,
And lays his velvet paw upon her breast,
O’er his round face her snowy fingers strain
The silken knots, and fit the ribbon-rein.
—And now a Swan, he spreads his plumy sails,
And proudly glides before the fanning gales;
Pleas’d on the flowery brink with graceful hand
She waves her floating lover to the land;
Bright shines his sinuous neck, with crimson beak
He prints fond kisses on her glowing cheek,
Spreads his broad wings, elates his ebon crest,
And clasps the beauty to his downy breast.

A hundred virgins join a hundred swains, 380
And fond ADONIS leads the sprightly trains;
Pair after pair, along his sacred groves
To Hymen’s fane the bright procession moves;
Each smiling youth a myrtle garland shades,
And wreaths of roses veil the blushing maids;
Light Joys on twinkling feet attend the throng,
Weave the gay dance, or raise the frolic song;
—Thick, as they pass, exulting Cupids fling
Promiscuous arrows from the sounding string;
On wings of gossamer soft Whispers fly,
And the sly Glance steals side-long from the eye.
—As round his shrine the gaudy circles bow,
And seal with muttering lips the faithless vow,
Licentious Hymen joins their mingled hands,
And loosely twines the meretricious bands.—
Thus where pleased VENUS, in the southern main,
Sheds all her smiles on Otaheite’s plain, 395
Wide o’er the isle her silken net she draws,
And the Loves laugh at all, but Nature’s laws.”

Here ceased the Goddess,—o’er the silent strings

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138 Adonis. l. 388. Many males and many females live together in the same flower. It may seem a solecism in language, to call a flower, which contains many of both sexes, an individual; and the more so to call a tree or shrub an individual, which consists of so many flowers. Every tree indeed ought to be considered as a family or swarm of its respective buds; but the buds themselves seem to be individual plants; because each has leaves or lungs appropriated to it; and the bark of the tree is only a congeries of the roots of all these individual buds. Thus hollow oak-trees and willows are often seen with the whole wood decayed, and gone; and yet the few remaining branches flourish with vigour; but in respect to the male and female parts of a flower, they do not destroy its individuality any more than the number of paps of a sow, or the number of her cotyledons, each of which includes one of her young.

The society called the Areoi in the island of Otaheite, consists of about 100 males and 100 females, who form one promiscuous marriage.

139 Editor’s Note: Otaheite is modern-day Tahiti.
Applauding Zephyrs swept their fluttering wings;
Enraptur’d Sylphs arose in murmuring crowds
To air-wove canopies and pillowy clouds;
Each Gnome reluctant sought his earthy cell,
And each bright Floret clos’d her velvet bell.
Then, on soft tiptoe, NIGHT approaching near
Hung o’er the tuneless lyre his sable ear;
Gem’d with bright stars the still etherial plain,
And bad his Nightingales repeat the strain.

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ADDITIONAL NOTES

*Lead the lone pilgrim.* canto 1. l. 155. The numerous clumps of hollies in Needwood forest serve as land-marks to direct the travellers across it in various directions; and as a shelter to the deer and cattle in winter; and in scarce seasons supply them with much food. For when the upper branches, which are without prickles, are cut down, the deer crop the leaves and peel off the bark. The bird-lime made from the bark of Hollies seems to be a very similar material to the elastic gum, or indian rubber, as it is called.

*Pleased on the boiling wave.* canto 1. l. 333. The story of Aeson’s becoming young, from the medicated bath of Medea, seems to have been intended to teach the efficacy of warm bathing in retarding the progress of old age. The words *relaxation and bracing*, which are generally thought expressive of the effects of warm and cold bathing, are mechanical terms, properly applied to drums or strings; but are only metaphors, when applied to the effects of cold or warm bathing on animal bodies. The immediate cause of old age seems to reside in the inirritability of the finer vessels or parts of our system; hence these cease to act, and collapse or become horny or bony. The warm bath is peculiarly adapted to prevent these circumstances by its increasing our irritability, and by moistening and softening the skin, and the extremeties of the finer vessels, which terminate in it. To those, who are past the meridian of life, and have dry skins, and begin to be emaciated, the warm bath for half an hour twice a week, I believe to be eminently serviceable in retarding the advances of age.

*So shines the glow-fly.* canto 4. l. 52. In Jamaica in some seasons of the year the fire-flies are seen in the evenings in great abundance. When they settle on the ground the bull-frog greedily devours them; which seems to have given origin to a curious though cruel method of destroying these animals; if red hot pieces of charcoal be thrown towards them in the dusk of the evening, they leap at them, and hastily swallowing them are burnt to death.

*Rolls his brineless tide.* canto 3. l. 343. Some philosophers have believed that the continent of America was not raised out of the great ocean at so early a period of time as the other continents. One reason for this opinion was because the great lakes perhaps nearly as large as the Mediterranean Sea, consist of fresh water. And as the sea-salt seems to have its origin from the destruction of vegetable and animal boides, washed down by rains and carried by rivers into lakes, or seas. It would seem that this source of sea-salt had not so long existed in that country. There is however a more satisfactory way of explaining this circumstance; which is, that the American lakes lie above the level of the ocean, and are hence perpetually desalited by the rivers which run through them; which is not the case with the Mediterranean, into which a current from the main ocean perpetually passes.
THIS destructive tree is called in the Malayan language *Bohon-Upas*, and has been described by naturalists; but their accounts have been so tinctured with the *marvellous*, that the whole narration has been supposed to be an ingenious fiction by the generality of readers. Nor is this in the least degree surprising, when the circumstances which we shall faithfully relate in this description are considered.

I must acknowledge, that I long doubted the existence of this tree, until a stricter enquiry convinced me of my error. I shall now only relate simple unadorned facts, of which I have been an eye-witness. My readers may depend upon the fidelity of this account. In the year 1774 I was stationed at Batavia, as a surgeon, in the service of the Dutch East-India Company. During my residence there I received several different accounts of the Bohon Upas, and the violent effects of its poison. They all then seemed incredible to me, but raised my curiosity in so high a degree, that I resolved to investigate this subject thoroughly, and to trust only to my own observations. In consequence of this resolution, I applied to the Governor-General, Mr. Petrus Albertus van der Parra, for a pass to travel through the country: my request was granted; and, having procured every information, I set out on my expedition. I had procured a recommendation from an old Malayan priest to another priest, who lives on the nearest inhabitable spot to the tree, which is about fifteen or sixteen miles distant. The letter proved of great service to me in my undertaking, as that priest is appointed by the Emperor to reside there, in order to prepare for eternity the souls of those who for different crimes are sentenced to approach the tree, and to procure the poison.

The *Bohon-Upas* is situated in the island of Java, about twenty-seven leagues from Batavia, fourteen from Soura Charta, the seat of the Emperor, and between eighteen and twenty leagues from Tinkjoe, the present residence of the Sultan of Java. It is surrounded on all sides by a circle of high hills and mountains; and the country round it, to the distance of ten or twelve miles from the tree, is entirely barren. Not a tree, nor a shrub, nor even the least plant or grass is to be seen. I have made the tour all around this dangerous spot, at about eighteen miles distant from the centre, and I found the aspect of the country on all sides equally dreary. The easiest ascent of the hills is from that part where the old ecclesiastick dwells. From his house the criminals are sent for the poison, into which the points of all warlike instruments are dipped. It is of high value, and produces a considerable revenue to the Emperor.

Account of the manner in which the Poison is procured.

The poison which is procured from this tree is a gum that issues out between the bark and the tree itself, like the *camphor*. Malefactors, who for their crimes are sentenced to die, are the only persons who fetch the poison; and this is the only chance they have of saving their lives. After sentence is pronounced upon them by the judge, they are asked in court, whether they will die by the hands of the executioner, or whether they will go to the Upas tree for a box of poison? They commonly prefer the

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140 Editor's Note: The original essay, written by N.P. Foersch, was printed in the *London Magazine* in 1783, and it was debunked as a hoax by the end of the nineteenth century.
latter proposal, as there is not only some chance of preserving their lives, but also a
certainty, in case of their safe return, that a provision will be made for them in future by
the Emperor. They are also permitted to ask a favour from the Emperor, which is
generally of a trifling nature, and commonly granted. They are then provided with a
silver or tortoiseshell box, in which they are to put the poisonous gum, and are properly
instructed how to proceed while they are upon their dangerous expedition. Among other
particulars, they are always told to attend to the direction of the winds; as they are to go
towards the tree before the wind, so that the effluvia from the tree are always blown
from them. They are told, likewise, to travel with the utmost dispatch, as that is the only
method of insuring a safe return. They are afterwards sent to the house of the old priest,
to which place they are commonly attended by their friends and relations. Here they
generally remain some days, in expectation of a favourable breeze. During that time the
ecclesiastic prepares them for their future fate by prayers and admonitions.

When the hour of their departure arrives, the priest puts them on a long leather-
cap, with two glasses before their eyes, which comes down as far as their breast; and also
provides them with a pair of leather-gloves. They are then conducted by the priest, and
their friends and relations, about two miles on their journey. Here the priest repeats
his instructions, and tells them where they are to look for the tree. He shews them a hill,
which they are told to ascend, and that on the other side they will find a rivulet, which
they are to follow, and which will conduct them directly to the Upas. They now take
leave of each other; and, amidst prayers for their success, the delinquents hasten away.

The worthy old ecclesiastic has assured me, that during his residence there, for
upwards of thirty years, he had dismissed above seven hundred criminals in the manner
which I have described; and that scarcely two out of twenty have returned. He shewed
me a catalogue of all the unhappy sufferers, with the date of their departure from his
house annexed; and a list of the offences for which they had been condemned: to which
was added, a list of those who had returned in safety. I afterwards saw another list of
these culprits, at the jail-keeper's at Soura-Charta, and found that they perfectly
 corresponded with each other, and with the different informations which I afterwards
obtained.

I was present at some of these melancholy ceremonies, and desired different
delinquents to bring with them some pieces of the wood, or a small branch, or some
leaves of this wonderful tree. I have also given them silk cords, desiring them to measure
its thickness. I never could procure more than two dry leaves that were picked up by one
of them on his return; and all I could learn from him, concerning the tree itself, was,
that it flood on the border of a rivulet, as described by the old priest; that it was of a
middling size; that five or six young trees of the same kind stood close by it; but that no
other shrub or plant could be seen near it; and that the ground was of a brownish sand,
full of stones, almost impracticable for travelling, and covered with dead bodies. After
many conversations with the old Malayan priest, I questioned him about the first
discovery, and asked his opinion of this dangerous tree; upon which he gave me the
following answer:

"We are told in our new Alcoran, that, above an hundred years ago, the country
around the tree was inhabited by a people strongly addicted to the sins of Sodom and
Gomorrrha; when the great prophet Mahomet determined not to suffer them to lead such
detestable lives any longer, he applied to God to punish them: upon which God caused
this tree to grow out of the earth, which destroyed them all, and rendered the country for ever uninhabitable."

Such was the Malayan opinion. I shall not attempt a comment; but must observe, that all the Malayans consider this tree as an holy instrument of the great prophet to punish the sins of mankind; and, therefore, to die of the poison of the Upas is generally considered among them as an honourable death. For that reason I also observed, that the delinquents, who were going to the tree, were generally dressed in their best apparel.

This, however, is certain, though it may appear incredible, that from fifteen to eighteen miles round this tree, not only no human creature can exist, but that, in that space of ground, no living animal of any kind has ever been discovered. I have also been assured by several persons of veracity, that there are no fish in the waters, nor has any rat, mouse, or any other vermin, been seen there; and when any birds fly so near this tree that the effuvia reaches them, they fall a sacrifice to the effects of the poison. This circumstance has been ascertained by different delinquents, who, in their return, have seen the birds drop down, and have picked them up dead, and brought them to the old ecclesiastick.

I will here mention an instance, which proves them a fact beyond all doubt, and which happened during my stay at Java.

In the year 1775 a rebellion broke out among the subjects of the Massay, a sovereign prince, whose dignity is nearly equal to that of the Emperor. They refused to pay a duty imposed upon them by their sovereign, whom they openly opposed. The Massay sent a body of a thousand troops to disperse the rebels, and to drive them, with their families, out of his dominions. Thus four hundred families, consisting of above sixteen hundred souls, were obliged to leave their native country. Neither the Emperor nor the Sultan would give them protection, not only because they were rebels, but also through sear of displeasing their neighbour, the Massay. In this distressful situation, they had no other resource than to repair to the uncultivated parts round the Upas, and requested permission of the Emperor to settle there. Their request was granted, on condition of their fixing their abode not more than twelve or fourteen miles from the tree, in order not to deprive the inhabitants already settled there at a greater distance of their cultivated lands. With this they were obliged to comply; but the consequence was, that in less than two months their number was reduced to about three hundred. The chiefs of those who remained returned to the Massay, informed him of their losses, and intreated his pardon, which induced him to receive them again as subjects, thinking them sufficiently punished for their misconduct. I have seen and conversed with several of those who survived soon after their return. They all had the appearance of persons tainted with an infectious disorder; they looked pale and weak, and from the account which they gave of the loss of their comrades, of the symptoms and circumstances which attended their dissolution, such as convulsions, and other signs of a violent death, I was fully convinced that they fell victims to the poison.

This violent effect of the poison at so great a distance from the tree, certainly appears surprising, and almost incredible; and especially when we consider that it is possible for delinquents who approach the tree to return alive. My wonder, however, in a great measure, ceased, after I had made the following observations:

I have said before, that malefactors are instructed to go to the tree with the wind, and to return against the wind. When the wind continues to blow from the same quarter while the delinquent travels thirty, or six and thirty miles, if he be of a good constitution,
he certainly survives. But what proves the most destructive is, that there is no dependence on the wind in that part of the world for any length of time.—There are no regular land-winds; and the sea-wind is not perceived there at all, the situation of the tree being at too great a distance, and surrounded by high mountains and uncultivated forests. Besides, the wind there never blows a fresh regular gale, but is commonly merely a current of light, soft breezes, which pass through the different openings of the adjoining mountains. It is also frequently difficult to determine from what part of the globe the wind really comes, as it is divided by various obstructions in its passage, which easily change the direction of the wind, and often totally destroy its effects.

I, therefore, impute the distant effects of the poison, in a great measure, to the constant gentle winds in those parts, which have not power enough to disperse the poisonous particles. If high winds are more frequent and durable there, they would certainly weaken very much, and even destroy the obnoxious effluvia of the poison; but without them, the air remains infected and pregnant with these poisonous vapours.

I am the more convinced of this, as the worthy ecclesiastick assured me, that a dead calm is always attended with the greatest danger, as there is a continual perspiration issuing from the tree, which is seen to rise and spread in the air, like the putrid steam of a marshy cavern.

Experiments made with the Gum of the UPAS-TREE.

IN the year 1776, in the month of February, I was present at the execution of thirteen of the Emperor's concubines, at Soura-Charta, who were convicted of infidelity to the Emperor's bed. It was in the forenoon, about eleven o'clock, when the fair criminals were led into an open space within the walls of the Emperor's palace. There the judge passed sentence upon them, by which they are doomed to suffer death by a lancet poisoned with Upas. After this the Alcoran was presented to them, and they were, according to the law of their great prophet Mahomet, to acknowledge and to affirm by oath, that the charges brought against them, together with the sentence and their punishment, were fair and equitable. This they did, by laying their right hand upon the Alcoran, their left hands upon their breast, and their eyes lifted towards heaven; the judge then held the Alcoran to their lips, and they kissed it.

These ceremonies over, the executioner proceeded on his business in the following manner:—Thirteen posts, each about five feet high, had been previously erected. To these the delinquents were fastened, and their breasts stripped naked. In this situation they remained a short time in continual prayers, attended by several priests, until a signal was given by the judge to the executioner; on which the latter produced an instrument, much like the spring lancet used by farriers for bleeding horses. With this instrument, it being poisoned with the gum of the Upas, the unhappy wretches were lanced in the middle of their breasts, and the operation was performed upon them all in less than two minutes.

My astonishment was raised to the highest degree, when I beheld the sudden effects of that poison, for in about five minutes after they were lanced, they were taken with a tremor, attended with a subsultus tendinum, after which they died in the greatest agonies, crying out to God and Mahomet for mercy. In sixteen minutes by my watch, which I held in my hand, all the criminals were no more. Some hours after their death, I
ob \text{ served their bodies full of livid spots, much like those of the Petechiae, their faces swelled, their colour changed to a kind of blue, their eyes looked yellow, \\ et c. \\ et c.}

About a fortnight after this, I had an opportunity of seeing such another execution at Samarang. Seven Malayans were executed there with the same instrument, and in the same manner; and I found the operation of the poison, and the spots in their bodies exactly the same.

These circumstances made me desirous to try an experiment with some animals, in order to be convinced of the real effects of this poison; and as I had then two young puppies, I thought them the fittest objects for my purpose. I accordingly procured with great difficulty some grains of Upas. I dissolved half a grain of that gum in a small quantity of arrack, and dipped a lancet into it. With this poisoned instrument I made an incision in the lower muscular part of the belly in one of the puppies. Three minutes after it received the wound the animal began to cry out most piteously, and ran as last as possible from one corner of the room to the other. So it continued during six minutes, when all its strength being exhausted, it fell upon the ground, was taken with convulsions, and died in the eleventh minute. I repeated this experiment with two other puppies, with a cat, and a fowl, and found the operation of the poison in all of them the same: none of these animals survived above thirteen minutes.

I thought it necessary to try also the effect of the poison given inwardly, which I did in the following manner. I dissolved a quarter of a grain of the gum in half an ounce of arrack, and made a dog of seven months old drink it. In seven minutes a retching ensued, and I observed, at the same time, that the animal was delirious, as it ran up and down the room, fell on the ground, and tumbled about; then it rose again, cried out very loud, and in about half an hour after was seized with convulsions, and died. I opened the body, and found the stomach very much inflamed, as the intestines were in some parts, but not so much as the stomach. There was a small quantity of coagulated blood in the stomach; but I could discover no orifice from which it could have issued; and therefore supposed it to have been squeezed out of the lungs, by the animal’s straining while it was vomiting.

From these experiments I have been convinced that the gum of the Upas is the most dangerous and most violent of all vegetable poisons; and I am apt to believe that it greatly contributes to the unhealthiness of that island. Nor is this the only evil attending it: hundreds of the natives of Java, as well as Europeans, are yearly destroyed and treacherously murdered by that poison, either internally or externally. Every man of quality or fashion has his dagger or other arms poisoned with it; and in times of war the Malayans poison the springs and other waters with it; by this treacherous practice the Dutch suffered greatly during the last war, as it occasioned the loss of half their army. For this reason, they have ever since kept fish in the springs of which they drink the water; and sentinels are placed near them, who inspect the waters every hour, to see whether the fish are alive. If they march with an army or body of troops into an enemy’s country, they always carry live fish with them, which they throw into the water some hours before they venture to drink it; by which means they have been able to prevent their total destruction.

This account, I flatter myself, will satisfy the curiosity of my readers, and the few facts which I have related will be considered as a certain proof of the existence of this pernicious tree, and its penetrating effects.
If it be asked why we have not yet any more satisfactory accounts of this tree, I can only answer, that the object to most travellers to that part of the world consists more in commercial pursuits than in the study of Natural History and the advancement of Sciences. Besides, Java is so universally reputed an unhealthy island, that rich travellers seldom make any long stay in it; and other want money, and generally are too ignorant of the language to travel, in order to make enquiries. In future, those who visit this island will probably now be induced to make it an object of their researches, and will furnish us with a fuller description of this tree.

I will therefore only add, that there exists also a sort of Cajoe-Upas on the coast of Macassar, the poison of which operates nearly in the same manner, but is not half so violent or malignant as that of Java, and of which I shall likewise give a more circumstantial account in a description of that island.—London Magazine.
Bibliography for Further Reading


Teute, Fredrika J. “The Loves of the Plants; or, the Cross-Fertilization of Science and Desire at the End of the Eighteenth Century.” *The Huntington Library Quarterly* 63.3 (2000): 319-345.