

= Historia Plantarum ( Theophrastus ) =

Theophrastus 's Enquiry into Plants or Historia Plantarum ( Greek : ????? ????????? , Peri phyton historia ) was , along with Pliny the Elder 's Natural History and Dioscorides 's De Materia Medica , one of the most important books of natural history written in ancient times , and like them it was influential in the Renaissance . Theophrastus looks at plant structure , reproduction and growth ; the varieties of plant around the world ; wood ; wild and cultivated plants ; and their uses . Book 9 in particular , on the medicinal uses of plants , is one of the first herbals , describing juices , gums and resins extracted from plants , and how to gather them .

Historia Plantarum was written some time between c . 350 BC and c . 287 BC in ten volumes , of which nine survive . In the book , Theophrastus described plants by their uses , and attempted a biological classification based on how plants reproduced , a first in the history of botany . He continually revised the manuscript , and it remained in an unfinished state on his death . The condensed style of the text , with its many lists of examples , indicate that Theophrastus used the manuscript as the working notes for lectures to his students , rather than intending it to be read as a book .

Historia Plantarum was first translated into Latin by Theodore Gaza ; the translation was published in 1483 . Johannes Bodaeus published a frequently cited folio edition in Amsterdam in 1644 , complete with commentaries and woodcut illustrations . The first English translation was made by Sir Arthur Hort and published in 1916 .

= = Book = =

The Enquiry into Plants is in Hort 's parallel text a book of some 400 pages of original Greek , consisting of about 100 @, @ 000 words . It was originally organised into ten books , of which nine survive , though it is possible the surviving text represents all the material , rearranged into nine books rather than the original ten . Along with his other surviving botanical work , On the Causes of Plants , Enquiry into Plants was an important influence on science in the middle ages . On the strength of these books , the first scientific inquiries into plants and one of the first systems of plant classification , Linnaeus called Theophrastus " the father of botany " .

Theophrastus 's two plant books have similar titles to two books on animals by his mentor Aristotle ; Roger French concludes that he was effectively " doing a peripatetic exercise " in identifying regularities in and differences between plants , in the manner of Aristotle with animals . However , he went beyond Aristotle in describing seeds as parts of the plant ; Aristotle , French argues , would never have described semen or embryos as parts of an animal .

Theophrastus made use of a variety of sources for the book , including Diocles on drugs and medicinal plants . Theophrastus claims to have gathered information from drug @-@ sellers ( pharmacopulai ) and root @-@ cutters ( rhizotomoi ) . Plants described include poppy ( m?k?n ) , hemlock , ( k?nion ) , wild lettuce ( thridakin? ) , and mandrake ( mandragoras ) .

The surviving texts are the notes that Theophrastus used in teaching , and they were continually revised . He referred to earlier books in the Lyceum library including Democritus , sometimes preserving fragments of books otherwise lost . He mentions about 500 species of plant .

= = Translations = =

The Enquiry into Plants ( along with the Causes of Plants ) was first translated into Latin by Theodore Gaza by 1454 , circulated in manuscript , and then published at Treviso in 1483 . In its original Greek it first appeared from the press of Aldus Manutius at Venice , 1495 ? 98 , from a single corrupt manuscript which has since been lost . Wimmer identified two manuscripts of first quality , the Codex Urbinas in the Vatican Library , which was not made known to Johann Gottlob Schneider , who with H. F. Link made the first modern critical edition , Leipzig 1818 ? 1821 , and the excerpts in the Codex Parisiensis in the Bibliothèque nationale de France .

A good and often @-@ cited edition is that of Johannes Bodaeus , published in Amsterdam in 1644

. This folio edition has the Greek and Latin texts printed in parallel , along with commentaries on the text by Julius Caesar Scaliger and Robert Constantine , and woodcut illustrations of plants . Sir William Thiselton @@ Dyer described the commentary as " botanically monumental and fundamental " .

The first translation into English , with an introduction and parallel Greek and English texts , was made by Sir Arthur Hort ( 1864 ? 1935 ) . It was published simultaneously by William Heinemann in London and G. P. Putnam 's Sons in New York , as a two @@ volume book Theophrastus Enquiry into Plants and minor works on odours and weather signs in 1916 .

Three older German editions with commentaries are described by Hort as indispensable : Schneider and Link 's 1818 ? 1821 edition already mentioned ; Kurt Polycarp Joachim Sprengel 's 1822 edition from Halle ; and Christian Friedrich Heinrich Wimmer 's 1842 edition from Breslau .

= = Contents = =

Enquiry into Plants classifies plants according to how they reproduce , their localities , their sizes , and their practical uses including as foods , juices , and herbs .

The books describe the natural history of plants as follows :

= = = Book 1 : Plant anatomy = = =

Theophrastus tours plant anatomy , including leaves ( phylla ) , flowers , catkins , fruits ( karpoi ) , seeds , roots ( rhiza ) , and wood .

Plants are classified as trees , shrubs , herbaceous perennials , and annual herbs ( poai ) ; these divisions are acknowledged to be rough and ready , as is the division into wild or cultivated , whereas the aquatic / terrestrial division appeared to be natural . Theophrastus notes that some plants are irregular , while the silver fir has branches always opposite each other and other plants have branches equally spaced or in rows . Figs have the longest roots , while the banyan sends roots down from the shoots , forming a circle of roots at a distance all round the trunk .

= = = Book 2 : Tree and plant propagation = = =

Theophrastus writes that plants can grow spontaneously , from seed , or from vegetative parts of the plant . Plants with bulbs grow from those . Soil and climate influence growth . Some plants change into others unless care is taken , so bergamot turns into mint , and wheat turns into darnel . He reports that if celery is trodden after sowing , it will become curly , and that figs are the easiest trees to propagate , whereas date palms have to be grown from several seeds together , and they like irrigation , dung , salt ( at the age of one year ) and being transplanted . Other kinds of palm have different habits and fruits . He notes that gall insects come out of wild figs and make the cultivated figs swell , which helps to prevent premature shedding of the fruit . The male spathe of the date palm is cut off and brought to the female , and its dust is shaken over the female tree to make it fruit .

= = = Book 3 : Wild trees = = =

Theophrastus asserts that all wild trees grow from seed or from roots . He mentions that the philosophers spoke of spontaneous generation , as when Anaxagoras claims the air contains the seeds of every plant , whereas Diogenes believed plants arose when water mixed with earth . In places like Crete , Theophrastus writes that native plants spring up if the ground is simply disturbed , and that wild trees are generally more vigorous than cultivated ones , give fruit later , and like cold and hilly terrain . He asserts that trees which can grow both on hill and plain grow better and taller when grown on the plain .

The book offers numerous examples of Theophrastus 's note @@ like style , with lists of species interspersed among the general explanations . For example , " Now among wild trees those are

evergreen which were mentioned before , silver @-@ fir fir ' wild pine ' box andrachne yew  
Phoenician cedar terebinth alaternus hybrid arbutus bay holm @-@ oak holly cotoneaster kermes  
@-@ oak tamarisk ; but all the others shed their leaves ... "

= = = Book 4 : Trees and shrubs from abroad = = =

Theophrastus describes trees and shrubs from different places and habitats , as for instance a sheltered part of the Arcadia region near Krane in a deep valley where the sun never reaches , and the silver @-@ fir trees are exceptionally tall . He looks into the plants of Egypt , Libya , Asia , northern regions , and then aquatic plants from the Mediterranean , wetlands especially in Egypt , reeds and rushes . He also considers factors that limit the life of plants including diseases and weather damage .

= = = Book 5 : Wood = = =

Theophrastus describes the wood of different trees , the effects of climate on wood , of knots and ' coiling ' in timber and other differences in quality . He discusses which woods to use for specific purposes such as for carpentry , shipbuilding and for building houses , and the making of charcoal . The most useful trees are said to be silver @-@ fir and fir , and they have the best wood in the largest sizes ; the silver @-@ fir is softer than the fir , and its wood has layers like an onion , and is made entirely of these layers . The strongest and most attractive wood is smooth , without knots . In Syria , terebinth wood is dark and close @-@ grained , Theophrastus reports , and used both for the handles of daggers and , turned on the lathe , for making cups . He claims that the hardest timber is of oak and holm oak , while elm warps the least , so it is used for the pivots and sockets of doors , which must be straight . The wood of palms is light and soft like cork @-@ oak , but is tougher and less brittle , so it is good for carving images . Timber from the cedar , ebony , box , olive , oak and sweet chestnut keeps well and resists decay . He asserts that Tamarisk wood from Greece is weak , but from the Arabian island of Tylos it is as strong as kermes @-@ oak . The wood of oak and the knotted parts of fir and silver @-@ fir are described as the hardest to work . Ships are generally made of silver @-@ fir , fir , and Syrian cedar ; in Cyprus they use Aleppo pine which is better than the fir that grows there . Theophrastus records that in the lowlands of Italy ( the country of the Latins ) they grow bay , myrtle and excellent beech trees long enough for the whole length of a ship .

= = = Book 6 : Undershrubs , with thorns or without = = =

Theophrastus classifies undershrubs as spiny , such as thistle , eryngo and safflower , and spineless , such as marjoram , savory , sage , horehound , and balm . He notes that some have a hollow stem , such as deadly nightshade and hemlock . Roses , he writes , vary in number of petals , roughness of bark , colour and scent ; they have five , twelve , twenty or more petals , and those with the sweetest scent come from Cyrene , and are used for making perfume . The times of flowering of different species are listed .

= = = Book 7 : Pot @-@ herbs = = =

Theophrastus reports that cabbage , radish and turnip are sown in July after the summer solstice , along with beet , lettuce , mustard and coriander . Leeks , celery , onion and orache are sown in January . Cucumber , gourds , basil , purslane and savory , in contrast , he writes , are sown in April . Ripe seeds do not germinate at once but wait for the right time . He asserts that all the herbs can be grown from seed , while rue , marjoram and basil can be raised from cuttings , and garlic , onion and other bulbs are grown from their roots . All the flowers of a herb appear at one time , except for basil which puts out a series of flowers starting low on the plant . Cumin has the most fruits , but it is said you have to curse and insult the plant to get a good crop . Theophrastus describes varieties of some herbs , for instance that the white lettuce is sweetest and tenderest , while there are many

kinds of onion , with Sardinian , Cnidian , Samothracian and Ascalonian varieties from those regions . Garlic is said to be planted close to the solstice ; the Cyprian variety is largest and is used in salads . All herbs except rue are said to like dung . Of the wild herbs , Theophrastus reports that some such as cat 's ear are edible , whereas others like dandelion are too bitter to be worth eating .

= = = Book 8 : Cereals and legumes = = =

Theophrastus groups together the cereals and the legumes ( peas and beans ) , and includes millet and other many @-@ seeded plants like sesame also . These can only be grown from seed . They can be sown early , as with wheat , barley and beans , or in spring after the equinox , for plants like lentils , tares and peas . Vetch and chickpeas can , he reports , be sown at either season . When sprouting , beans form a shape like a penis , from which the root grows down and the leafy stem upwards . Wheat and barley flower for four or five days , whereas the legumes flower for much longer . Theophrastus reports that these plants grow differently according to the region , so for instance crops in Salamis appear earlier than those elsewhere in Attica . Wheat varieties are recorded as being named for their localities ; they differ in colour , size , growth habit and food value . In a place near Bactra in Asia the wheat grains are said to grow as big as the stone of an olive , whereas pulses do not in Theophrastus 's view vary to the same extent .

= = = Book 9 : Medicinal uses of plants = = =

This book is one of the first herbals , admittedly much simpler than those of Nicander , Dioscorides or Galen . Theophrastus covers juices ( chylismos ) , gums , and resins , the uses of some hundreds of plants as medicines , and how to gather them .

Resin is gathered by tapping trees including silver @-@ fir and Aleppo pine ; the best resin is from the terebinth . On Mount Ida in Crete the people gather pitch from Corsican pine and Aleppo pine . Gums such as frankincense , myrrh and balsam of Mecca are gathered either by cutting the plant or naturally . Frankincense and myrrh are gathered into the closely guarded temple of the Sabaeans . Cassia and cinnamon also come from the Arabian peninsula .

Drug collectors have certain traditions which may be accurate or may be exaggerated . Precautions are rightly taken when gathering hellebore , and men cannot dig it up for long ; whereas the story that the peony must be dug up at night for fear that a woodpecker will watch and cause the man a rectal prolapse is a mere superstition . Similarly the idea that you must mark three circles around a mandrake plant with a sword , and speak of the mysteries of love while cutting it , is just far @-@ fetched .

Apart from Greece itself , medicinal plants are produced in Italy in Tyrrhenia , as Aeschylus records , and Latium ; and in Egypt , which as Homer mentions is the source of the drug nepenthes that makes men forget sorrow and passion . The best hemlock comes from Susa , while dittany , useful in childbirth , comes only from Crete . Wolfsbane comes from Crete and Zakynthos ; it can be made into a poison that causes death a year or more after taking it , and there is no antidote . Hemlock is a poison which brings a painless death ; pepper and frankincense are antidotes for it . Strychnos causes madness , but oleander root in wine makes people gentle and cheerful . Birthwort has many uses including for bruises on the head , snakebite , and prolapse of the uterus .

= = Reception = =

= = = Ancient = = =

Pliny the Elder made frequent use of Theophrastus , including his books on plants , in his Natural History ; the only authors he cited more often were Democritus and Varro .

John Scarborough comments that " The list of herbals assembled in Historia Plantarum IX became the direct ancestor of all later drug treatises in antiquity , and many traces of Theophrastus 's ( and

Diocles 's ) original observations survive in the *Materia Medica* of Dioscorides . The analysis of the various plants and plant derivatives shows that the Greek rhizotomoi and drug @-@ vendors had collected much valuable information on the medical employment of plants , and Theophrastus invented a format for this type of information that would be followed after his own time . "

= = = Mediaeval and Renaissance = = =

Theophrastus was barely known in the Middle Ages ; his writings were rediscovered only in the fifteenth century , when Greek manuscripts were uncovered in the Vatican , and the pope Nicholas V asked Theodorus Gaza to translate them into Latin . The effect was to stimulate Renaissance scholars to restart the exploration of plant taxonomy . The science of botany was founded as these scholars engaged with the accounts of plants , and especially of their medicinal uses , together with a newly critical reaction to mediaeval pharmacology , which was based on unthinking acceptance of the *Natural History* of Pliny the Elder and the *De Materia Medica* of Dioscorides . By the same token , however , Theophrastus ( and Aristotle ) fell abruptly out of use around 1550 , as classical botany and zoology were effectively assimilated into Renaissance thought in the form of illustrated encyclopedias ? which were still heavily based on classical writings . Andrea Cesalpino made use of Theophrastus in his philosophical book on plants , *De Plantis* ( 1583 ) . The Italian scholar Julius Caesar Scaliger 's accurate and detailed commentaries on the *Historia Plantarum* were published in Leyden in 1584 , after his death .

= = = Modern = = =

The Chicago Botanic Garden describes *Historia Plantarum* as the " first great botanical work " of Theophrastus , " the first real botanist " ; it states of the 1483 edition printed by Bartolomeo Confalonieri in Treviso that " all taxonomy of plants starts with this modest book " , centuries before the modern taxonomy of Linnaeus . Anna Pavord observes in her 2005 book *The Naming of Names* that Theophrastus made the first ever classification of plants , and Pliny the Elder , now much better known , used much of his material .

= = = Text = = =

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