THEOPHRASTUS

AN INQUIRY CONCERNING PLANTS
Book I, Chapters i-iv
(Revised St. John's College, 2012)**

Chapter i

1. In order to grasp the specific differences [διαφοραί] of plants and the rest of their nature [φύσις], it is necessary to look at their parts [μέρη], their ways of responding [πάθη],[1] their ways of coming to be [γενέσεις], and their ways of life [βίοι]; for they do not have habits [ἤθη] and actions [πράξεις] as do animals. The differences with respect to their coming to be, their ways of responding, and their lives are easier to view [εὐθεωρητότεραι] and simpler, but the differences with respect to their parts are more elaborate [ποικιλίαι].[2] For in the first place, the sorts of things which one should call parts or not parts has not been sufficiently marked off [ἀφώρισται],[3] but the matter is somewhat perplexing.

2. A part then, since it results from a plant's particular nature, seems to be permanent, either simply or once it comes to be (just like those parts that come to be later among animals) unless it is somehow cast off on account of disease, age, or damage. But some of the parts in plants are of the sort to exist [ἔχειν τὴν οὐσίαν] for a year, such as a flower, catkin,[4] leaf, the fruit, and generally whatever parts come to

1.Πάθος is difficult to translate because Theophrastus uses the word in several, nuanced, senses. Sometimes πάθος seems to suggest something like a quality of the plant, as when the figure, color, closeness or farness apart, roughness, and smoothness of parts are said to be πάθη (Theophrastus I.i.6). At IV.ii.11, the way in which a species of *Mimosa* responds to touch—by suddenly folding and collapsing its leaves—is also described as a πάθος (περὶ αὐτὸ πάθος) particular to it (See Fig. 1). Specific responses to environmental conditions and to cultural practices, too, are included among the πάθη of plants. For example, Theophrastus describes freezing and scorching as responses by some plants to low temperature and to strong winds, respectively (IV.xiv.11); and an overgrowth of the vine causing young grapes to fall before ripe is said to be its way of responding to improper pruning methods (IV.xiv.6). Our courtyard magnolias and the magnolias growing on the grounds of the Maryland Governor's Mansion (and nearby state office buildings) also show how differences in growth conditions and pruning can affect the shapes of trees.

2. Ποικιλία is used to describe finely crafted and embroidered works of human art. It refers to adornment that is many-colored and intricate, and requires a great deal of skill and labor on the part of the maker. In the present context, Theophrastus appears to point to the enormous natural diversity and richness displayed in the parts of plants; for example, in the variety of their many kinds of leaves and in the elaborate shapes of individual leaves.

3.'Αφώρισται, from ἀπό, away from; and ὁρίζω, (the verb form from ὅρος, a boundary stone, landmark, or limit) meaning to set boundaries, to mark off. The verb ὁρίζω and the noun ὅρος also mean "to define" and "definition" because defining is a way of marking off or setting boundaries. Ὅρος (Ὅροι) is Euclid's word in the *Elements* that is translated "definition(s)."

4. A catkin is a form of inflorescence that is typically pendulous, with many unisex flowers lacking petals (Fig. 2); it resembles the tail of a short-haired cat (hence its English name). Birch and oak are among the spring-flowering trees on campus that have catkins.

**Words in square brackets throughout the text have been added for the sake of clarity. Words in arrow-brackets (< >) were considered by some editors of the Greek either to be spurious or misplaced from elsewhere.

be before the fruit or together with the fruit. And in addition there is also the shoot [βλαστός]; for trees keep taking on new growth each year, equally in the regions above and in those related to the roots. Consequently, if someone sets these down as parts, the quantity of the parts will be indefinite, and they will never be the same; but if again one does not set these down as parts, those things through which the plants come to be complete and are recognized will turn out not to be parts. For when they are sending out shoots [βλαστάνοντα], blooming, and bearing fruit, all [plants] both seem to be and are more beautiful and more complete. So the perplexities [ἀπορίαι] are by and large these.

3. Yet perhaps one ought not to inquire into all things in the same way, either into those things concerned with coming to be or in other cases, and [perhaps] one should set down as parts even the plants' offspring, namely, their fruits. Yet we do not consider the embryos of animals to be parts. But if in its due season this part, anyway, is most beautiful to our sight, that is no sign [σημεῖον], since even among animals those involved in giving birth look flourishing.

Many [plants] also cast off their parts each year, just as stags cast off their horns, those [birds] which lurk in holes[5] their feathers, and four-footed creatures their hair; so that this way of responding [πάθος] is not in other respects unusual, and in particular is like the shedding of leaves.

Similarly [impermanent] are the parts concerned with coming to be, because even among animals, parents give birth to some parts together with [the offspring], and others are cleaned away,[6] as if [they were] parts alien to its nature. And it seems to be much the same with the parts concerned with sending out shoots [βλάστησις]. For indeed, sending out shoots occurs for the sake of complete coming to be.

4. And in general, just as we said, it is not necessary to grasp all things in the same way, plants in the same way as animals. The number of parts is also indefinite, because a plant is capable of sending out shoots [βλαστητικόν] everywhere, since it is also alive everywhere. So one must take up these matters in this way, not only in regard to the present subject but also because of what is to come; to try to compare things that cannot be compared is excessive, for we may at the same time lose our view [θεωρία] [of what is] properly before us. So the inquiry concerning plants, to speak generally, is either with respect to the outside and the form [μορφή] as a whole, or with respect to the inside, as in dissections of animals.

5. One must grasp in these cases precisely which parts belong to all plants and which are particular to each kind, and in addition which of the parts are themselves alike. I mean, for example: a leaf, a root, or bark. Also it should not escape our attention that if one does view something [belonging to plants] as an analogy, for instance to animals, then clearly it is important to choose the most fitting and best examples. And generally we must compare as many parts among plants as possible with some case among animals, whenever we can make an analogy to it. Let these things then be marked off

5. This may refer to those birds believed to hibernate, perhaps a tentative explanation for their disappearance in winter. Yet Theophrastus was well aware that some birds migrate, and also that birds molt in spring, not autumn.

6. Examples are the placenta and birth sac in the case of new born kittens.

[διωρίσθω] in this way.

6. And to grasp the matter generally, the specific differences of the parts fall by and large into three: when plants have some parts but not others (for example, leaves and fruit); or when the parts are not alike or not equal in size; or thirdly, when they are not [arranged] in the same way. Now their not being alike is marked off [ὁρίζεται] according to figure, color, closeness together, farness apart, roughness, smoothness, and their other ways of responding [πάθη],[7] and additionally, according to how many specific differences there are between their juices.[8] And their inequality, on the other hand, [is marked] by exceeding and falling short in amount or size. But to speak generally, all these others, too,

7. differ with respect to exceeding and falling short; for 'more' and 'less' *are* exceeding and falling short. But 'not [arranged] in the same way' is a difference in placement. I mean, for example, [some trees] having their fruit above and others below the leaves; and some [having their fruit growing] from the top of the tree in question and others from the sides, and some even from the trunk, like the Egyptian fig;[9] and as many in fact as even bear fruit underground, such as the *arachidna*[10] and what is called *ouiggon* [arum] in Egyptian; and whether some [fruit] have a stalk, but others not. And it is the same way for the flowers; for some have them around the actual fruit, but others otherwise. And generally one must grasp the [matter] of placement in these parts as well as in the leaves and shoots.

8. Some [trees] also differ in the ordering [of their twigs and branches]; [for] while [the twigs of] some are [arranged] however they chance to be, the twigs of the silver fir are opposite to one another on each side. The branches of some are set at equal distances and are equal in number, as [are]

7. Leaves, for example, are common to all trees and herbaceous plants, though natural differences [διαφοραί] in leaf form occur in their "size, number, shape, hollowness, breadth, roughness, and their opposites, and in the presence or absence of spinous projections [e.g., holly]; and leaves also differ in how they attach to the rest of the plant—namely, with respect to what part they spring from (whether it be root, branch, stalk, or twig) and by what means they attach—by a leaf-stalk or directly; and there are even some leaves having several leaflets attached [to the rest of the plant] by the same leaf-stalk" (I.x.8). The leaves of magnolia, tulip poplar, and elm trees, for example, are alike in being deciduous and broad (rather than needle-like), but specifically differ in other respects, such as in overall shape and in the contour of leaf edges (Fig. 3). A magnificent American elm grows beside the walk at the front entrance to McDowell Hall, opposite a large pin oak. And near them on the front lawn is a giant tulip poplar (an offspring of the "Liberty Tree") whose plaque commemorates its planting in 1889 in honor of the 100-year anniversary of the College as St. John's College.

8. Taste, fragrance, color, and consistency are some of the specific differences Theophrastus ascribes to plant juices. The particular qualities of the juices in its parts are said to be characteristic of each kind of plant and reflective of its nature as a whole. Some trees, for example, have a thick "milk-like kind" of moisture [ὑγρότης], others a gummy "pitch-like kind," and the moisture of still others is so watery as to have almost no taste at all. And, similarly for all of the parts, so that, for instance, "in some plants the flowers are more fragrant than the leaves," while in others the opposite is true; and while the fruits but not the leaves of some plants are flavorful and edible, the reverse is the case for others (I.xii.1-4).

9. An example closer to home of a tree whose flowers and fruit can arise directly from its trunk (and mature branches) is the eastern redbud. This feature is often visible on the campus redbuds located at the corner of St. John's Street and College Avenue close to the Library.

10. *Arachidna* (I.vi.12) are groundnut species (as is the peanut), plants that in effect plant their own seeds (Fig. 4). After flowering and pollination, groundnuts produce a stalk from the flower site that grows downward to the ground. After entering the soil, the tip of the stalk (which contains fertilized eggs) develops into the mature nut or fruit.

those with branches in [groups of] three.

So one must grasp the specific differences from these [features], from which the form as a whole [ἡ ὅλη μορφή] is made altogether clear

9. with respect to each plant. But after an enumeration of the parts themselves one should try to speak about each. First and greatest and common to most [plants] are these: the root, stem, branch, and twig, into which parts one would divide the plant as if into limbs, just as in the case of animals. For each [of these parts] is distinct, and the wholes are composed out of them all.

Now the root is that through which the plant brings in its nourishment, and the stem is that into which it is carried. And by the stem I mean that which has grown above the earth in one direction. For this is the most prevalent part, [occurring] equally in the annuals and the perennials, and in the case of trees it is called the trunk. By branches, which some call limbs, I mean those parts which split off from the trunk. And the shoot [βλάστημα] which comes from these in one direction is a twig, that is, especially the yearly shoot.

10. Yet these are more properly the parts of trees. But the stem, just as was said, is a more prevalent feature; although not all [plants] have even this, such as some of the plants that are herbs in form [ποιώδη]. And some do not have a stem always, but only as a yearly growth, namely, those that have roots that live longer. And in general the plant is a thing pouring forth much [πολύχουν][11] and is elaborate [ποικίλον] and is hard to speak about as a whole; and a sign of this is that it is in no way possible to grasp what belongs to all

11. plants in common, like the mouth and intestines for the animals. But some parts are the same by analogy, while others are the same in another way. For all [plants] do not have a root or stem or branch or bough [κλάδον] or leaf or flower or fruit, nor again bark nor core nor tendons nor veins; as, for example, the mushroom or the truffle. And the thinghood [οὐσία][12] of a plant consists in these and such things as these. But as has been said, these parts belong most of all to trees, and this division into parts is most native to them. So the reference for others is justly made to these.

12. By and large trees show clearly the other shapes [μορφαί] of each of the plants as well. For they differ in the quantity and paucity of the parts and their closeness together and farness apart and in being divided in one direction or into more, and

11. Πολύχουν, from πολύς, 'many' or 'much,' 'prolific'; and χέω, to pour forth, to produce abundantly. As a progressive participle, πολύχουν emphasizes that a plant's part-making activity is continuous and never finished, unlike the corresponding activity of animals. The constant renewal of parts through the activity of metabolism, however, is characteristic of both plants and animals.

12 Οὐσία: a things's way of being what it is. "The way of being that belongs to anything which has attributes but is not an attribute of anything, which is also separate and a *this* (1028b, 36-37; 1029a, 27-28). Whatever has being in this way is an independent thing. In ordinary speech the word means wealth or inalienable property, the inherited estate that cannot be taken away from one who is born with it. Punning on its connection with the participle of the verb "to be," Plato appropriates the word (as at *Meno* 72B) to mean the very being of something, in respect to which all instances of it are exactly alike. Aristotle elaborates this meaning into a distinction between the thinghood of a thing and the array of attributes... that can belong to it.... He concludes that thinghood is not reducible to any sum of attributes (1038b, 23-25; 1038b, 35-1039a, 2)." This is from the glossary to Joe Sachs, *Aristotle's Metaphysics,* Green Lion Press, 1999, p. lviii. The numbers inside the parentheses refer to Aristotle's *Metaphysics*.

in other, similar ways. And each of those [parts] just mentioned is not made of parts that are the same [ὁμοιομερές]; by 'not [made of] parts that are the same' I mean that any part [taken] whatsoever of the root and trunk is composed of the same things, but the part taken is not called 'trunk' but a portion [μόριον] [of trunk], just as is the case with the limbs of animals.[13] For any [portion] whatsoever of the shank or elbow is composed of the same things, but does not have the same name, as do flesh and bone; in fact it is unnamed. Nor in truth does any [portion] of the other organs which are uniform [have a name], but the parts of all these are unnamed. Yet [parts] of complex organs such as a foot, hand, or head have received names; for example: a digit, nose, or eye. And the most important parts are by and large these.

Chapter ii

1. Now what these are made out of are other parts: bark, wood, and core, for those that have core. All these [bark, wood, and core] are of parts that are the same [or homogeneous] [ὁμοιομερῆ]. And those things still prior to these and out of which these are made are: the moist, tendon, vein, and flesh. For these are origins [ἀρχαί], unless one should call them the potencies [δυνάμεις][14] of the elements [στοιχεῖα]. But they are common to all [the parts]. Indeed the thinghood [οὐσία] and the whole nature [ἡ ὅλη φύσις] [of plants] consist in these.

But the other parts concerned with giving birth to fruit are, as it were, yearly parts, for example: a leaf, flower, and stalk; this last is the part by which the leaf and the fruit are attached to the plant; furthermore there is the <tendril and> catkin, in those plants to which they belong, and in all plants the seed [σπέρμα] of the fruit. And the fruit [καρπός] is the collection of seeds together with the seed case [περικάρπιον]. Beside these are certain parts particular to some plants, like the gall of the oak and the tendril of the vine.[15]

2. It is also possible to make distinctions in this way for the trees. But it is clear that for annuals, all parts are annual; for nature [φύσις] [extends] as far as the fruits. Now with those that bear fruit yearly, and with as many as have [fruit] every other year like celery and some others, and also with as many as take more time, in fact with all these, the stem comes along according to the same rule; for whenever they are about to bear seed, then they produce a stem, since stems exist for the sake of the seed.

Let these things therefore be distinguished in this

13 . ΄Ομοιομερές means same-parted, or homogeneous. The trunk of a tree, for example, is not homogeneous or the same throughout, but rather consists of other parts—bark, wood, and core. Bark, however, consists of bark throughout, as does wood consist of wood, and core of core.

14 Δυνάμεις: "The innate tendency of anything to be at work in ways characteristic of the kind of thing it is.... A potency in its proper sense will always emerge into activity when the proper conditions are present and nothing prevents it (1047b, 35-1048a, 16)," from page lvii of Joe Sachs' translation of the *Metaphysics* cited above in footnote 8. Once again, the numbers in the parentheses refer to the *Metaphysics*.

15. A gall is an unusual growth of plant tissue. Oak leaf galls (III.vii.5) are among the various kinds that Theophrastus describes (and are sometimes observable on the leaves of campus oak trees). A tendril is a threadlike twining and climbing structure (made by modifying stems or leaves) that enables plants having them to secure their position by holding on to something.

way. But one must try to say what each of the parts just mentioned is, speaking

3. in general. The moist then is evident; in fact some call it simply sap in all cases, as does Menester, while others leave it unnamed in some cases, but call it sap in others and gum[16] in yet others. But tendons and veins, unnamed in the case of plants themselves, people grasp instead by means of their likeness to those parts in animals. And the family [γένος] of plants generally has perhaps other specific differences as well as these. For plants are things pouring forth much, just as we said. But since it is necessary to pursue the most unknown things through those better known, and since better known are the things that are larger and apparent to sense perception,

4. clearly one ought to speak about these matters in just the way one is being led. For we will have these [better known things] as a reference for the others, with respect to how much and in what way each shares the similarity. And when the parts have been grasped, afterwards one must grasp their specific differences. In fact, in this way are brought to light at the same time their thinghood [οὐσία] and the whole distinctness of the kinds with respect to one another.

Now the distinctness of the greatest parts has by and large been stated; and I mean, for example: the root, stem, and the others. Their potencies and that for the sake of which each exists will be told later; for one must try to say from what things both these and the others are composed, making one's beginning from the first things.

16. The word is δάκρυον, literally, a tear, perhaps because gum seeping from a tree has the shape of a tear-drop.

And first are the moist [ὑγρόν] and the hot [θερμόν]; for each plant has some moisture and heat natural to it, just as each animal has also; when these are coming to an end, old age and decay come to be, and when they have finally ended, death and drying

5. up. In most [plants] then the moisture is unnamed, but as has been said, in some it has been named. And the same is the case for the animals; for only the moisture of blooded animals has been named, by means of which distinctions are drawn, by a privation in regard to it. For some are called bloodless and others blooded. This, then, is one particular part, and connected with it is the hot.

But actually there are other parts belonging to the insides of plants which are nameless in themselves, but are compared to the parts of animals on account of their similarity. For plants have, as it were, tendons, each of which is continuous and inclined to split and

6. is elongated, and without side shoots [ἀπαράβλαστον] or forward shoots [ἄβλαστον]. And in addition are the veins,[17] which in other respects are like the tendon, but are larger and

17. Tendons or fibers [ἶνες] and veins [φλεβές] are among the parts from which other parts, such as wood and bark, are composed, as well as the means by which (liquid) nourishment is transported throughout the plant. Theophrastus says, for example, that nourishment in leaves is conducted through veins or tendons (I.x.3). That veins are perhaps being thought of as a sort of flexible tubing seems to follow from the case of animals from which the name is borrowed. But while the structural role of tendons is suggested by comparison to animals, how tendons might transport nourishment is less obvious. As a component of wood, one way tendon contributes to structure is by affecting the wood grain. For example, Theophrastus observes that the wood of the silver fir, a tree with a great many strong tendons, is straight-grained, making it easy to split along the grain and producing " timber of the greatest lengths and straightest growth" (I.v.3-4, V.i.5-8).

thicker and have side shoots [παράβλασται] and moisture. Also, wood and flesh. For some have flesh, but others wood. The wood is inclined to split, but flesh is altogether divisible like earth and things made from earth; it comes between the tendon and vein, and its nature is evident particularly in the skins around the seed case as well as in other ways. But bark and core are so spoken of precisely, although it is necessary to mark them off also with an account. Bark therefore is an outer container and is separate from the underlying body. And core is what is inside the wood, third from the bark, like the marrow in bones. Some call this 'heart,' while others 'innermost pith' [heartwood]; but some call the inside of the core itself the 'heart,' others the 'marrow.'

The parts are therefore of this sort, by and large. And the latter ones are composed of the prior: wood from tendon and the moist, and sometimes also from flesh, which by hardening becomes woody, for example, in the date palm and narthex[18] and in any other plant that grows woody, just as the roots of radishes do. And core [is composed] from the moist and flesh; and some bark from all three (for example, that of the oak and poplar and pear), while the bark of the vine is from the moist and tendon, and that of the cork tree from flesh and the moist. Again out of these are composed the most important parts and those mentioned before as limbs, as it were, except all are not composed from the same parts, nor in the same way, but in different ways.

And since all the parts have been grasped, so to speak, one ought to try to give their specific differences and the thinghood [οὐσίαι] of the trees and the plants as wholes.

Chapter iii

1. Since it turns out that one's understanding becomes clearer if one distinguishes according to kinds [εἴδη], it is well to do this for whatever things one can. So first and greatest and by and large those [kinds] among which most, if not all, plants are included are these: the tree, shrub, small shrub, and herb.

   A tree, then, is a thing with one main stalk from the root, many branches, and lateral buds [ὀζωτόν],[19] and is not easily pulled out (for example, the olive, fig, or vine); but a shrub is a thing many-branched from the root (for example, bramble or thorn). And the small shrub is a thing with many stalks from the root and many branches (for example, both savory and rue). And the herb is a thing coming forth from the root bearing its leaves and without a stalk, [but] whose stem is seed-bearing (for example, grain and leafy green vegetables).

2. Yet it is necessary to accept and grasp these markers [ὅροι] speaking in general and on the whole. For some plants would perhaps seem to change over [from one grouping to another], and others because of cultivation would seem even to become quite different and to leave their nature [φύσις]. An example is mallow when it is trained to a height and grows into a tree, which can happen in no long time, but in

18. Narthex is *Ferula communis*, or giant fennel, a large herb whose hollow stalks may become woody as the plant matures.

19. Ὀζωτόν, having an ancillary bud, eye, or knot from which new growth can arise. Theophrastus is distinguishing between buds at the tips of stems (apical buds), which produce shoots that increase the stem's length, and lateral buds located on the sides of stems (typically at the place where leaf and stem meet) from which branches grow.

six or seven months, so that it becomes spear-like in length and thickness (for this reason some even use these plants as staffs); and after a longer time has passed the increase [in size] is proportionately greater. And the same happens also in the case of beets; for these, too, take on size. And still more [this happens with] willows and the thorn and ivy, so that by common consent they become trees; yet they are certainly

3. shrubs in form [θαμνώδη]. But myrtle, like the filbert of Heraclea, grows into a shrub unless [some of the branches and stalks are] cleared away. And the latter appears even to bear better and more fruit if one leaves more wands [ῥάβδοι],[20] since its nature is of shrub form [θαμνώδη]. Yet neither the apple nor the pomegranate nor the pear would seem to be single-stemmed, nor in general as many as have side-shoots from the roots, but they would seem to be trees from cultivation when the other stalks are taken off along the sides. But people even leave some many-stemmed because of their thinness, like the pomegranate and apple. Yet they have olives and figs pruned.

4. Yet perhaps someone might say that one ought to make distinctions wholly according to largeness and smallness, and in some cases according to strength and weakness and being long- or short-lived. For some of those of small shrub form [φρυγανώδη] and vegetable form [λαχανώδη] such as cabbage and rue are single-stemmed and come into being having a nature like a tree, from which some people even call such plants tree-vegetables; and most or all of the vegetable forms, when they remain in the ground, acquire branches of a kind and the whole grows into the shape of a tree [δενδρώδη], except that it is shorter-lived.

5. Whence as we are saying, one ought not to be too exact with a marker [ὅρος], but one should grasp terms [ἀφορισμοί] generally; since [one should grasp] even divisions in the same way; for example, between the tame [ἥμερος][21] and wild, fruit-bearing and non-fruit-bearing, flowering and non-flowering, evergreen and leaf-shedding [deciduous]. For the wild and the tame appear to occur because of cultivation. In fact Hippon says that everything comes to be both wild and tame as it meets with or does not meet with care-taking [θεραπεία]. And the non-fruit-bearing and fruit-bearing and the flowering and non-flowering [come to be so] because of their locations and the surrounding climate; yet both the leaf-shedding and evergreens [come to be] in the same place. For they say that near Elephantine [in Egypt] neither vines nor figs cast off their leaves.

6. But nevertheless one must make such divisions, for a kind of commonness of nature holds among trees and shrubs and small shrubs and herb forms [ποιώδη] in the same way. And whenever someone states the causes [αἰτίαι] concerning these, clearly he must speak about all in

20. ῾Ράβδοι are branches carried by gods in Homer, such as the wands held by Hermes or by Circe; also the wands held by Homeric singers, the rhapsodes. At II.i.2 Theophrastus speaks of growing a new plant from the ῥάβδος of a fig or pomegranate, certainly a young, flourishing shoot.

21. ῾Ημερος: some might prefer ‘cultivated’ or ‘domesticated’ or ‘reclaimed.’ Perhaps it derives from the verb ἧμαι, meaning ‘to sit,’ or ‘to sit idle.’ In the *Odyssey* Book XV, line 162, this adjective describes a tame goose from the courtyard that is carried off by an eagle, an omen of the return of Odysseus. Penelope later describes her geese as if they were pets, XIX. 535ff.

common, not setting the markers [ὁρίζοντα] for each [group] separately; and it is reasonable that there be common causes of them all. But at the same time some natural specific difference seems to hold from the start in the case of the wild and the tame, since some are unable to live in the same way as those that are farmed, nor in general do they accept care-taking but become worse, for instance: the silver fir, pine, holly, and in short as many as love cold and snowy places; and just the same for some of the small shrub-like and herb-like plants, for example: caper and lupin. And it is right to call [a plant] tame and wild, making reference back to these [instances] and generally to that which is tamest. <But man is tame either alone or most of all.>

Chapter iv

1. The specific differences of the wholes and parts are evident also in the forms [μορφαί] themselves (I mean, for example, the largeness and smallness, hardness, softness, smoothness, and roughness of the bark, leaves, and other parts); and in short there is a certain well-formed [εὐμορφία] and ill-formed condition [δυσμορφία], as likewise also conditions of producing beautiful and ugly fruit. For the wild appear to produce more fruit (for instance, the wild pear and wild olive), but the tame more beautiful fruit and juices themselves sweeter and more pleasant and more, so to speak, well-blended as a whole.
2. These specific differences are in fact natural ones, just as has been said, and even more so are the differences between non-fruit-bearing and fruit-bearing [plants], and leaf-shedding and evergreen, and as many other such differences [as there are]. One must always grasp for all plants the differences with respect to place also, for perhaps it is not possible [to do] otherwise. And such differences might seem to produce a sort of separation into kinds (for example, of water and land plants), just as in the case of animals. For there are plants some of which cannot live except in the moist; and various ones are separated according to various sorts of the moist, so some grow in marshes, some in lakes, some in rivers, and some in the sea itself, smaller plants in the sea near us and larger ones around the Erythraean [or Red] Sea. And some are, as it were, very watery plants and marsh plants (for instance, the willow and plane tree), while others are unable to live in the water at all, but seek out dry places; and of the smaller ones there are some which even seek out the sea shore.
3. Yet nevertheless if one should want to be precise, some even of these would find [places that are] common [to both kinds] and are, as it were, amphibious, just as the tamarisk, willow, and alder; and others even of those agreed to have grown as land plants live at times in the sea: the palm, squill [sea-onion], and asphodel. But to examine such instances and generally to examine in such a manner is not to do so properly. For nature is certainly not like that, nor does it hold to a necessary way [τὸ ἀναγκαῖον] in such matters. Therefore one must grasp in this way the specific differences and the inquiry [ἱστορία] concerning plants as a whole. <Indeed all these [plants] and the others differ, just as has been said, in the forms [μορφαί] of the whole plants and in the specific differences of the parts: either in having the parts or not having them, or in having more or in having fewer of them, or in being arranged in unlike manners, or in as many

ways as were distinguished earlier. And it is perhaps proper to take into account the places in which each kind has or has not come to be naturally. For this makes a great difference, and is not the least native to plants, on account of their being joined to the earth and not having been released from it, as [have] animals>.