thing and the for-the-sake-of-which).[162] (That is why the poet spoke ridiculously when he said, "he has reached the end for which he was born," since by "end" we mean not every last thing, but the best one.)[163] For the crafts produce their matter, some unconditionally, while others make it good relative to the function.[164] And we make use of all things as if they were there for us, since we also are in a way an end.[165] For the end is twofold, as we said in *On Philosophy*.[166]

There are two crafts, though, that rule over the matter and have knowledge of it, the craft concerned with the use and the architectonic one concerned with production.[167] That is why the one concerned with the use is in a way architectonic, but it differs from the other insofar as it knows the form, although the architectonic one as productive knows the matter.[168] For the captain knows what sort of form the rudder should have and prescribes its production, whereas the other knows what sort of wood it should be made from and by what movements it will be made. In the case of the products of craft, then, we produce the matter for the sake of the function, whereas with natural things the matter is already present.[169]

Further, matter is relative to something, since there is one [sort of] matter for one form, and another for another.[170]

Up to what point, then, must the natural scientist know the form and the what-it-is? Or just as the doctor knows sinews and the blacksmith bronze, is it in fact up to the point of knowing what each of them is for the sake of, and knowing about the ones that, though separable in form, are in matter?[171] For human is begotten by human and sun.[172] But the way the separable is, and what it is, is the function of primary philosophy to determine.[173]

II 3

Having determined these things, we should investigate how many and what sorts of causes there are. For since our work is undertaken for the sake of knowledge, and we do not think we have knowledge of each thing until we have grasped the why of it, which is to grasp its primary cause, it is clear that we must do this in the case of coming to be, passing away, and every sort of natural change, so that by knowing the starting-points of these we may try to refer back to each thing we are inquiring about to them.

Something is said to be a cause if it is:[174] [1] The component from which a thing comes to be—for example, the bronze of a statue or the silver of a bowl, and also the kinds (*genos*) of these.[175] [2] The form or paradigm, that is, the account (*logos*) of the essence, and kinds (*genos*)

of this (for example, of the octave, the ratio (*logos*) 2:1 and number in general), and the parts included in the account. [3] Further, that from which the change or rest from change first starts—for example, the person who has deliberated is cause [of the action] and the father of his child and in general the producer is cause of the thing being produced and the change-maker of what is changed being changed. [4] Further, the end, and this is the for-the-sake-of-which—for example, of taking walks health is the end. For why does he take walks? "In order that he may be healthy," we say. And in speaking that way we think we have presented the cause. Also, anything, then, that comes to be as an intermediate means to the end, when something else has started the movement—for example, in the case of health, making thin, purging, drugs, or instruments, since all these are for the sake of the end, although they differ from each other in that some are instruments and others works.[176]

These, then, are pretty much all the ways in which things are said to be causes, and because they are said to be such in many ways it follows both [a] that there are many causes of the same thing, and not coincidentally (as, for example, a statue has both the craft of sculpture and the bronze as causes—not in accord with its being another thing but insofar as it is a statue—although not in the same way, but the one as matter and the other as that from which the movement derives), and [b] that things can be causes of each other (as, for example, exercise [is a cause] of good physical condition and the latter of exercise, although not in the same way, but the one as end and the other as the starting-point of movement).[177] Further, the same thing can be the cause of contraries, since the thing that, when present, is cause of so-and-so, we sometimes hold causally responsible, when absent, for the contrary result—for example, the cause of a shipwreck is the absence of the captain whose presence was a cause of its preservation.

All the causes now mentioned fall into four most evident ways [of being causes].[178] For phonetic elements are causes of syllables, matter of artifacts, fire, earth, and all such things of bodies, the parts of the whole, and the hypotheses of the conclusion, as being causes from which [the relevant things come].[179] And of these some are causes as underlying subject (for example, the parts), some as the essence (for example, the whole, the mode of composition, and the form).[180] And the seed, the doctor, the deliberator, and in general the producer are all starting-points from which comes change or rest. The remainder are causes as the end and the good of other things. For what other things are for the sake of tends to be the best and their end. Let us assume that it makes no difference whether we say "good" or "apparent good."[181]

These, then, are the causes and this is the number of their species, but the ways of being causes, though many in number, also come under comparatively few headings. For things are said to be causes in many ways, and those within the same species are said to be prior or posterior to each other—for example, [as a cause] of health, the doctor and the craftsman; of the octave, the double and number; and in every case whatever includes any of the particular causes.

Further, there are coincidental causes and their kinds (*genos*)—for example, [as a cause of] a statue, in one way Polyclitus, in another a sculptor, because the sculptor coincides with Polyclitus, and, as examples of what includes the coincidental cause, a human is a cause of the statue, or in general an animal (because Polyclitus is human and a human is an animal).[182] And among coincidental causes some are more remote than others, some less—for example, if the pale and the musical were said to be causes of the statue.[183]

Beyond all the things said to be causes either properly or coincidentally, however, some are said to be so potentially and others actively—for example, [as a cause of] the house's being built, a builder on the one hand and a builder building on the other.[184]

Similarly, the things that causes are causes of will also be said to be in the ways mentioned—for example, this statue, a statue, or in general a likeness, or this bronze, bronze, or in general matter; and similarly in the case of coincidental [effects].[185]

Further, both the proper and the coincidental may be said to be causes in combination—for example, not Polyclitus or sculptor but Polyclitus the sculptor.

But still all of these things are just six [i-vi] in number, each said to be in two ways [a-b]: either [a-i] as the particular, [a-ii] as the kind (*genos*), [a-iii] as the coincidental, or [a-iv] as the kind of the coincidental is, or as these are either [a-v] as combined or [a-vi] as taken simply, and [b] all of them either as actualities or potentially. But they differ to the extent that what is actual and what is particular exists, or does not exist, at the same time as the things it causes—for example, this person curing at the same time as this one recovering his health, this builder building with this building being built.[186] But this is not always the case with what are potentially causes, since the house does not pass away at the same time as the builder.

Here, as in the other cases, though, we must always seek the most precise cause of each thing.[187] For example, a human is building because he is a builder, and he is a builder in virtue of the craft of building. This latter, therefore, is the prior cause, and similarly in all cases.

Further, we must seek kinds (*genos*) of causes for kinds (*genos*) of things, and particular causes for particular things—for example, a sculptor is the cause of a statue, and this sculptor of this statue. And we must seek potential causes for potential effects, and actual causes for actual effects.

Let these determinations suffice, then, as to the number of causes and to the ways in which they are causes.

II 4

But luck and chance are also said to be causes, and many things are said to be and to come to be because of luck or because of chance.[188] We must investigate, then, in what way luck and chance are included among the causes, whether luck or chance are the same or distinct, and in general what luck is and what chance is.[189]

For some people raise a puzzle as to whether luck or chance even exist. For they say that in fact nothing comes to be by luck, but that everything that is said to come to be by luck or chance has some definite cause—for example, of someone's coming into the marketplace and by luck finding the person he wished but did not expect to meet, they say that the cause is his wishing to go shopping in the marketplace. And similarly in the case of other things that are said to come to be by luck, they say that it is always possible to find some thing—not luck—that is the cause. For if there were indeed such a thing as luck, it would appear truly strange and puzzling that none of the ancient wise men who talked about the causes of coming to be and passing away ever determined anything about luck. On the contrary, it seems that they also thought nothing is by luck. But this too is cause for surprise. For many things come about and are by luck and by chance, and, though people are not unaware that each of the things that come to be can be referred back to some [definite] cause (as the aforementioned argument that does away with luck says), nevertheless they all speak of some of these things as being by luck, others as not being by luck.[190] That too is why the early wise men should have mentioned luck in some way or other.

But then they did not think either that luck was among the causes they recognized—for example, love, strife, understanding, fire, or anything else of that sort. Either way, then, it is strange, whether they supposed that there was no such thing as luck, or that there was such a thing but neglected to discuss it. Especially when they sometimes make use of it, as Empedocles does when he says that air is not always separated out on top but as luck would have it. At any rate, he says in

his cosmogony that "it happened to run in this way then, but often in another way."[191] And he says that most of the parts of animal come to be by luck.[192]

Other people make chance the cause of this heaven and of all the cosmoses.[193] For they say that the rotation came to be by chance, as did the movement that separated things out and put in place the present order of the universe. And this itself merited yet more surprise. For on the one hand they say that animals and plants neither are nor come to be by luck, but that nature, understanding, or something else of that sort is the cause (since it is not just any random thing that comes to be from a given sort of seed, but an olive tree from one sort and a human being from another), whereas on the other hand they say that the heaven and the most divine of visible things came to be by chance, and have no cause of the sort that animals and plants have. And yet if such is the case, this very fact merits attention, and something might well have been said about it. For in addition to the other respects in which what they say is strange, it is even stranger to say it when they see nothing in the heaven coming to be by chance, whereas among the things that [in their view] are not by luck many do come to be by luck. And yet for the contrary to happen would surely have been likely.

There are others, though, who believe that luck is indeed a cause, but that it is unclear to human thought, as being a divine thing and very mysterious.[194] So we must investigate what chance is and what luck is, whether they are the same or distinct, and how they fit into the causes we have distinguished.[195]

II 5

In the first place, then, since we see that some things always come to be in the same way, and others do so for the most part, it is evident that luck or what is by luck is not the cause of either of these—either of what is by necessity and always or of what is for the most part.[196] But since there are other things beyond these that come to be, which everyone says come to be by luck, it is evident that there is such a thing as luck and as chance. For we know that things of this third sort are by luck and that things that are by luck are things of this sort.

Of things that come to be, some do so for the sake of something, whereas others do not. And of the former, some are in accord with deliberate choice, whereas others are not in accord with deliberate choice, although both are among the things that are for the sake of something.[197] So it is clear that among the things that are neither