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# ARISTOTLE

## PHYSICS

BOOKS I and II

*Translated with Introduction, Commentary, Note on  
Recent Work, and Revised Bibliography by*

WILLIAM CHARLTON

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## PREFACE

THE first aim of this as of other volumes in the Clarendon Aristotle series is to provide a translation of Aristotle's text sufficiently accurate to be used by serious students who know no Greek. The text used is that of W. D. Ross, *Aristotle's Physics, a revised text with introduction and commentary*, Oxford University Press, 1955. Words which Ross encloses in square brackets have been omitted. Departures from Ross's text, and points at which the translation seems to me uncertain, are marked with an asterisk and discussed in the *Notes on the text and translation*. The *Commentary* is addressed primarily to readers with some knowledge of philosophy, and intended to suggest starting points for the discussion of the philosophical value of Aristotle's ideas.

My gratitude is due in the first place to Prof. J. L. Ackrill, who read my drafts with great care, pointed out many errors, and made many helpful and stimulating suggestions. I should like also to acknowledge the encouragement of Prof. D. J. Allan, without whom this work would not have been undertaken. For most of the time I was engaged on it I was at Trinity College, Dublin, and much profited from discussions with my colleagues there. Finally, Mr. C. Kirwan has kindly shown me the part of his forthcoming volume in this series which deals with a chapter common to our two texts.

W. CHARLTON

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197<sup>b</sup> but not everything which is the latter is the outcome of luck. For luck and its outcome belong only to things which can be lucky and in general engage in rational activity. Hence luck must be concerned with things achievable by such activity. It is an indication of this that good fortune is thought to be the same as happiness or close to it, and happiness is a kind of  
 5 rational activity: it is activity going well. So what is incapable of such activity, can do nothing as the outcome of luck.

Hence nothing done by an inanimate object, beast, or child, is the outcome of luck, since such things are not capable of choosing. Nor do good or bad fortune belong to them, unless  
 10 by a resemblance, as Protarchus said that lucky are the stones from which altars are made, since they are honoured, whilst their fellows are trodden underfoot. In a way these things can undergo something as the outcome of luck, when a person engaged in activity concerning them achieves something as an outcome of luck; but otherwise not.

The automatic, on the other hand, extends to the animals other than man and to many inanimate objects. Thus we  
 15 say that the horse came automatically, in that it was saved because it came, but it did not come for the purpose of being saved. And the tripod fell automatically. It was set up for someone to sit on, but it did not fall for someone to sit on. Plainly, then, in the field of things which in a general way come to be for something, if something comes to be but not  
 20 for that which supervenes, and has an external cause, we say that it is an automatic outcome; and if such an outcome is for something capable of choosing and is an object of choice, we call it the outcome of luck.

An indication is the expression 'in vain', which we use when something is for something else, and what it is for does not come to be.\* For instance, suppose walking is for the loosening of the bowels, and a man walks without having this come  
 25 to be: we say that he walked in vain and that his walk was vain, suggesting that this is what is in vain: something which is by nature such as to be for something else, when it does not accomplish that which it was for and which it is by nature

such as to be for—since if someone said that he had performed his ablutions in vain because the sun did not go into eclipse, he would be ridiculous. Solar eclipses are not what washing is for. This, then, is what the automatic is like when it comes to be in vain, as the word itself suggests. The stone did not  
 30 fall for the purpose of hitting someone; it fell, then, as an automatic outcome, in that it might have fallen through someone's agency and for hitting.

We are furthest from an outcome of luck with things which come to be due to nature. For if something comes to be contrary to nature, we then say not that it is the outcome of luck but rather that it is an automatic outcome. Yet it is not quite  
 35 that either: the source of an automatic outcome is external, whilst here it is internal.

What the automatic and luck are, then, and how they differ, 198<sup>a</sup> has now been said. As for the ways in which they are causes, both are sources from which the change originates; for they are always either things which cause naturally or things which cause from thought—of which there is an indeterminate  
 5 multitude. But since the automatic and luck are causes of things for which mind or nature might be responsible, when something comes to be responsible for these same things by virtue of concurrence,\* and since nothing which is by virtue of concurrence is prior to that which is by itself, it is clear that no cause by virtue of concurrence is prior to that which is by itself a cause. Hence the automatic and luck are posterior  
 10 to both mind and nature; so however much the automatic may be the cause of the heavens, mind and nature are necessarily prior causes both of many other things and of this universe.

## CHAPTER 7

That there are causes, and that they are as many as we say, is clear: for that is how many things the question 'On account  
 15 of what?' embraces. Either we bring it back at last to the question 'What is it?'—that happens over unchangeable



things; for instance in mathematics it comes back at last to a definition of straight or commensurable or the like. Or to that which in the first instance effects the change; thus on account of what did they go to war? Because of border raids.  
 20 Or it is what the thing is for: they fought for dominion. Or, in the case of things which come to be, the matter.

Plainly, then, these are the causes, and this is how many they are. They are four, and the student of nature should know about them all, and it will be his method, when stating on account of what, to get back to them all: the matter, the form, the thing which effects the change, and what the thing is for.

25 The last three often coincide. What a thing is, and what it is for, are one and the same, and that from which the change originates is the same in form as these. Thus a man gives birth to a man, and so it is in general with things which are themselves changed in changing other things—and things which are not so changed fall beyond the study of nature. They have no change or source of change in themselves when they change other things, but are unchangeable. Hence there are three  
 30 separate studies: one of things which are unchangeable, one of things which are changed but cannot pass away, and one of things which can pass away.

So in answering the question 'On account of what?' we bring it back to the matter, and to what the thing is, and to what first effected the change. People usually investigate the causes of coming to be thus: they see what comes after what,  
 35 and what first acted or was acted on, and go on seeking what comes next. But there are two sources of natural change, of which one is not natural, since it has no source of change in itself. Anything which changes something else without itself  
 198<sup>b</sup> being changed is of this latter sort; for instance, that which is completely unchangeable and the first thing of all, and a thing's form or what it is, for that is its end and what it is for. Since, then, nature is for something, this cause too should  
 5 be known, and we should state on account of what in every way: that this out of this necessarily (i.e. out of this simply, or out of this for the most part); and if so and so is to be (as the

conclusion out of the premisses); and that this would be what the being would be; and because better thus—better not simply, but in relation to the reality of the thing concerned.

## CHAPTER 8

We must first give reasons for including nature among causes 10 which are for something, and then turn to the necessary, and see how it is present in that which is natural. For everyone brings things back to this cause, saying that because the hot is by nature such as to be thus, and similarly the cold and everything else of that sort, therefore these things of necessity come to be and are. For if they mention any other cause, as one does love and strife and another mind, they just touch 15 on it and then goodbye.

The problem thus arises: why should we suppose that nature acts for something and because it is better? Why should not everything be like the rain? Zeus does not send the rain in order to make the corn grow: it comes of necessity. The stuff which has been drawn up is bound to cool, and having cooled, turn to water and come down. It is merely concurrent that, 20 this having happened,\* the corn grows. Similarly, if someone's corn rots on the threshing-floor, it does not rain for this purpose, that the corn may rot, but that came about concurrently. What, then, is to stop parts in nature too from being like this—the front teeth of necessity growing sharp and suitable 25 for biting, and the back teeth broad and serviceable for chewing the food, not coming to be *for* this, but by coincidence? And similarly with the other parts in which the 'for something' seems to be present. So when all turned out just as if they had come to be for something, then the things, suitably constituted 30 as an automatic outcome, survived; when not, they died, and die, as Empedocles says of the man-headed calves.

This, or something like it, is the account which might give us pause. It is impossible, however, that this should be how things are. The things mentioned, and all things which are 35



due to nature, come to be as they do always or for the most part, and nothing which is the outcome of luck or an automatic outcome does that. We do not think that it is the outcome of luck or coincidence that there is a lot of rain in winter, but only if there is a lot of rain in August; nor that there are heatwaves in August, but only if there is a heatwave in winter. If, then, things seem to be either a coincidental outcome or for something, and the things we are discussing cannot be either a coincidental or an automatic outcome, they must be for something. But all such things are due to nature, as the authors of the view under discussion themselves admit. The 'for something', then, is present in things which are and come to be due to nature.

Again, where there is an end, the successive things which go before are done for it. As things are done, so they are by nature such as to be, and as they are by nature such as to be, so they are done, if there is no impediment. Things are done for something. Therefore they are by nature such as to be for something. Thus if a house were one of the things which come to be due to nature, it would come to be just as it now does by the agency of art; and if things which are due to nature came to be not only due to nature but also due to art, they would come to be just as they are by nature. The one, then, is for the other. In general, art either imitates the works of nature or completes that which nature is unable to bring to completion. If, then, that which is in accordance with art is for something, clearly so is that which is in accordance with nature. The relation of that which comes after to that which goes before is the same in both.

The point is most obvious if you look at those animals other than men, which make things not by art, and without carrying out inquiries or deliberation. Spiders, ants, and the like have led people to wonder how they accomplish what they do, if not by mind. Descend a little further, and you will find things coming to be which conduce to an end even in plants, for instance leaves for the protection of fruit. If, then, the swallow's act in making its nest is both due to nature and for

something, and the spider's in making its web, and the plant's in producing leaves for its fruit, and roots not up but down for nourishment, plainly this sort of cause is present in things which are and come to be due to nature. And since nature is twofold, nature as matter and nature as form, and the latter is an end, and everything else is for the end, the cause as that for which must be the latter.\*

Mistakes occur even in that which is in accordance with art. Men who possess the art of writing have written incorrectly, doctors have administered the wrong medicine. So clearly the same is possible also in that which is in accordance with nature. If it sometimes happens over things which are in accordance with art, that that which goes right is for something, and that which goes wrong is attempted for something but miscarries, it may be the same with things which are natural, and monsters may be boss shots at that which is for something. When things were originally being constituted, man-headed calves, if they were unable to reach a certain limit and end, came to be as a result of a defect in some principle, as they now do as the result of defective seed.

Again, seed must come first, and not the animal straight off, and the 'omnigenous protoplast'\* was seed.

Again, the 'for something' is present in plants too, though it is less articulate. Was it the case, then, that as there were man-headed calves, so there were olive-headed vinelets in the vegetable kingdom? Or is that absurd? But there should have been, if that is how it was with animals.

Again, coming to be among seeds too would have had to be as luck would have it. But a person who says that does away with nature and things due to it altogether. A thing is due to nature, if it arrives, by a continuous process of change, starting from some principle in itself, at some end. Each principle gives rise, not to the same thing in all cases, nor to any chance thing, but always to something proceeding towards the same thing, if there is no impediment. What something is for, and what is for that, can also come to be as the outcome of luck, when we say that the family friend came as the outcome of



luck and paid the ransom before departing, if he behaved as if he had come for that purpose but had not in fact come for that purpose. That is by virtue of concurrence (for luck is a cause by virtue of concurrence, as we said above); but when  
 25 not a concurrent happening, nor the outcome of luck. Now with that which is natural it is always thus if there is no impediment.

It is absurd not to think that a thing comes to be for something unless the thing which effects the change is seen to have deliberated. Art too does not deliberate. If the art of ship-  
 30 building were present in wood, it would act in the same way as nature; so if the 'for something' is present in art, it is present in nature too. The point is clearest when someone doctors himself: nature is like that.

That nature is a cause, then, and a cause in this way, for something, is plain.

## CHAPTER 9

Is that which is of necessity, of necessity only on some hypothesis, or can it also be simply of necessity? The general view  
 35 is that things come to be of necessity, in the way in which a man might think that a city wall came to be of necessity, if he thought that since heavy things are by nature such as to sink down, and light to rise to the surface, the stones and foundations go down, the earth goes above them because it is  
 5 lighter, and the posts go on top because they are lightest of all. Now without these things no city wall would have come to be; still, it was not on account of them, except as matter, that it came to be, but for the protection and preservation of certain things. Similarly with anything else in which the 'for something' is present: without things which have a necessary nature it could not be, but it is, not on account of them, except  
 10 in the way in which a thing is on account of its matter, but for something. Thus on account of what is a saw like this?

That this may be, and for this. It is impossible, however, that this thing which it is for should come to be, unless it is made of iron. It is necessary, then, that it should be made of iron, if there is to be a saw, and its work is to be done. The necessary, then, is necessary on some hypothesis, and not as an end: the necessary is in the matter, the 'that for which' in the account.

The necessary appears in mathematics and in the things  
 15 which come to be in accordance with nature, in a parallel fashion. Because the straight is so and so, it is necessary that a triangle should have angles together equal to two right angles, and not the other way round. Still, if triangles did not have angles together equal to two right angles, we should have no straight lines.\* With things which come to be for something the case is reversed: if the end will be or is, that  
 20 which comes before will be or is; and if we do not have it, then just as in mathematics, if we do not have the conclusion, we shall not have the starting-point, so here we shall not have the end or that for which. That too is a starting-point, not of the practical activity, but of the reasoning. (In mathematics too the starting-point is of the reasoning, since there is no practical activity there.) So if there is to be a house, it is  
 25 necessary that these things should come to be or be present, and in general it is necessary that there should be the matter which is for something, e.g. the bricks and stones if there is to be a house. Nevertheless, the end is not on account of these things except as matter, nor on account of them will it come into being. In general, if they, for instance the stones or the iron, are not present, there will be no house or saw; just as in mathematics there will not be the starting-points if the triangle does not have angles together equal to two right  
 30 angles.

Plainly, then, the necessary in things which are natural is that which is given as the matter, and the changes it undergoes. The student of nature should state both causes, but particularly the cause which is what the thing is for; for that is responsible for the matter, whilst the matter is not responsible