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- 1 Nature is a source of truth. Experience does not ever err, it is only your judgment that errs in promising itself results which are not caused by your experiments.

 - 2 The eye, the window of the soul, is the chief means whereby the understanding can most fully and abundantly appreciate the infinite works of Nature; and the ear is second.

 - 3 If you wish to have a sound knowledge of the forms of objects, begin with the details of them, and do not go on to the second step until you have the first committed to memory.

 - 4 Necessity is the mistress and guide of nature. Necessity is the theme and the inventress, the eternal curb and law of nature.

 - 5 Though human ingenuity may make various inventions which, by the help of various machines answering the same end, it will never devise any inventions more beautiful, nor more simple, nor more to the purpose than Nature does; because in her inventions nothing is wanting, and nothing is superfluous, and she needs no counterpoise when she makes limbs proper for motion in the bodies of animals.

 - 6 The ancients called man a lesser world, and certainly the use of this name is well bestowed, because his body is an analog for the world. As man has in him bones that support his flesh, the world has its rocks that support the earth. As man has a pool of blood in which the lungs rise and fall in breathing, so the body of the earth has its ocean tide which likewise rises and falls every six hours, as if the world breathed. As the blood veins originate in that pool and spread all over the human body, so likewise the ocean sea fills the body of the earth with infinite springs of water.

 - 7 The body of the earth, like the bodies of animals, is interwoven with ramifications of veins, which are all joined together and are formed for the nutrition and vivification of this earth and of its creatures....It's flesh is the soil, its bones are the arrangements of the connections of the rocks of which the mountains are composed, its cartilage is the porous rock, its blood is the veins of waters; the lake of the blood, which is throughout the heart, is the ocean; its breathing and the increase and decrease of the blood through the pulses in the earth is thus: it is the flow and ebb of the sea.

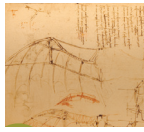


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- 8 The same cause which moves the fluids in all kinds of living bodies against the natural course of gravity also propels the water through the veins of the Earth...As the blood rises from below and pours out through the broken veins of the forehead, and as the water rises from the lower part of the vine to the branches that are cut, so from the lowest depth of the sea the water rises to the summits of the mountains where, finding the veins broken, it pours down.

But he wrote later:

The origin of the sea is contrary to the origin of the blood...[because] all the rivers are caused solely by the water vapors raised up in to the air...constantly circulating and returning.

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- 9 The air moves like a river and carries the clouds with it; just as running water carries all things that float upon it.
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- 10 Just as the stone thrown into the water becomes the center and cause of various circles, and the sound made in the air spreads itself out in circles, so every body placed within the luminous air spreads itself out in circles and fills the surrounding parts with an infinite number of images of itself, and appears all in all in each smallest part.
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- 11 Universally all things desire to maintain themselves in their natural state. So moving water strives to maintain the course pursuant to the power which occasions it, and if it finds an obstacle in its path, it completes the span of the course it has commenced, by a circular revolving movement.
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- 12 Why are the bones of great fishes and oysters and corals and other various shells and sea-snails found on the tops of mountains?
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- 13 The ancient bottoms of the sea have become mountain ridges.
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- 14 We can count in the crusts of cockles and snails the years and months of their life, as we do in the horns of oxen and sheep, and in the branches of trees.
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- 15 A bird maintains itself in the air by imperceptible balancing, when near to the mountains or lofty ocean crags; it does this by means of the curves of the winds which as they strike against these projections, being forced to preserve their first impetus bend their straight course towards the sky with divers revolutions, at the beginning of which the birds come to a stop with their wings open, receiving underneath themselves the continual buffetings of the reflex courses of the winds.



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- 16 The branches of plants are found in two different positions: either opposite to each other or not opposite. If they are opposite to each other the center stem is not bent: If they are not opposite, the center stem is bent.
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- 17 All the branches of a tree at every stage of its height, united together, are equal to the thickness of its trunk.
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- 18 The thrushes and other small birds are able to make headway against the course of the wind, because they fly in spurts; that is, they take a long course below the wind, by dropping in a slanting direction toward the ground, with their wings half-closed, and they then open the wings and catch the wind in them with their reverse movement, and so rise to a height; and then they drop again in the same way.
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- 19 Here a doubt arises, and that is as to whether the Flood which came in the time of Noah was universal or not, and this would seem not to have been the case for the reasons which will now be given. We have it in the Bible that the said Flood was caused by forty days and forty nights of continuous and universal rain, and that this rain rose ten cubits above the highest mountain in the world. But consequently, if it had been the case that the rain was universal, it would have formed in itself a covering around our globe, which is spherical in shape: and a sphere has every part of its circumference equally distant from its center, and therefore on the sphere of water finding itself in the aforesaid condition, it becomes impossible for the water on its surface to move, since water does not move of its own accord unless to descend. How then did the waters of so great a Flood depart, if it is proved that they had no power of motion? If they departed, how did they move, unless they went upwards? At this point natural causes fail us, and therefore in order to resolve such a doubt we must needs either call in a miracle to our aid or else say that all this water was evaporated by the heat of the sun.