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978-1-108-01151-8 - The Natural and Moral History of the Indies, Volume 1: The Natural History

Joseph de Acosta

Excerpt

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# THE FIRST BOOKE

## Of the Naturall and Morall Historie of the East and West Indies.

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CHAP. I.—*Of the opinions of some Authors, which supposed that the Heavens did not extend to the new-found world.*

THE Ancients were so farre from conceypt that this new-found world was peopled by any Nation, that many of them could not imagine there was any land on that part; and (which is more worthie of admiration) some have flatly denied that the Heavens (which we now beholde) could extend thither. For although the greatest part (yea, the most famous among the Philosophers) have well knowne that the Heaven was round (as in effect it is), and by that meanes did compasse and comprehend within it self the whole earth; yet many, (yea, of the holy doctors of greatest authoritie) have disagreed in opinion vpon this point; supposing the frame of this vniversall world to bee fashioned like vnto a house; whereas the rooffe that covers it inuirones onely the upper part and not the rest; inferring by their reasons, that the earth should else hang in the midst of the ayre, the which seemed vnto them voyd of sense. For as we see in every building, the ground-worke and foundation on the one side, and the cover opposite vnto it, even so in this great building of the world, the Heaven should remaine above on the one part, and the earth vnder it. The glorious Chrysostome (a man better seene in the studie of holy Scriptures then in the knowledge of Philosophie) seemes to be of this opinion, when in his Commentaries

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## LIB. I.

Chrysost.,  
homil. xiv  
and xvii, in  
epist. and  
Hebre.

Chrys.,  
hom. vi, xiii,  
in Genes.  
and hom.  
xii, & pop.  
Antioch.

Theodoret.

Theophil.  
in capitul.  
8, ad Hebre.  
Lact. lib. iii,  
divin. inst.,  
ca. 24.

Ier. in epist.  
ad Ephes.,  
lib. ii, c. 4.

Sixtus  
Senens.,  
lib. v, bib-  
lio. annotat.  
iii.

vpon the Epistle to the Hebrewes, he doth laugh at those which hold the heavens to be round. And it seemes, the holy Scripture doth inferre as much, terming the Heavens a Tabernacle or Frame built by the hand of God. And hee passeth farther vpon this point, saying, that which mooves and goes is not the Heaven, but the Sunne, Moone, and Starres, which moove in the heaven, even as Sparrowes and other birds moove in the ayre ; contrary to that, which the Philosophers hold, that they turne with the Heaven it selfe, as the armes of a wheele doe with the wheele. Theodoret, a very grave Authour, followes Chrysostome in this opinion, and Theophilus likewise, as hee is accustomed almost in all things. But Lactantius Firmian, above all the rest, holding the same opinion, doth mocke the Peripateticke and Academickes, which give the heaven a round forme, placing the earth in the midst thereof ; for that it seemeth ridiculous vnto him, that the earth should hang in the ayre, as is before sayde. By which his opinion he is conformable vnto Epicurus, who holdeth, that on the other part of the earth there is nothing but a Chaos and infinite gulph. And it seemeth that S. Ierome draweth neere to this opinion, writing vpon the Epistle to the Ephesians in these wordes : “ The naturall Philosopher by his contemplation pierceth to the height of heaven, and on the other part he findeth a great vast in the depth and bowels of the earth.” Some likewise say that Procopius affirmes (the which I have not seene) vpon the booke of Genesis, that the opinion of Aristotle, touching the forme and circular motion of the Heaven is contrarie and repugnant to the holy Scriptures. But whatsoever the Ancients say or holde touching this point, it must not trouble vs, for that it is wel knowne and verified that they have not beene so studious in the knowledge and demonstrations of Philosophie, being busied in other studies of farre greater importance. But that which is more to be admired is, that S. Augustine himselfe, so well seene in all

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naturall Sciences, yea, very learned in Astrologie and Physicke, remaynes yet still in doubt, not able to resolve, whether the Heaven did compasse in the earth on all parts. “What care I”, saith he, “if we suppose the Heaven doth inviron the earth on all parts like vnto a bowle,<sup>1</sup> beeing in the midst of the world, as a bottome is compassed with threed;<sup>2</sup> or that we say it is not so, and that the Heaven covereth the earth of one part onely as a great Basin that hangs over it.”<sup>3</sup> In the same place he seemeth to shew (nay, hee speaketh plainely) that there is no certaine demonstration to proove the figure of the world to be round, but onely by simple coniectures. In which places cited and others, they hold the circular motion of the Heaven very doubtfull. But wee ought not to take it offencively, nor esteeme lesse of the Doctors of the holy Church, if in some points of Philosophie and naturall knowledge, they have varied in opinion from that which is helde for good philosophie; seeing all their studie hath been to know, preach, and serve the Creator of all things, wherein they have bin excellent, and having well employed their studies in causes of greater waight, it is a small matter in them not to have knowen all particularities concerning the creatures. But those vaine Philosophers of our age are much more to bee blamed who, having attayned to the knowledge of the being and order of the creatures, and of the course and motion of the Heavens, haue not yet learned (wretched as they are) to knowe the Creator of all things, but busying themselves wholly in his workes, haue not yet mounted by their imaginations to the knowledge of the Sovereigne Author thereof as the holy Scripture teacheth vs; or if they have knowne him, they have not served and glorified him as they ought, blinded with their imaginations, whereof the Apostle doth accuse and blame them.

LIB. I.

Aug., lib. ii.  
de Gen. ad  
lit. c. 9.Id. Psal.  
xxxv.Sapient. xiii.  
Rom. i.<sup>1</sup> “Como una bola.”<sup>2</sup> “Estando ella en medio del mundo como en el fil.”<sup>3</sup> “Como un plato grande que esta encima.”

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PROOFS THAT THE EARTH IS ROUND.

CHAP. II.—*That the Heaven is round on all parts, moving in his course of it self.*

LIB. I.

But comming to our subiect, there is no doubt but the opinion which Aristotle and the other Peripateticks held with the Stoicks (that the figure of Heaven was round, and did move circularly in his course), is so perfectly true, as we which doe now live in Peru see it visibly. Wherin experience should be of more force then all Philosophicall demonstrations, being sufficient to prove that the Heaven is round, and comprehends and containes the earth within it of al parts. And to cleere any doubt that might grow, it sufficeth that I have seene in this our Hemisphere that part of Heaven which turnes about this earth, the which was vnknowne to the Ancients; and have observed the two Poles whereon the Heavens turne, as vpon their Axeltrees. I say, the Articke, or North Pole, which those of Europe beholde, and the other Antarticke, or Southerne Pole (whereof saint Augustine is in doubt), the which we change and take for the North here at Peru, having passed the Equinoctiall line. Finally, it sufficeth that I have sayled neere 70 degrees from North to South, that is, forty of the one side of the line and 23 on the other, omitting at this present the testimony of others which have sayled much farther then my selfe, and in a greater height, comming neere 70 degrees towards the South. Who will not confesse but the ship called the *Victorie*<sup>1</sup> (worthie doubtlesse of eternall memorie) hath wonne the honor and praise to have best discovered and compassed the round earth, yea, that great Chaos and infinite Vast which the ancient Philosophers affirmed to bee vnder the

Aug., lib. ii,  
de Genes.,  
ad lit., cap.  
10.

<sup>1</sup> Magellan's ship, which is represented on the covers of the volumes of the Hakluyt Society. See an account of her at page 16 (note) of vol. i of my translation of the first part of the *Royal Commentaries of the Yncas*, by the Ynca Garcilasso de la Vega. (Hakluyt Society's volume for 1869.)

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earth, having compassed about the worlde and circled the vastnesse of the great Oceans. Who is hee then that will not confesse by this Navigation but the whole earth (although it were bigger then it is described) is subiect to the feet of man, seeing he may measure it? Thus, without doubt, the Heaven is of a round and perfect figure; and the earth likewise imbracing and ioyning with the water makes one globe or round bowle framed of these two elements, having their bounds and limits within their own roundnes and greatnes. The which may be sufficiently proved by reasons of Philosophie and Astrologie, leaving al subtil definitions commonly obiected. That, to the most perfect body (which is the Heaven), we must give the most perfect figure, which, without doubt, is round, whose circular motion could not be firme nor equall in it selfe, if it had any corner or nooke of any side, or if it were crooked (as of necessitie it must be), if the Sun, Moone, and Stars made not their course about the whole world. But leaving all these reasons, it seemes that the Moone is sufficient in this case as a faithfull witsesse of the Heaven it selfe, seeing that her Eclipse happens, but when as the roundnesse of the earth opposeth it selfe diametrally betwixt her and the Sunne, and by that meanes keeps the Sunnebeames from shining on her. The which could not chance if the earth were not in the midst of the world, compassed in and inuironed by the whole Heaven. Some haue doubted whether the light of the Moone were borrowed from the brightnes of the Sunne; but it is needlesse, seeing there can bee found no other cause of the Eclipses, full, and quarters of the Moone, but the communication of the beames which proceed from the Sunne. In like sort, if wee will carefully examine this matter, we shall finde that the darkenesse of the night procedes from no other cause but from the shadow which the earth makes, not suffering the light of the sunne to passe to the other parte of the heauen, where

LIB. I.

Aug., ep.  
cix, ad Ian-  
uarium,  
cap. 6.

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LIB. I. his beames shine not. If then it be so, that the sunne passeth no farther, neyther doth cast his beames on the other part of the earth, but onely turnes about, and returnes to his setting, making a ridge vpon the earth by his turning (the which he must of force confesse that shall denie the roundnes of the heaven, seeing (according to their saying) the heaven as a basen doth onely couer the face of the earth), it should then plainly follow that wee could not obserue the difference betwixt the daies and nights, the which in some regions be short and long according to the seasons, and in some are alwaies equall, the which S. Augustine noteth in his bookes *De Genes. ad litteram*. That we may easily comprehend the oppositions, conversions, elevations, descents, and all other aspects and dispositions of planets and starres, when we shall vnderstand they move, and yet notwithstanding the heaven remaines firme and immoveable. The which seemeth to me easie to comprehend, and will be to all others, if it may be lawfull to imagine that which my fancy doth conceive ; for if we suppose that every star and planet be a body of it selfe, and that it be led and guided by an Angell, as Habacuc was carried into Babilon, who I pray you is so blind but seeth that all the diverse aspects which we see appeare in planets and starres may proceede from the diuersity of motion which he that guides them doth voluntarily giue them. We cannot then with any reason affirme but that this space and region by which they faine that stars do continually march and rowle is elementarie and corruptible, seeing it divides it selfe when they pass, the which vndoubtedly do not passe by any void place. If then the region wherein the starres and planets move be corruptible, the stars and planets of their owne motion should be by reason likewise corruptible, and so by consequence they must alter, change, and be finally extinct ; for naturally that which is contained is no more durable then that which containeth. And to say that

August.,  
lib. de  
Genes. ad  
litteram,  
cap. 19.

Dan. xiv.

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the Celestiall bodies be corruptible, it agreeth not with the psalme, "That God made them for euer": And it is lesse conformable to the order and preservation of this vniversall world. I say moreover, to confirme this truth, that the heauens move, and in them the starres march in turning, the which we cannot easily discerne with our eyes, seeing we see that not onely the starres do moue, but also the regions and whole parts of heaven; I speake not onely of the shining and most resplendent parts, as of that which we call *Via lactea*, and the vulgar S. Iaques way, but also of the darker and obscurer parts of heaven. For there we see really as it were spots and darkenes, which are most apparrant: the which I remember not to haue seene at any time in Europe, but at Peru, and in this other Hemisphere I haue often seene them very apparant. These spots are in colour and forme like vnto the Eclips of the Moone, and are like vnto it in blacknes and darkenes; they march, fixed to the same starres, alwaies of one forme and bignes, as we haue noted by infallible observation. It may be this will seeme strange to some, and they will demand whence these spots in heaven should grow. To the which I cannot answere otherwise at this time, but (as the Philosophers do affirme) that this *Via lactea*, or milken way, is compounded of the thickest parts of the heaven, and for this cause it receiues the greater light; and contrariwise, there are other parts very thinne and transparent, the which receiuing lesse light seeme more blacke and obscure. Whether this be the true reason or no I dare not certainly affirme. Yet is it true that, according to the figure these spots have in heaven, they moue with the same proportion with their starres without any separation, the which is a true, certaine, and often noted experience. It followeth then by all that we haue said, that the heaven containeth in it all the parts of the earth, circling continually about it, without any more doubt.

LIB. I.

Psal. cxlviii.

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CHAP. III.—*How the holy Scripture teacheth vs that the earth is in midst of the world.*

LIB. I. Although it seemes to Procopius Gaza,<sup>1</sup> and to some others of his opinion, that it is repugnant to the holy Scripture to place the earth in the midst of the world, and to say that the heaven is round, yet in truth this doctrine is not repugnant, but conformable to that which it doth teach vs. For laying aside the tearmes which the Scripture it selfe doth vse in many places, “The roundnesse of the earth”; and that which it sayeth in an other place, that whatsoever is corporeall is invironed and compassed in by the heavens and conteyned within the roundnes thereof, at the least they cannot deny but that place of Ecclesiastes is very plaine where it is said, “The Sunne riseth and sets, and returnes to the same place, and so begins to rise againe; he takes his course by the South, turning towards the North; this spirit marcheth compassing about all thinges, and then returnes to the same place.” In this place the paraphrase and exposition of Gregorie Neocesarien, or Nazianzene, sayeth, “The Sunne hauing runne about the whole earth, returnes as it were, turning to the same point.” That which Solomon sayeth (being interpreted by Gregorie) could not be true if any part of the earth were not invironed with the heaven. And so S. Ierome doth vnderstand it, writing vpon the Epistle to the Ephesians in this sort, “The most common opinion affirmes (agreeing with Ecclesiastes) that the heaven is round, mooving circularly like vnto a bowle.” And it is most certaine that no round figure conteyneth in it eyther longitude, latitude, heigth, or depth, for that all parts are equal. Whereby it appeares, according to S. Ierome, “That those which hold the heaven to be round are not repugnant to the holy Scripture, but conformable to the same.” And although that S. Basile especially, and S. Ambrose (who doth vsually imitate him in his bookes called

LIB. I.

Hest. xiii.  
Sap. i. ii, vii,  
xi, xviii.  
Psal. xci, vii,  
xxiii, xxxix,  
xcvii.  
Iob xxxvii.  
Eccles. i.

Ierom., cap.  
3, ad  
Ephes.

Basil., hom.  
ii, l.  
Hexam.  
prope finem

<sup>1</sup> Gozes.



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*Hexameron*) seeme somewhat doubtfull of this point, yet in the end they grant that the world is round. It is true that S. Ambrose doth not yeelde to this quintessence<sup>1</sup> which Aristotle attributes to the heavens, without doubt it is a goodly thing to see with what a grace and excellent stile the holy Scripture treates of the scituation and firmenes of the earth to breed in vs a wonderfull admiration, and no lesse content to behold the vnspeakable power and wisdome of the Creator. For that in one place God himselfe saies that it was hee which planted the pillers which support the earth; giving vs to vnderstand (as S. Ambrose doth well expound it) that the vnmeasurable weight of the whole earth is held vp by the hands of the divine power. The holy Scripture doth commonly so call them, and vseth this phrase, naming them the pillers of heaven and earth, not those of Atlas, as the Poets faine, but of the eternall word of God, who by his vertue supports both heaven and earth. Moreover, the holy Scripture in an other place teacheth, that the earth, or a great part thereof, is ioyned to and compassed in by the Element of water, speaking generally, that God placed the earth vpon the waters. And in another place, that hee framed the roundnes of the earth vpon the Sea. And although S. Augustine doth not conclude vpon this text, as a matter of faith, that the earth and the water make one globe in the midst of the world, pretending by this meanes to give another exposition to the words of the Psalme; yet notwithstanding it is most certaine that by the words of the psalme we are given to vnderstand that we haue no other reason to imagine any other ciment or vniting to the earth then the Element of water, the which although it be pliant and moveable, yet doth it support and inviron this great masse of the earth, the which was wrought by the wisdome of that great Architect. They say, the earth is built vpon the waters and vpon the sea; but contrariwise, the earth is rather vnder the waters; for according to com-

Lib. 1.

Amb., lib. x.  
Hexam.,  
cap. 6.Psal.  
lxxiv.Amb. i.  
Hexa.

Job ix, 26.

Heb. i.

Aug. in  
Ps. cxxxv.

1 "Quinta substantia."

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LIB. I.

mon iudgement and imagination, that which is on the other part of the earth which we inhabite seemes to be vnder the earth, and so by the same reason, the waters and sea which doe compasse in the earth on the other part should be vnderneath and the earth above; yet the very truth is, that what is properly beneath that is alwaies in the midst of the vniversall; but the holy scripture frames it selfe to our manner of conceiving and speaking. Some may demandaund (seeing the earth is set vpon the waters, as the scripture sayeth) whereon the waters are placed and what support haue they? And if the earth and the water make one round globe, how can all this monstrous masse be sustayned? To this the holy scripture answereth them in another place, giving vs greatest cause to admire the power of the Creator, and

Job xxvi.

saith in these wordes, “The earth extends towards the North vpon the Vast, and stayes hanging vpon nothing.” The which in trueth is very well spoken, for that really it seemes this heape of earth and water is set vpon nothing, when we describe it in the midst of the ayre, as in trueth it is. But this wonder, which men so much admire, God

Job xxxviii.

himselfe hath not layd open, demanding of the same Iob in these termes—“Tell mee if thou canst, who hath layd the lyne or cast the lead for the building of the world, and with what morter the foundations have beene layed and ioyned.” Finally, to make vs vnderstand the fashion and modell of this admirable frame of the world, the Prophet Dauid, accustomed to sing and praise his diuine works, saies very well in a Psalme made of this subiect in these wordes,

Psal. ciii.

“Thou which hast built the earth vpon firmenes it selfe, that it cannot stagger nor move for ever and ever.” Meaning to shew the cause why the earth set in the midst of the ayre falleth not, nor staggereth from place to place, for that by nature it hath sure foundations, layed by the most wise Creator, to the end it might sustaine it selfe without any other support. Mans imagination is therefore