When Christian Science and Jewish Providence Collide: Conversion and Biblical Discoveries in the 1390s

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This article deals with the transfer and fusion of scientific-biblical knowledge among Jews, converts, and Christians in the 1390s. Following up on hints supplied by a cryptic Hebrew report, the article tracks and explores a biblical-scientific discovery revealed by the convert Pablo de Santa María (the former Shelomo Halevi) in his commentary on Genesis 1:9. In that text, Pablo combined the latest Christian scientific theories of his day with Jewish biblical traditions and thus shaped a new explanation for both the baffling equilibrium between earth and water and the scriptural formulation: “Let the waters be gathered”. As the article shows, while naturalistic readings of this passage were quite common among Christians, in the Sephardic intellectual elite to which Pablo belonged it was almost a doctrinal principle to take these words as pointing to divine intervention in the order of nature. Accordingly, Pablo’s new providential-physical explanation made a significant impression on his Christian audience and became, in a famous Hebrew epistle by the crypto-Jewish convert, Profayt Duran, a token of his scholarly accomplishments. For us, however, it can provide a remarkable example for the kind of intellectual synergy among Jews, converts, and Christians in those years.

Around 1395, the astronomer, physician, grammarian, biblicist, and crypto-Jewish convert to Christianity, Profayt Duran (Honoratus de Bona Fide), penned his satirical masterpiece, Be not like your Fathers. Written in Hebrew as a letter

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1 Duran’s creative, diverse and sophisticated writings have drawn the attention of quite a few scholars in recent years, and much work – from different perspectives – is still in progress. For the most comprehensive overview of Duran and his works, see Maud Kozodoy, The Secret Life of Maestre Honoratus: Profayt Duran and Jewish Identity in Late Medieval Iberia, Philadelphia 2015; and the important new revelations in Joseph R. Hacker, “Perfeyt Duran in Italy and the Fate of Catalan and Aragonese Hebrew Manuscripts after the Riots of 1391”, in Paths to Modernity: A Tribute to Joseph Kaplan, Avriel Bar-Levav, Claude B. Stuczynski, and Michael Heyd (eds.), Jerusalem 2019 [Hebrew]. For further references, see the notes below.
addressed to a friend who (like Duran himself) had been baptized and (unlike Duran) was now inclined to embrace the tenets of his new religion, this short piece presented a shrewd anti-Christian polemic, combating the growing tide of conversions and the assimilation of those already converted. Yet, the letter’s remarkably rich texture of personal innuendos, biblical allusions, social imagery, and ironical nods has given modern scholars much to chew on beyond religious polemics. In fact, the literary sophistication of the epistle has rendered some of its passages enigmatic, subject to conflicting readings. In what follows, I tackle one of these puzzling clauses. By bringing together sources from Jewish and Christian scholarship, I attempt to unpack its meaning thereby giving us a further glimpse of the intimate network that prevailed among Jews, Christians, and converts in those years. As we shall see, this intellectual scene had a unique capacity to funnel and interfuse scientific and providential traditions across confessional boundaries – giving birth, among other things, to new biblical discoveries.

In the last section of Be not like your Fathers, Duran addressed the man who was responsible for the evangelization of Jews and converts, and specifically for his friend’s new Christian convictions, Pablo de Santa Maria, himself a convert, formerly known as Shelomo Halevi of Burgos. At that time Pablo was taking his first steps in what would be an illustrious career in the service of Pope Benedict XIII and the Crown of Castile. The section begins as follows:

For my take on Be not like your Fathers and further bibliography, see Yosi Yisraeli, “Constructing and Undermining Converso Jewishness: Profiat Duran and Pablo de Santa Maria”, in Religious Conversion: Historical Experiences and Meanings, Ira Katznelson and Miri Rubin (eds.), Farnham 2014, pp. 198-200.

And as to what you wrote, my brother, embellishing on the story of your teacher’s [Pablo de Santa María] competence and perfection, on his dignity and the splendor of his great majesty, saying that he was created in the image and likeness of God, making him a pope with your words – though I am not sure whether it means that he shall go to Rome or to Avignon. Much like you, my brother, so did I become aware of all the great things that he has done: the spherical quality in another; the extraction of the center; the transfer of poles and circumference which he discovered; like dorshei reshumot [explicators of records] several mysteries and great propositions he has expounded in other wisdoms. Not for nothing did the king give him gifts from his treasures, as he has seen a righteous man walking blameless before him; and not for nothing did the great distinguished Rabbi Hasdai Crescas flee from submitting his claims “to the righteous that might dispute with him”. He honored him by visiting his palace and always dwelling with him because of his love to him. And that which you informed me about, my brother, that by his great authority and the love of the king he was able to achieve much, a decree that women younger than fifteen shall not be allowed to wander here and there. I will admit to you that he has achieved a great thing, and blessed is he for benefiting the public, compensating the guilty with favors. Go out and tell those who have begotten boys and girls and to the gentle women. And as we have by a rumor that he sought to speak falsely on the Jews in Avignon and was discreetly ordered by the cardinal of Pamplona and two other vicars not to devise harm to the children of Israel, and the people paid him twenty-five florins. While the pope and the Church intend to give him an episcopate of his own, or make him a cardinal, like those distinguished among the men of spiritual prominence. Hence, my brother, the joy. For his honor will be your honor, and he shall make you priestly and levitical domains.

Readers of this passage, from the fifteenth-century to the present, have noted the personal animosity evinced in this section. Duran, it has been plausibly proposed, portrayed Pablo as a hateful, vindictive, and presumptuous figure.

4 This paraphrase of Genesis 1:26 follows a Hebrew phrasing repeated by Maimonides in his Guide for the Perplexed, 1.1, 1.2, 1.7, 3.8. For its possible meanings, see Sara Klein-Braslavy, Maimonides’ Interpretation of the Adam Stories in Genesis: A Study in Maimonides’ Anthropology, Jerusalem 1986, pp. 28-36 [Hebrew].

5 Kozody translation is: "the spherical astronomy without the epicycle [or] variation of the poles [or] eccentric circle [and that] he found some mysteries…"; see Kozodoy, The Secret Life, p. 89.

6 Job 23:7. My translation as “dispute” is based on the context of this verse and its accepted readings among medieval commentators such as Nahmanides and Gersonides. On the possible meaning of these “claims” and the dispute see below.
Yet his exact intentions when speaking of a discovery concerning “the spherical quality in another; the extraction of the center; the transfer of poles and the circumference”, were less clear, and modern readers of this remark have offered several interpretations. Yitzhak Baer and Francisco Cantera Burgos, for example, saw it as a reference to Pablo’s reputation as a man of science – a reputation that can be traced back to the fifteenth century Generaciones y Semblanzas, which described Pablo as “un gran sabio é valiente hombre en sciencia”.7 Baer thought that Duran’s words attested to Pablo’s familiarity with the latest scientific theories of the Parisian school, and, for Cantera Burgos, they alluded to his “grandes novedades en la ciencia física”.8 More recently, historians have connected this line to the sardonic, anti-conversionist sentiment that characterizes the epistle. In his annotated edition of the letter (1981), Ephraim Frank Talmage suggested that the remarks were intended to ridicule Pablo’s scientific credentials rather than to affirm them.9 Tracing the terms “spherical quality” “extraction of center”, and “transfer of poles” in Duran’s calendric-astronomical compendium, Ḥishev ha-efod (1395), Talmage argued that the key for understanding this insolence was the competition between two astronomical schools regarding the sun’s orbit around the earth: one considered it to be eccentric (i.e., moving in a circle of which the earth is not the center); and the second took it to be epicyclic (an orbit whose center moves on the circumference of another circle at whose center is the earth). According to this reading, when Duran cited the “extraction of the center and the transfer of poles”, he implied that Pablo adhered to the second – epicyclic – model. This position, as Talmage notes, was “in consonance with Duran himself” – thus offering nothing new. The ironical punch, therefore, must have been aimed at Pablo’s pompous astronomical pretentions: he was boasting about a scientific discovery that was not new at all.10 About a decade later, Eleazar Gutwirth expanded the role played by Duran’s sarcasm even further, claiming that

8 Yitzhak Baer, A History of the Jews in Christian Spain [Hebrew], 2nd edn., Tel-Aviv 1965, p. 531 n.42 (in the 1961 English translation by Louis Schoffman vol. 2, pp. 154, 475); Francisco Cantera Burgos, Alvar García de Santa María y su familia de conversos: Historia de la judería de Burgos y de sus conversos más egregios, Madrid 1952, p. 319. Cantera Burgos noted that Alonso García de Torres also confirmed in his Libro de los blasones, that Pablo was learned in physics and served as the physicist of Pope Benedict XIII. Ibid., p. 351 n. 53.
9 Talmage, Polemical Writings, pp. 81-82 n.133.
10 Kozodoy seems to concur with Talmage about the spirit of this punch, noting that “to suggest that Pablo has found an astronomical system that uses none of the existing models is to suggest that he has done something quite extraordinary; in the reversed sense required by the sarcastic tone, it would mean that when it comes to astronomy, Pablo is in quite over his head”, Kozodoy, The Secret Life, p. 89.
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historians have misunderstood the extent to which irony shaped this passage and its meaning. Instead of tackling a specific cosmological or scientific issue, the term “spherical quality” (or, in his translation, “wheel-like quality”) could also be read as a pungent allusion to Pablo’s “instability and unpredictability”; and the “transfer of the poles” served as “an evident jibe at Pablo’s radical mutations: his conversion from Judaism to Christianity”. While such a colorfully hyperbolized reading is tempting, we should be cautious not to turn the irony of the letter into a free-wheeling fix for any circumstantial or factual gap we encounter in the text. To the modern reader, terms like the “transfer of the poles” or the “spherical quality” may appear to be theatrical linguistic gestures, but in medieval Hebrew astronomical jargon they were ordinary. More importantly, this terminology did not stand on its own. Sarcastic or not, Duran’s astronomic allusions are part of a longer passage that discusses Pablo’s career as a Christian clergyman: his close relations with the king of Castile and Pope Benedict XIII, his contacts with the leader of Aragonese Jewry, Hasdai Crescas, some juridictive accomplishments, and his attempt to preach to the Jews of Avignon. Despite the perhaps intentional exaggerations, these are all factual matters, some of which can be corroborated, while other still await a more concrete substantiation. Otherwise, none of this would have made any sense, let alone a fine sarcastic sense. Hence, we must assume that Duran’s scientific remarks also alluded to something of Pablo’s publicly claimed accomplishments.


12 As Kozodoy noted with regard to Gutwirth’s reading: this “terminology is perhaps too standard to evoke much more than it does; the ‘variation of the poles’ seems to be an allusion to this particular method of modeling planetary motions”, The Secret Faith, p. 242 n. 25. Indeed, Duran used these terms to explain the epicyclical movement of the stars in Ḥishev ha-efod. See, for example, the title of the third chapter: הдержанות התנועות אשר לשמש ולירח ויתר הכוכבים וחיוב הנחת תכונתם עם יציאת מרכז או גלגל היקף. As to the term spherical quality, התכונה הגלגלית, it was widely introduced to the Jewish philosophical language through Ibn Tibbon’s translation of The Guide for the Perplexed (1.34). In fact, even in Be not like your Fathers, Duran used it to mark the science of astronomy. See in Talmage, Polemical Writings, p. 76. The passage is discussed by Kozodoy in The Secret Faith, pp. 116-118; and her “The Hebrew Bible as Weapon of Faith in Late Medieval Iberia: Irony, Satire, and Scriptural Allusion in Profiat Duran’s Al Tehi Ka-Avotekha”, Jewish Studies Quarterly, 18 (2011), 187 (185-201).

13 See the appendix “The Dates of Composition of Efodi’s Polemical Works” in Benzion Netanyahu, The Marranos of Spain from the Late 14th to the Early 16th Century According to Contemporary Hebrew Sources, 3rd edn., Ithaca NY 1999, pp. 221-224.
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One detail that may shed some light on the object of this purported jibe emerges if we continue to read beyond the sequence of astronomical terms, as Duran immediately contextualizes his jargon with the words: “like dorshei reshumot several mysteries and great propositions he has expounded in other wisdoms”. The term dorshei reshumot (literally, the explicators of records or texts) is of Talmudic origin, and modern scholars still debate its exact meaning. Some consider it to signify only allegorizers of Scripture, while others hold that it refers more generally to interpreters of obscure passages. Either way, the term was intimately related to biblical interpretation and remained so well into Duran’s time.

The scientific vocabulary of spherical qualities that Duran invoked, ironically or straightforwardly, must have related to some innovation in biblical interpretation. A combination of these two fields would not have surprised anyone in this circle of scholars. In fact, traces of such an association can be found in Duran’s own calendrical-astronomical treatise, Hishev ha-efod. Duran depicted his work as a “joint study of these two highest disciplines”, astronomy and mishpatei hatorah. Indeed, one of his students, who appended an introductory poem to his work, proclaimed that the treatise could be beneficial for biblical interpretation. In his own words, it could “give each disciple and each capable [man] that which they seek / dorshei reshumot will learn [from it] if they will hear [it]”.

Thus, a good place to start looking for Pablo’s “great discovery” would be his biblical scholarship. Fortunately, he left a voluminous body of such work.

A Biblical Discovery: Let the Waters Be Gathered (Genesis 1:9)

Pablo de Santa Maria was a man of broad intellectual horizons. One of the elite Sephardic scholars and courtiers, and now also a rising star at the courts of Pope


15 See, for example, how this term is applied at around this time for non-literal exegetics in Haim Ibn Musah, Sefer magen varomah veigeret levno, Jerusalem 1970, p. 9.

16 Munich – Bayerische Staatsbibliothek, Cod. hebr. 299, 1.r: “הנה בעבור זה היתה החקירה בגרמים ההם ומשיגיהם מהיותר שלמות וחשובות שבחקירות. ומזה הצד היתה גם כן החקירה בתורה באלהית ובמשפטיה מהיותר חשובות שבחקירות. בברך אלהית ובמשפטיה מהיותר חשובות שבחקירות ובברך אלהית ובמשפטיה מהיותר חשובות שבחקירות. ומזה הצד היתה גם כן החקירה בתורה באלהית ובמשפטיה מהיותר חשובות שבחקירות. ומזה הצד היתה גם כן החקירה בתורה באלהית ובמשפטיה מהיותר חשובות שבחקירות. ומזה הצד היתה גם כן החקירה בתורה באלהית ובמשפטיה מהimore חשובות שבחקירות. ומזה הצד היתה גם עניין בחקר מאותו ית פנים בפנים דבר יי’ עמכם. והנה אם תמצא חקירה משותפת לשני אלה

17 Ms. Oxford, Bodleian Neubauer 2047, 1.r: "חפצם לכלبارك ותינוקי ית / dorshei reshumot יימין

[128]
Benedict XIII and King Enrique III, Pablo surely knew his way around the scientific basics of his day. Yet, as far as we know, unlike many of his (former) Jewish colleagues, he mastered no specific philosophical discipline. He was neither a physician nor an astronomer. His stature at court was probably due to his literary and administrative gifts; but as a scholar, he won fame by the depth and originality of his scriptural expertise, manifest in his massive compilation of biblical commentaries – the Additions to the Postilla literallis of Nicholas de Lyra [hereafter: Additiones].

As the Additiones was appended to dozens of popular Bible editions, Pablo’s commentaries came to share the same pages (and prestige) with the opinions of the Church Fathers (via the Glossa ordinaria) and Nicholas de Lyra. It is no exaggeration to say that by the last quarter of the fifteenth century, when these printed editions conquered the books markets, Pablo had become one of the most widely known, albeit controversial, biblical commentators in Latin Christendom.

His fame as a biblical commentator, however, did not have to wait for the invention of printing, and not even for the final compilation of the Additiones in 1429. After all, Pablo was already known as a biblical expert as a Jew, and there are some textual and stylistic indications that, as a Christian, he wrote his biblical commentaries over long periods of time, going all the way back to the early 1390s.

We know very little of how these commentaries circulated at first, but it is certainly possible that the Additiones included materials from the time Duran was writing his letter – whether they were further edited during the years or not. As I now suggest, what survived in the Additiones as Pablo’s commentary to Genesis 1 can be soundly identified as the object of Duran’s “astronomical” allusions.

Pablo’s ten additions to the story of Creation in the first chapter of Genesis present one of the longest clusters of commentaries in the entire Additiones.


19 As to the late compilation of the Additiones, it is enough to point out that the 1429 version already included Pablo’s response to some critics who contested his exegetical methods in writing. We also know that some of the commentaries included in the Additiones circulated separately. For few of the indications that the Additiones included materials from the early 1390s, see Ryan Szpiech, “Scrutinizing History: Polemic and Exegesis in Pablo de Santa María’s Siete edades del mundo”, Medieval Encounters, 16 (2010), pp. 104-105 n.17; and also below, at note 82.
Accordingly, they address a wide variety of topics and questions. Without doubt, however, Pablo’s treatment of the third day of Creation was set as the jewel on this exegetical crown.

At the heart of the matter stood verse nine, depicting the appearance of dry land: God said, “Let the waters under the sky be gathered to one place and let dry ground appear”, and it was so.

Pablo began his treatment of this verse by presenting three popular explanations as to what exactly happened on this day that made the waters surrounding the earth retreat and reveal the land: (a) that much of the water percolated into large spaces in the bowels of the earth; (b) that initially, the water surrounding the earth were in a less dense form, somewhat like a cloud, but on the third day it was compressed into its familiar liquid form, in which it no longer covered the entire earth; and (c) that the water was amassed into a high pile or a bump in the seas, thus retreating from large parts of the land.

These were the explanations that Thomas Aquinas borrowed from Augustine and presented in his Summa theologiae when addressing this same question. This is far from unexpected, as Pablo presented himself as an enthusiastic Thomist. One declared goal of the Additiones was to reclaim the relevancy of Aquinas to the literal interpretation of Scriptures after the Angelic Doctor had wrongly been rejected by Lyra. Accordingly, Pablo frequently followed the structure, logic and topics that were outlined in the works of Aquinas, and this holds true for much of his reading of the creation story. Despite his reverent rhetoric, however, Pablo hardly parroted Aquinas. His favored tack was to supplement Aquinas’ views with materials from rabbinic tradition, but when it seemed necessary, he did not hesitate to directly contradict his ostensible mentor. In this case, unlike Aquinas, who accepted all of the aforementioned solutions as feasible (though preferring the last one), Pablo showed they were all impossible for scriptural and natural reasons. An alternative explanation was needed here, and with all
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requisite modesty and caution (*salvo semper meliore iudicio*), 25 Pablo dared to propose one of his own.

First and foremost, the full scope of the scientific problem had to be properly laid out. 26 According to the principles of Aristotelian cosmology, the sublunar world was (a) set in the center of the universe and (b) comprised of four elements: earth, water, air and fire. If these elements were to behave by their natural qualities, they would have aligned in four concentric spheres that orbit the center of the universe. In other words, they would surround each other from the lower and heavier (earth) to the higher and lighter (fire). As was obvious, this ideal spherical structure did not exist in reality – at least not when it concerned the spheres of water and earth. Like so many accomplished readers of the Bible before him, Pablo claimed that the gathering of the waters on the third day of creation spoke precisely of this disruption in the primordial order of things, not as a purely natural process, but rather as the product of Divine Wisdom. 27

Pablo’s real burden of proof was to explain how the mechanics of such a divine intervention actually worked in the natural world. The key to this explanation, to adopt Duran’s words, lay in the “spherical quality in another; the extraction of the center; the transfer of poles and the circumference”. As all agreed, the original position of the aquatic sphere around the earth was the result of their “center congruence”. Because the elements of water and earth shared the same center of gravity – which was also the center of the universe – the lighter element of water had to encircle the heavier, earth. Thus, if one wished to alter altogether the relations between these elements, one had to disrupt the congruence of the centers. The gathering of the waters on the third day of creation marked the extraction of the center of the aquatic element and its transference to a different place, remote from the center of the earth and the universe. The water, which retained its basic spherical and gravitational qualities, moved on to encircle its new center of gravity, and thus uncovered a certain portion of the earth – the dry land – while still covering most of the globe.

This theory, Pablo explains to his readers, draws its inspiration and logic from the astronomical model of orbital qualities. 28 Astronomers “who diligently investigate the motion of the stars”, found that not all planets move in concentric orbits. Some celestial bodies do not rotate around the center of the universe but have “eccentric” trajectories and inclinations. Since water and earth are subjected to similar spherical qualities and conditions, it is possible to assign their mutual location with this same method of separated centers.

25 Lines 46.
26 Lines 47-54.
27 Lines 46-56.
28 Lines 57-60.
With the help of a diagram illustrating the location of the spheres before and after the divine intervention of the third day, Pablo set out to demonstrate that his model of distanced centers could sustain five important propositions:  

First, it clarifies why Scripture is accurate in its assertion that all water was “gathered to one place” even though there are different seas, lakes and rivers. The “one place” marks the center of gravity to which the water is always drawn, no matter where it is. Second, it explains how because of this gathering the dry land appeared. Third, it confirms what was said in Proverbs (8:27): “with a certain law and circle he enclosed the sea”. Meaning that the water was gathered by a divine decree (lex), but in a manner that conformed with nature (connaturalem) as a circle or a sphere. And finally, it could settle a vexing question that had long fed on conflicting scientific and scriptural observations. While it was undeniable that the sea and the land were at the same altitude on the coastlines, it was not so clear what happened to this equilibrium if one compared the heartland to the distant

29 See the diagram (above). The circle marked with b.g.d.e. is the sphere of earth. Point a. marks the center of the universe, which is also the center of the earth and which once was the center of the aquatic sphere m.n.o. Point f. marks the new center of water, and h.i.d. mark the circumference of the aquatic sphere in its new place.

30 The crescent d.g.e.h marks the dry land that appeared after the water were gathered, and the bow d.h.e. marks the coastline.

31 According to the Latin: Quando certa lege et gyro vallabat abyssos. Apparently, Pablo’s reading of the verse draws on the Hebrew: בהקוק חוק, על ימין תהום.
sea. Aquinas, for example, followed Basil of Caesarea and approved the notion that the water amassed at the high sea. This question – which is higher, the land or the sea – was debated well into the fourteenth century. Pablo’s fourth proposition was that his cosmographical model shows why the altitude indeed rises as one advances into the sea, even though it has been proven that the surface level of the water always remains the same. Since the sea’s altitude is measured with respect to the center of the earth, it is attestable that a mass of water rises as one moves farther away from the shore. And, if one proceeded long enough into the sea, the altitude of the water would top even the highest of mountains, confirming the verse from Psalms (103:6): “the waters stood above the mountains”. The fifth proposition, however, argued that this model also accounts for the visible fact that water always descends from the land into the sea. For, if one measured the altitude according to the distance of the earth’s surface from the center of the aquatic sphere, then the coast line is the lowest point on earth, to which all water is drawn – in accordance with Psalms 23:2: “he founded [the earth] upon the seas”.

To conclude this explanation of the “distancing centers”, Pablo stressed what he thought was its most important implication: it attributed the appearance of the land to nothing but divine intervention. It thus complemented the biblical admonishments in Jeremiah, “‘Do you not fear me?’ declares the Lord. ‘Do you not tremble before me? I placed the sand as the boundary for the sea’”, and in Psalms, “You set a boundary they cannot cross; never again will they cover the earth”. Like the words of the prophet and the Psalmist, the separation of centers implies that the gathering of the water was, and remains, a display of God’s omnipotence and providence. Other explanations, such as evaporation, may be attributed to natural causes like the heat of the sun. But the separation of centers could have been accomplished only by God, who institutes nature and thus could change natural inclinations. That is also why the gathering of the water was done on the third day, prior to the installment of the Sun – to hint that the land was discovered not by the vaporizing power of the Sun “as some mistakenly think”, but by divine command.

That this commentary is a perfect fit to the allusions in Duran’s letter seems almost obvious. First, Pablo combined biblical interpretation with other sciences, exactly as Duran implied in his reference to the dorshei reshumot, who expound other wisdoms. Second, the scientific vocabulary that Duran invoked corresponds

32 Line a.d. measures the altitude of sea from the centre of the earth at the coastline. Line a.c. measures the altitude as one travels from the coastline into the sea on the circumference of the aquatic sphere.

33 Line f.g. measures the altitude from the centre of the aquatic sphere at the midlands, while f.d. does so on the coastline.

34 Lines 174-189.
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precisely to Pablo’s commentary. As we recall, Duran mentioned three concepts: the spherical quality in another; the extraction of the center; and the transfer of poles and the circumference. These indeed allude to the three pillars of Pablo’s explanation. “The spherical quality into another”, accurately reflects Pablo’s self-conscious adoption of astronomical models and jargon for the elucidation of a different physical phenomenon. The use of astronomical terminology led later readers to believe that Duran took issue with Pablo’s astronomical positions. But the truth is that, while “the extraction of the center” was a key term in Pablo’s commentary (centrum separatum) and was repeated six times, it had nothing to do with his understanding of the celestial orbits. Duran merely echoed Pablo’s extraordinary analogy. Likewise, Duran’s invocation of the “transfer of the of poles and the circumference” correctly attests to Pablo’s conclusion that the orb of water moved from its natural place. To the best of my knowledge, this is the only instance in Pablo’s work that employs this astronomical vocabulary. Finally, Duran’s reference to a sense of a great discovery also aligns quite conclusively with this text. Pablo apparently considered his interpretation and the five propositions that followed it to be an important novella. We have already seen that he did not hesitate to introduce his commentary as his own original solution to a scriptural-scientific difficulty that had been insufficiently treated by his predecessors. The length of his explanations and the rare diagram that accompanied them silently attest to a feeling of self-importance. Additionally, towards the end of his exposition, Pablo reflects once more on its significance: “with these fine considerations, a true comprehension of what Scripture says about the assignment of water and earth into their position – which was explained by different commentators in conflicting ways – can be achieved”.

It is hard to miss the sense of self-worth. At last, after so many Christian readers tried and failed, he was able to put this mystery to rest. A great discovery indeed.

Among Pablo’s many sympathetic readers, some surely agreed. To take the most sensational example, his commentary probably informed the royal commission that, in the late 1480s, assessed Columbus’ plans to set westward on his adventurous journey. According to W. G. L. Randles, the skepticism of the commission was “based on the scholastic view of the relations between earth and water, and in particular, on the doctrine of the converted Jew, Paul of Burgos (c. 1350-1435), whose thought was much influenced by his reading of Aristotle”. Of

36 Lines 174-176.
course, this does not mean that everyone was impressed by Pablo’s commentary. Scientifically, the cosmographical element of his commentary would be deemed irrelevant by the early sixteenth century, although his resentful Christian adversaries had taken specific issue with it long before. Yet even such critiques acknowledged his exceptionality – which they took to be a sign of his arrogance and utter disrespect for Christian tradition. For example, the Franciscan Matthias Döring (d. 1469), one of Pablo’s earliest critics, claimed that his position not only differed from all ecclesiastical authorities, but was also without precedent among the philosophers, remarking in irony, “It is truly a wonder that none of the Philosophers, who wrote so extensively about natural things and their order, could see this eccentricity”.

As we shall see, Döring was only half right, as some natural philosophers had indeed observed this eccentricity. Regardless, however, what is important here is the indication that Durán’s choice of images was not arbitrary or detached from concrete realities: Pablo’s reading of Genesis 1:9 was a novella, it involved astronomical allusions, and it could genuinely be counted by his contemporaries who attended one of these sessions. In Geraldini’s account, the members of the commission invoked the authority of Nicholas de Lyra, but as Rendles convincingly claims, the content of their arguments relates to Pablo’s additions, and not to Lyra’s Postilla. Geraldini’s account was published in 1631: Alexander Geraldini, Itinerarium ad regiones sub aequinoctiali plaga constitutes Alexandri Geraldini Amerini... Rome 1631, p. 204. Pablo’s possible impact on this commission can be supported by other circumstantial evidence. Diego Deza, who played a central role in that committee, studied Pablo’s work rather closely and with much admiration at that time. In a treatise intended to defend Thomas Aquinas from charges made by Franciscan thinkers, Deza frequently based himself on the Additiones of Pablo de Santa María, giving him much credence. Diego Deza, Defensiones Sancti Thomae ab impugnationibus Nicolai de Lyra magistrique Mathiae Doering propugnatoris sui, Sevilla 1491.

In the sixteenth century, a new cosmographical theory, taking water and earth to compose a single sphere – the Terraqueous – became dominant. See the studies mentioned in note 40 below. Wootton recently dubbed it “the silent revolution”. See David Wootton, The Invention of Science: A New History of the Scientific Revolution, London 2015, ch. 4.

“...Sed quanquam sua imaginatio sit valde involuta, ad sensum tamen literalem modicum conferre videtur, nec fundat eam super aliqua autoritate sacri canonis, sanctorum doctorum, vel alcuuius Philosophi. ... et mirum est, quod nullus Philosphororum (qui de naturis rerum earum connexionem multa scrisput) huiusmodi eccentricitatem videre non potuerint”. Biblia sacra cum glossis interlineari et ordinaria... Venice 1588, p. 33. Another of Pablo’s critics who addressed this commentary was Denis the Carthusian (1402-1471). He also stressed that Pablo went against all his Christian predecessors, from Augustine and Bede to Aquinas and Lyra. See Dionysius Carthusianus, Enarrationes piae et eruditae in quinque Mosaicae legis libros, hoc est: Genesisim, Exodum, Leviticum, Numeros, Deuteronomium, Cologne 1566, p. 28.
among the “great things” that he had accomplished and for which he had claimed fame. If anything, it shows just how well informed Duran was of what Pablo was doing in the Christian courts.

But what was the discovery here? And why would it be of interest of Duran and his Hebrew-reading audience of converts and Jews? Now that we know that Pablo’s commentary on the third day of Creation aroused curiosity among both Jews and Christians, we may try to take a closer look at its inter-religious components and appeal, starting with its scientific origins in the world of Christian natural philosophy.

Christian Science

Pablo’s account of the work of the third day of Creation clearly broke from the Christian exegetical traditions presented by Aquinas and Lyra. But the science was not too far from some of the latest theories. In the Christian world of the thirteenth and fourteenth centuries, the equilibrium between water and earth was not only, nor even chiefly, a biblical problem. The appearance of dry land above the sea level presented medieval science with the most visible challenge to the Aristotelian cosmological order. It therefore became a hotbed for critical evaluations among natural philosophers – for example, through the popular genre of commentaries to Johannes de Sacrobosco’s scientific textbook, De sphaera mundi (c.1230).

In the course of this continuous scientific endeavor, a new explanatory model appeared in the first half of the fourteenth century, which much like Pablo argued for the existence of a sublunary multi-centric system. Jean Buridan (c.1300-c.1361), Albert of Saxony (c.1320-1390), Nicole Oresme (c.1320-1381),


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and Pierre d’Ailly (c.1351-1420) – sometimes referred to as the Parisian school – explained, though in different variations, that natural phenomena in the sublunary world were affected by a divergence of spherical centers.\(^{42}\) In general terms, these scholars claimed that as the elements began to interact and mix with each other, the spherical homogeneity of the world was disrupted and the earth was consequently subjected to a new “off-balanced” pressure. This new physical force diverted, even if only slightly, the earth’s center of gravity from its center of magnitude (or/and the center of the universe), which in turn caused parts of the earth to rise above the sea.

There are obvious differences between this Parisian model and Pablo’s exegetical scheme, namely, which spherical center was extracted from its natural place (water or earth), and what was the cause that generated this extraordinary movement. But still, as far as the explanation to the appearance of dry land is concerned, Pablo and the Parisians were on the same page, using the same geometrical logic. The cosmographical outcome was also very similar, depicting earth not as a single perfect globe, but as a combination of a large aquatic sphere with a smaller dome or bulge of land on its northern hemisphere.

On account of this resemblance, historians of science who studied the development of cosmological theories and came across the \textit{Additiones} branded Pablo as an off-shoot of the Parisian trend.\(^{43}\) And indeed, the possibility that Pablo was directly informed by these theories seems even stronger if we take other factors into account as well.

First, Nicole Oresme’s scientific corpus has long been thought to have had an important influence on Pablo’s Jewish circle. Pierre Duhem, Shlomo Pines, and Zeev Harvey have all suggested that Oresme’s anti-Aristotelian ideas influenced the thought of Hasdai Crescas.\(^{44}\) And more recently, Maud Kozody argued that

\(^{42}\) See at note 40 above.


“there can be little question of influence between” Oresme and Duran as well. Of course, in Pablo’s case, such contacts seem all the more plausible. For, unlike his Jewish colleagues Crescas and Duran, Pablo spent quite a lot of time at the University of Paris, to which he traveled after his conversion. In these years, the early 1390s, Pierre d’Ailly served as the chancellor of the University and Pablo obviously had a direct access to the latest developments. In fact, given that Pablo maintained connections with his Jewish milieu, we should consider the possibility that he was one of the channels through which this knowledge was transmitted from the Christian to the Jewish world. Second, as noted above, Pablo’s commentary was embroiled with another related issue that preoccupied the scholastic world of his time. His final two propositions – and the diagrammatic explanations attached to them – unmistakably addressed a question that was litigated in fourteenth century disputations, namely, which was higher: the land or the sea? The most famous of these disputations (from today’s viewpoint) was supposedly conducted in 1320 by Dante Alighieri in Verona, addressing the question: “whether water in its own sphere, that is, in its natural circumference, is anywhere higher than the earth which emerges from the waters and which we commonly call the habitable quarter”. We have no indication that Pablo knew

45 Kozodoy, The Secret Faith, p. 99. Kozodoy notes that the influence between the two men could have gone “one way or the other”. However, at least as far as the science is concerned, Oresme composed his important works when Duran was about ten years old, leaving us with little doubt as to the direction in which such an influence could have gone. For another study that proposes parallels between Oresme and Duran, see Vasileios Syros, “Absalom's Revolt and Value-Neutral Advice in Proflat Duran”, History of Political Thought, 30,1 (2009), pp. 60-74.

46 See, for example, Feldman, who wonders (“On Plural Universes”, pp. 363-364): “Even if we assume that Gersonides and Crescas could read philosophical and scientific Latin, an assumption that is still a subject of considerable controversy, there remains the question of how available were the writings of the Scholastics such that Gersonides or Crescas could have read them?... Is it really ‘conceivable’ to imagine [...] Crescas asking permission to do the same so he could study Oresme?” Although we cannot say when did Crescas began writing his Light of the Lord, we do know that he completed it long after Pablo was immersed in Christian scholarship. See Harvey, Rabbi Hisdai Crescas, p. 47. Similarly, all of Duran’s works that allegedly bear the imprint of Oresme were written after Pablo returned to the Iberian peninsula from his studies.

47 Alain Campbell White, A Translation of the Quaestio de Aqua et Terra, Boston, 1903, 6-7. According to Dante, he heard of this question while he was at Mantua. Yet to his dismay, it was “often discussed according to appearance and not to the truth” – meaning, in contrast to his opinion. Thus, he decided to weigh in on the matter. Allegedly, he wrote his own account of the disputation, so that his rivals would not distort his great triumph. Dante’s account was discovered in the sixteenth century by Benedetto Moncetti from Castiglione and placed to print in 1508. For some time its authenticity was doubted, but these doubts were allegedly resolved by Dante scholars

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of this work, but clearly he was aware that such disputations took place, thinking that his model could finally settle the arguments of the opposing factions. In fact, looking through Thomist spectacles (as some of Pablo’s readers would do well into the sixteenth century), we may propose that part of Pablo’s goal was to justify Aquinas’ stand that the gathering of the waters meant their piling into a heap, higher than the land. Pablo, as others before him, rejected this possibility, claiming that the altitude at the surface of the sea never changes. And yet, his geometrical model allowed him to partly concede that such opinions were not entirely baseless.

Pablo’s cosmographical explanations, we may conclude, were in keeping with the scientific-scholastic discourse of his days. Yet, returning to the question of his “discovery”, clearly it wasn’t for science per se. Pablo’s ingenuity was not in the new geometrics he introduced to the Christian world, but rather in his ability to reassign and harmonize it with both the literal sense of Scripture and God’s direct interference in the world of nature. Burdian, Albert of Saxony, Oresme, and even Pierre d’Ailly, we recall, were all developing their multi-centric models in the framework of natural philosophy. None of them was writing as a theologian or as a biblical commentator, and the object of their observations was the world of natural phenomena and not the biblical story of creation or God’s active intervention in it.

In the words of Edward Grant, they “sought to explain nature’s operations in terms of natural causes and effects, and not to explicate God’s

who found it authentic in style and substance. No less than three critical editions of this work have been published since 2012. Recently, however, Gianfranco Fioravanti brought up important new arguments, based on the history of science, that would need to be considered. As he notes, Dantes’ question implies a polemic against the eccentric model, that was not introduced yet in 1320. See Gianfranco Fioravanti, “Alberto di Sassonia, Biagio Pelacani e la Questio de aqua et terra”, Studi danteschi, 82 (2017), pp. 81-98.

48 See Domingo Báñez, Scholastica commentaria in primam partem angelici doctoris D. Thomae Aquinatis …, vol. 2, Venice 1591, on question 69, article 1, pp. 223-240.
49 1.q.69. a.1. ad.2. According to Basil.
50 Appendix, lines 133-147.
supernatural actions and miracles". Unlike Pablo, they consistently avoided attributing the extraction of the center to a divine miracle or providence. In that respect, Pablo’s commentary to Genesis 1:9, which specifically designated the gathering of the waters as a divine miracle and as a proof of God’s omnipotence and providence, not only departed from, but directly opposed, the Parisian school and any other naturalistic attempt to explain the appearance of the dry land. As Pablo himself reiterated, this was the whole point of his interpretation: to show that the gathering of the waters must be assigned to an active divine will, and not to natural causes alone.

Pablo’s disagreement was not just with natural philosophers. As he was aware, some naturalistic tendencies affected the theologians among his new co-religionists (who were often also natural philosophers) and their readings of the biblical story of creation. Where Aquinas invoked the Augustinian rule that “in the first founding in the order of nature, we must not look for miracles, but for what is in accordance with nature”, Pablo claimed that miracles were integral to the process of creation. And where Aquinas stated that “the manner and the order according to which creation took place concerns the faith only incidentally, in so far it has been recorded in Scripture”, Pablo injected providence and prophecies. So with the specific question of the appearance of dry land on the third day, Aquinas did not share Pablo’s urgency to introduce the Divine will as its

52 Speaking of John Buridan as a representative of this disciplinary commitment, see Grant, God and Reason, p. 197.
53 Specifically about the treatment of the separation of the center, Randles says: “ils évitaient ainsi le recours au miracle divin perpétuel pour tenir les eaux a leur place”, See Randles, De la terre plate au globe terrestre, p. 43.
54 As Grant puts it, there was no symmetry between the influence of theology and natural philosophy on each other: “Theology had a relatively small impact on natural philosophy, whereas natural philosophy, logic and mathematics had so great influence on theology that they reshaped the discipline, transforming its subjects matter more nearly into natural philosophy then theology or religion”, Edward Grant, Science and Religion 400 B.C–A.D. 1550: From Aristotle to Copernicus, Baltimore 2006, pp. 206-220.
55 1.q.67.4.ad 3. Compare to Pablo who supports Basil and the view that the Six Days of Creation involved miracles. *Biblia sacra cum glossis*, 31A: “dicendum quod in hoc capitulo nonnulla miraculose facta traduntur, sicut productio herbarum et planetarum antequam lumina et stellae essent, quod est manifeste miraculosum, quia excedit facultatem naturalem creaturarum et etiam est penitus insolitum, quae duo perficiunt rationem miraculi. Idem dicendum est de congregazione aquarum facta in secunda die. Et ideo nil mirum si productio huius primae lucis, et eius contractio et emissio sit miraculosa”.
immediate cause. At certain points, Aquinas suggested that a valid interpretation of this biblical passage must not contradict nature, that is, must not attribute to water any behavior that is not intrinsic to its physical qualities. Under such conditions, the exegetical question of what exactly happened when God said on the third day, “Let the water under the sky be gathered”, could become almost an issue of natural philosophy.

To take just one example, we might mention Giles of Rome’s (c.1243-1316) commentaries to the Sentences and the Six Days of Creation, the Hexameron. Although both of these works were theological, and Giles was an unabashed critic of the errores philosophorum as well as a supporter of the 1277 condemnations, God’s absolute power did not interfere in the geological and meteorological explanations he provided regarding the appearance of the land. Rejecting any reasoning that involved a violent intervention in the movement of the elements, he spelled out the naturalistic guidelines for this exegetical-theological inquiry: “how can we maintain, without circumventing the [qualities of the] elements, that by nature the water do not cover the whole earth”.

57 According to Aquinas’ general scheme, the work of the third day belonged to the category of “distinguishing” between things. In the De potentia Dei, Aquinas charts the naturalistic boundaries of this theological question through one objection (Q.4 a.1 ob.20): “If [the water entirely covering the earth before the third day] occupied its natural position, then it could be removed from that disposition only by force, since a material substance is removed from the place in which it rests only by force. But this does not belong to the first institution of things, which establishes nature, and force is contrary to nature. And if this position of water was by force, it could by its nature return to the disposition that it did not have, since nature moves something from the place in which it rests by force”, The Power of God by Thomas Aquinas, tr. Richard J. Regan, Oxford 2012, pp. 108-109. In his reply, Aquinas did not reject the naturalist parameters of this objection but only stated that God’s influence on the elements can be considered as natural as the influence of ecclesiastical bodies.

58 On Aquinas’ ideas about creation as phenomena of Natural Philosophy, see Norman Kretzmann, The Metaphysics of Creation: Aquinas’s Natural Theology in Summa Contra Gentiles II, Oxford 1998; and specifically about his exegetical struggle in the Summa concerning the Six Day of Creation and the different works they entail, pp. 181-193. See also Grant, Planets, 1:83-105.


60 On Giles of Rome, his works and his legacy, see A Companion to Giles of Rome, Charles F. Biggs and Peter S. Eardley (eds.), Leiden 2016.

61 “Quomodo sine de fraudatione elementorum salvare possimus naturaliter quod aqua non cooperit totam terram”. This is the title of chapter 25. fol. 113.r; See also his In secundum librum sententiarum, 600: “Dicere autem, quod violenter retinentur aquae,
Pablo’s interpretation of Genesis 1:9 was inventive for Christian readers precisely because it offered them a reconfiguration of Scriptures (in its literal sense), divine intervention and natural philosophy. Unlike some of his Christian colleagues Pablo insisted that God’s direct speech in the biblical story of creation (as well as other biblical citations) had to mark active divine interference in the ongoing process of forming the sublunar world. His cosmographical scheme claimed to accommodate these scriptural principles with the rules of nature. Since the center of the aquatic element was extracted from its place in the center of the universe, no motion was attributed to water that contradicted its intrinsic quality and gravitational conditions. Perhaps, for Aquinas and for Giles of Rome, such a separation of centers would have seemed as violent and unnatural as any other forceful interference in the movement of the elements. By Pablo’s time, however, the separation of centers was acknowledged by the greatest natural philosophers of the Christian world as a perfectly natural possibility. Pablo was taking advantage of this new science, shifting its cause to the ordinance of the divine wisdom.

Here we have a small taste of the biblicist and providentialist ideals that Pablo was advancing underneath a thin disguise of Thomism. Of course, there is still much to say about the theological implications of these arguments and their strong resonance in the scholastic discourse of the later fifteenth and sixteenth centuries. Yet, for the purpose of this study, we shall now move on to the other piece in the exegetical puzzle of Genesis 9:1: its Jewish context and origins.62

Jewish Providence and Providential Science

Although in the Late Middle Ages Judaism and Christianity underwent simultaneous, and in many ways analogous, struggles between forms of radical Aristotelianism and religious orthodoxies, the precise battle-lines within each of them could differ substantially. The appearance of the dry land is one such case. While in the Christian world this issue was not a major bone of contention between theology and natural philosophy, in the Jewish world it assumed an explosive character. In what follows, I convey just how critical this issue was in Pablo’s surroundings, showing that it is impossible to understand his “discovery” or its acceptance among Jews and converts, without this context.

62 See Randle’s discussion of the “théorie biblico-aristotélicienne” in De la terre plate au globe terrestre, pp. 41-64 and esp. 59-61. He also makes the distinction that in the sixteenth century it was mostly Iberian scholars who granted Scripture authority over experiments, mentioning also Pablo de Santa Maria. See also Grant, In Defense, pp. 61-63.
At least by 1231, when the renowned translator and philosopher Shemuel ben Yehudah ibn Tibbon completed his controversial treatise by the name *Let the Waters be Gathered* (*Yikavu hamayim*), the reason for the appearance of the dry land became a defining question for Jewish intellectuals serving as a litmus test for rational-philosophical radicalism. Or, as Gad Freudenthal recently stated, it functioned as a watershed separating the conservatives (i.e., fideists) from steadfast naturalists, splitting Jewish philosophers between those who strove to keep philosophical disciplines subordinate to the authority of divine revelation and its traditions (the “moderate conservatives,” as Freudenthal calls them), and the “radical philosophers,” for whom religious traditions were just a veneer under which lay philosophical truths. As in the Christian world, Jewish scholars had to choose between explaining the gathering of the water as the result of direct divine intervention or as caused by the laws of nature, which almost always meant the forces of Aristotelian meteorology. Yet unlike Christian theologians, for whom


65 This was mostly due to readings of Jewish philosophers in *The Guide*. Maimonides himself paid little attention to the gathering of the water and the appearance of land. But given the key role that Aristotle’s *Meteorology* played in his overall reading of the Creation story, his later interpreters often inferred that he considered the gathering of the waters as a natural-meteorological phenomenon. See *The Guide*, 2:30, and
the principle act of Creation had long since been decreed as an article of faith, for Jewish thinkers the choice was linked directly to the question of Creation and the eternity of the world. In much of the Jewish world, denying the active will of God in the gathering of the water became second only to renouncing Creation in the name of philosophy.

Of course, it is no surprise that a mystic like Nachmanides rendered the gathering of the water as a divine command that was “…done by the will of God and against what is proper by nature”. However, we also find this stubborn insistence on attributing the appearance of dry land to divine intervention in the works of influential Jewish philosophers. An important and relevant case in point is that of Gersonides. Even this celebrated scientist, who rejected, on philosophical grounds, the notion of creation *ex nihilo*, still insisted that the gathering of the water, of all things, could not have occurred naturally. He dedicated a chapter to this question in his *Wars of the Lord* (1329) (book 6, part 1, chapter 13) claiming that:

The emergence of the Earth already manifests the characteristics of a created substance: it exhibits a purpose; it has properties that do not follow from its nature alone, nor from the nature of that which emanates to it from heavens; and it exists for something else. Hence, the emergence of the land is created.

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Amos Funkenstein used this as an example of “Nahmanides’s penchant for blurring the dividing lines between nature and miracles”, Amos Funkenstein, *Perceptions of Jewish History*, Berkeley 1993, p. 106. Pablo, as in many of his commentaries, largely stayed in line with Nahmanides. On Pablo’s use of Nahmanides, see Yisraeli, “A Christianized Sephardic Critique of Rashi’s Peshat”.

See, for example, the astronomical work of Yitshak Yisraeli ben Yosef from Toledo. In his *Yesod ‘olam* (1310), Yisraeli dedicates one of the preliminary chapters to explain the “order of the four elements and the appearance of the land”, *Liber Jesod Olam seu Fundamentum mundi*, vol.1, B. Goldberg and L. Rosenkranz (eds.), Berlin 1848, pp.17-18. Addressed in Freudenthal, “The Medieval Hebrew Reception of Avicenna”, pp. 302-304.

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… It has therefore been demonstrated by these three modes of argument that the visible part of the earth was created.

Moreover, Gersonides found proofs also in the Torah, specifically in the questionable order of the story in Genesis 1. By placing the creation of the heavenly bodies one day after the land already appeared the Torah indicated, according to Gersonides, that the appearance of the land cannot be attributed to the stars or the natural forces they exert upon the sublunar world “as Aristotle and his followers believed”. 69 The purpose of the Torah was to “awaken man to the fact that the universe is created”, since, “if this part [i.e., the dry land] is created, it is obvious that the whole world is created”. Hence, Gersonides insisted that the appearance of the land was a willful act of creation not just for a scientific reason, but also because of its dogmatic implication: it proved his commitment to the principle of Creation. 70

Gad Freudenthal traced the development of the “gathering of the water” into “an intellectual yardstick” up to the middle of fourteenth century, but there is no indication that this test lost any of its relevance in the following century – surely not among the “moderate conservatives” who comprised much of the Sephardic intellectual elite, especially in Pablo’s Jewish surroundings. Thus, when Shem Tov Ibn Shaprut explained to his Christian interlocutor in the treatise Even boḥan (c. 1385) that Creation was a tenet of Judaism, his sixth and final proof was the appearance of dry land against the nature of earth and water. 71 And when Matityah

69 Wars of the Lord, 6.2.8, pp. 458-459.
71 José-Vicente Niclós, Šem Ṭob Ibn Šapruṭ: "La piedra de toque" (Eben bohan): Una obra de controversia Judeo-Cristiana, Madrid 2000, p. 345. According to Dov Schwartz, Shaprut belonged to a “neo-Platonic circle” of Jewish thinkers who concealed their true views that rejected the notion of a singular Creation. Thus, he also doubts the sincerity of Shaprut’s proofs. See Dov Schwartz, The Philosophy of a Fourteenth Century Jewish Neoplatonic Circle, Jerusalem 1996, p. 96; and see also pp. 107-108 [Hebrew].
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Hayizhari, an Aragonese contemporary of Pablo, explained the “ten utterances” with which the world was created according to Pirkei Avot, he included “let the waters be gathered” as the forth utterance, since the appearance of the land was an “incredible wonder” done by God against nature. In fact, if anything, “the gathering of the water” was elevated into a doctrinal principle in these circles – not only as part of Creation, but also as part of providence.

In two of the most significant attempts to redraw the outlines of Jewish dogma, written in these years by Shim'on ben Tsemaḥ Duran (Rashbatz) and Yosef Albo, we find that the appearance of the land functions as the first natural testimony to the principle of divine providence. In the prelude to his Ohev mishpat (1406), Rashbatz explained:

The collection and the gathering of the waters into one place attests to the creation of the world, because it cannot be attributed to [the work of] nature – since by its nature water covers the earth. It cannot be attributed to the gaze of the stars […] as some philosophers thought […] nor to the movement [of the stars] […] That is why the appearance of the land [occurred] on the third out of six days of creation, while the Lights were appended on the fourth day, even though according to the order of being the opposite was appropriate, since that which is more substantial and basic should be created first. But this matter was [done] this way in order to inform

72 A Commentary on Tractate Avot by R. Mattitya Hayitzhari, Yaakov Shemuel Spiegel (ed.) Jerusalem 2006, 5.1, p. 219 [Hebrew], “הרביעי הגלות הארץ הוא פלא עצום מאוד שלפי הטבע שהקל מקיף הכבד היו המים מקיפים הארץ, אמר ויאמר אלהים יקוו המים, ותראה היבשה... נשפכת והנדים מקיק הכבש והמיים מקימים הארץ, אמר יאמר לאלהים כי יקר ים, וחדוה הארץ... בטוח התכסיס מקיקים יראים כי יקר ים, וחדוה הארץ, כי לא יאמר אם יאמר בני יוסי אלוף מקקים יראים כי יקר ים, וחדוה הארץ. In the philosophical themes in this commentary see the additional introduction by Dov Schwartz, Ibid., pp. 1-30.

73 Menachem Kellner, Dogma in Medieval Jewish Thought: From Maimonides to Abravanel, Oxford 1986, chapters 3,5.

74 Sefer ohev mishpat vesefer mishpat tsedeq (Venice: Yosef Molcho, 1589), 4.v-5.r: "זאחרwards the fourth creation of the world, because it cannot be attributed to [the work of] nature – since by its nature water covers the earth. It cannot be attributed to the gaze of the stars […] as some philosophers thought […] nor to the movement [of the stars] […] That is why the appearance of the land [occurred] on the third out of six days of creation, while the Lights were appended on the fourth day, even though according to the order of being the opposite was appropriate, since that which is more substantial and basic should be created first. But this matter was [done] this way in order to inform
us that the gaze of the stars is not the reason for the land’s appearance, as the land appeared before they existed. This necessitates the creation of the world, for we know of no reason for this other than God’s proper will, blessed he, who created the world at his will after the absolute nothing […] Thus, it is established that the appearance of the land is the evidence of creation, and creation is the evidence of providence.

Yosef Albo was even more explicit in his *Book of Principles* (c.1420):  

The first proof [of the existence of providence] is derived from the visibility of the dry land. He who denies providence maintains that the world has always proceeded in accordance with the laws of nature which we observe today, holding that there is no one who can, by his will, force things to behave against their nature. As against a person of this class we can use the visibility of dry land as an argument to show that the world was created by a voluntary agent. According to the nature of the elements the earth should be covered with the element water… and the visibility of the dry land is a proof of the existence of a voluntary agent who compels nature to do His will.

The argument was simple but dramatic. If the cosmos was governed only by natural forces, there would be no dry land. The fact that there is dry land is therefore proof that Something meddled, wilfully and actively, in the world of nature, so that terrestrial life could exist. For Albo, this logic didn’t apply only to the initial act of Creation, but rather to the entire history of the inhibited world. If, for one brief moment, the world were subdued to the autonomous rules of nature, the water would immediately return to its natural place and the land would submerge under the sea. In other words, because of its scientific impossibility, the appearance of the land proved the existence of a willful and active divine providence upon which all terrestrial life directly depends.

In Pablo’s Jewish surroundings, this supernatural reading of the land’s appearance became a doctrinal issue. Leaving aside the nuances, it should be clear by now that Pablo’s Latin commentary to Genesis 1:9 voiced this long-standing Jewish concern. Pablo used the same scriptural logic as Gersonides and Rashbatz about the order of creation; like Rashbatz and Albo he maintained it was proof of divine providence, and he specifically opposed the meteorological causation that was so distinctly identified with the Jewish followers of Maimonides. As we know from his other writings, Pablo was aligned, as a Jew and as a Christian, with those who not only rejected the radical interpretations of Maimonides, but

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perceived them as the gravest spiritual illness of their time.\textsuperscript{76} The key issues in this ideological clash were coded for Pablo and his Jewish colleagues with a choice between orthodox piety and philosophical disbelief. Of course, Pablo took this clash a dramatic step forward. Unlike his colleagues who fought this battle within Judaism, he claimed that the fideist response to the philosophical decadence and skepticism, which were consuming the Jewish faith, was conversion to Christianity. Yet, to Pablo’s dismay, Christian scholarship did not follow the same codes. The very same Christian doctors whom he admired, such as Aquinas, took positions that would label them – according to Jewish standards – as skeptics who deny divine providence. In that sense Pablo’s commentary on the “gathering of the waters” was deeply colored by his Jewish perspective, even though it was written in Latin for a Christian audience.\textsuperscript{77}

Yet that is not to say that Pablo’s discovery had nothing to offer to a Jewish audience as well. That the gathering of the waters became an exegetical or doctrinal convention for “conservative” Jews did not render its scientific details irrelevant. Quite the contrary: for anyone who was not willing to dismiss the value of philosophical knowledge altogether, it only meant that the science was essentially entangled with the mysteries of faith, and the two had to be harmonized. First, there had to be a philosophical proof that nature alone could not account for the appearance of the dry land. Second, the divine intervention was to be portrayed with some scientific mechanics. In such accounts, the science could become a tool for speculative theology.\textsuperscript{78} Consider, for example, the Kabalist Shemuel ibn Motot, another of Pablo’s Sephardic contemporaries, who used the philosophical theories of the gathering of the water to explain the relations between the sefirot of Malkhut and Tif’eret,\textsuperscript{79} or Shemuel Tzarzah, who, in 1369, tried to accommodate

\textsuperscript{76} Yosi Yisraeli, “From Christian Polemic to a Jewish-Converso Dialogue: Jewish Skepticism and Rabbinic-Christian Traditions in the \textit{Scrutinium Scripturarum}”, \textit{Medieval Encounters}, 24 (2018), p. 188.

\textsuperscript{77} As I have argued elsewhere, this perspective also guided him on \textit{ma’aseh bereshit} and \textit{ma’aseh merkavah}. See ibid., pp. 184-192.

\textsuperscript{78} Freudenthal, “The Gathering of the Water”, pp. 269-270, made this point regarding the “moderate conservatives” of the thirteenth century, whom he studied. Thus, while he renders their explanations as complete failures from a philosophical point of view, he grants that they are of significance from the perspective of cultural history.

\textsuperscript{79} \textit{Mehovev Netivot}, third part, chapter 4. See Ms. Parma 3489 103r, or Paris BN, Ms. Hebr. 842, 114.r: יזא תמאאיא דקמא ילהובח ייה ولتراثא באתה הלשך עדעלאית הלהש במשי קורא יהוא מתה של לבל, שורכוא הלשן המא יע כדור אתרי הלדיא. יהא מה שאני יהואים קורא יהוא מתה של לבל, שורכוא הלשן המא יע_CD

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different theories of natural philosophers with legends on the gathering of the water from Bereshit rabba. In other words, even if it was agreed that a divine intervention occurred in the natural world, its scientific mechanics were still of significance for all kinds of religious knowledge.

At around the time that Pablo came up with his discovery, an important building block of this scientific-religious structure had been placed in jeopardy. For a long period in the fourteenth century, the philosophical prominence of בו כעין התוכן והמצב שיש להן עם המזלות... ומתוך כך נתגלשה הארץ שבתוכו כי מטבע גלגל הלבנה וממדתו הראשונה כשהיתה הלבנה שואבת ממקור שהשמש שואב היא הרוח שעליו להתמיד התוהו והבוהו על הארץ וכשתקבל אור השמש מן המקור שהוא שואב באלו תחליף כח לנהוג מנהג עצמה.

וכל זמן שתתרחק במרוצתה לקבל האור ממנו הרי היא ממעטת כח עצמה הוא להחשיך ולהמשיך שמים על הארץ. היא והשמש שני מלכים משתמשים בכתר אחד ומדותיהם מתנגדים ואכן היא קטרגה שאמרה... ונאמר לה, לכי ומעטי את עצמך, לומר את תתרחקי בתנועתה המהירה והוא י сто במקומו, ומזה הטעם קדם כח המלכות להראות לכוח התפארת הוא שאמרו חכמי המחקר... ובגלוי הארץ גבר כוח התפארת על כוח המלכות וחזרה המלכות להיות תחת התפארת.

Michlol yofi, first part, chapter 9. See Ms Breslau Juedisch-theologisches Seminar 48, 38.r-40.r: "דבר ידוע שרז"ל היו רומזים עניינים גדולים מחכמת הטבע ומחוכמות אחרות בדברים מועטים והנה אמרו במדרש מי נתעוותו מימי בראשית ונתנם כמי אוקיאנוס שוב לא נתקנו. והנה קראו חכמי ז"ל עיוות לדבר כשאינו מונח עם טבעו ומשם אמרו במאורות וקראו תקון כשהדבר מונח עם טבעו באמרם מעוות לא יוכל לתקון. ואמרו רז"ל מתחלת בריאתו של עולם גזר ואמר יקוו המים. וזהו האמת והchercheanus בחרך נראתה היבשה. ואמרו חכמי המחקר..., כי את אמונתינו כי גזרת השי ויהו הארי והאחרונים מהם אמרו כי כי כל הארץ מכוסה במים ושחמימות השמש יבשיהם עד שיתגלה היבשה. תנועת הגלגלים ומערכת הכוכבים הם השומרים זה המקום אע"פ שבו הארץ קף ומפלג מים. וישemonic阏ים כי המחויבים כעין טבע הארץ והמים שהארץ תהיה תחת המים אבל המציאות אינו כן ואני לא כמו שהוא طبيعي למים והארץ אלא הוא طبيعي כום הכל. כי לפי שالطבע של העולמות הפך את המים ש"ה" ולקהלו המים ינה以下の, א Disorders of two natural philosophers at that time: two meteorological, one astral, and one geological. On Tzartzah, see Schwartz, The Philosophy, pp. 53-57, 74; Idel, “The Magical and Neoplatonic Interpretations” in Neoplatonic Interpretations, pp. 130-131.
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Gersonides imparted scientific credibility and certainty to this Jewish convention. If a philosopher and an astronomer of his stature ruled that the appearance of the land could not have occurred naturally, then the case was settled. For example, Ibn Shaprut and Matityah Hayitzhari both based their dogmatic arguments on the authority of Gersonides. Yet, by the early fifteenth century, Gersonides’ explanations suffered a heavy blow from none other than Hasdai Crescas. In his Light of the Lord, Crescas targeted Gersonides’ discussion of the gathering of the water and denied its logical validity. As Crescas categorically concluded: “It is thus explained that the proofs that he [Gersonides] laid out for creation in the appearance of the land … do not furnish the truth of creation as he imagined”. Of course, Crescas did not object to the tenant of Creation, but he rejected Gersonides’ claim that the appearance of dry land provided scientific proof of this dogmatic principle. Crescas seems to have suspected that Gersonides’ position was meant to disguise or excuse the true radical nature of his philosophical views on Creation ex nihilo and, in Crescas’ view, their outrageous doctrinal implications. Regardless of his motives, however, the result was that the authoritative philosophical verification of the claim that the land could not appear naturally was demolished by the most celebrated Jewish philosopher of that time.

As we may recall, according to Duran, Crescas “always dwelled” with Pablo because of the love he felt for him. Whatever we make of this line, it is obvious that something personal was going on between the two, for better or worse. Thus, in Pablo’s Jewish vicinity, the stakes invested in the question of the land’s appearance were as high as they could get. If Pablo could draft an alternative scientific explanation for divine intervention in the gathering of the water, then it would certainly, and without any irony, account for an important discovery for his Jewish colleagues. Since Pablo and Crescas associated personally, and since it is

81 Light of the Lord, third treatise, section 1, part 1, chapter 4: "והוא מבואר גם כן שהמופתים שעמד בחידוש הגלות הארץ, הלקוחים מסגולות ההוה, לא יתנו האמת בחידוש שדימה, לסיבות שזכרנו בביטול מופתי המין הראשון". In the previous chapter Crescas presented Gersonides’ argumentation: "ואחר כךבאר מה_Nativeם ש爔וגו הגלות הארץ, היותו מחודש. למה שנמצא בו מסגולות ההוה אשר קדם זכרם. וזה שכבר יראה, שהגלות החלק ההוא הוא לתכלית שיתהו הנמצאות בו. והוא מבואר שלא יתנהוطبيع היסוד המיימי והארצי, אלא טבעיות להישאר יסוד הארץ מוקף מהמים. והוא מבואר גם כן טבע הגרמים השמימיים. וזה מבואר למי שיש לו מעט הרגל בלמוד ובמשפטי הככבים.

impossible to date the ideas expressed in the *Light of the Lord* and the *Additiones*, we cannot say whether Pablo preceded Crescas’ criticism of Gersonides or perhaps was inspired by it to look for an alternative solution. But as Duran’s letter indicates, at the very least, they were well aware of each other’s work.

**Conclusion: Marks of Converso Scholarship?**

Identifying Pablo’s commentary to Genesis 1:9 as the object of Duran’s remark in *Be not like your Fathers* may yield some useful historical conclusions. First, it serves as another solid indication that many of the commentaries included in the *Additiones* had a long independent history in the Iberian Peninsula (and in Avignon) prior to 1429. Like Pablo’s commentaries on Exodus 3, Mathew 1 and Mathew 21, his commentary on Genesis 1 might also have circulated in separate manuscripts as a short treatise in its own right. Second, if or around 1395 Duran already could count a specific Latin commentary among Pablo’s lauded achievements in the Christian courts, then we should give more credence to Pablo’s sixteenth-century biographer who tells us that, from his first days as a Christian clergyman, his scriptural virtuosity dazzled his audiences in Paris and Avignon. Because of the creative and often subversive nature of Pablo’s commentaries, these details may prove useful for questions that go beyond his personal biography. Namely, they suggest that his unique exegetical enterprise could have informed and stimulated his Christian colleagues long before the final manuscript of *Additiones* was completed in 1429. Researchers of theological works composed in the Iberian peninsula in the first three decades of the fifteenth century, from Vicente Ferrer through Enrique de Villena and up to the Arragel Bible, ought to bear this point mind.

Third, given our renewed trust in the historical validity of Duran’s allusions, we may offer to clear up another of his ambiguous anecdotes, which connects Pablo to Hasdai Crescas. We know that sometime in the late 1390s, Crescas wrote a polemical treatise entitled *The Refutation of the Christian Principles*. The work was written originally in the vernacular but survived only in the Hebrew translation made several decades later by Yosef ibn Shem Tov. Crescas opens this polemical treatise with the following fraught line: “Ministries and honored people have pleaded with me to write an essay in which I articulate the doubts

82 The biography by the Augustinian friar Christopher Sanctotis (*Vita D. D. Pauli*) was appended to the Burgos 1591 edition of Pablo’s *Scrutinium Scripturarum*, 7-79. See there, on pp. 28-31.

and objections that the observers of the Law of Moses should hold against the faith of the Christians". Historians speculated as to whether “ministers and honored people” were Jews or Christians. Duran offers a possible clue when he wrote about Pablo that “not for nothing did the great distinguished Rabbi Hasdai Crescas flee from submitting his claims ‘to the righteous who might dispute with him’”. Duran was perhaps sarcastic when he spoke of Crescas’ “evasion”, but he does seem to testify here that Crescas was required to submit a disputative deposition, exactly as he attests at the opening of his polemical work. What we know today as The Refutation of the Christian Principles might have emerged from Pablo’s request.

Finally, the contextualization of this Hebrew polemical letter with Pablo’s Latin-Christian commentaries should further unsettle our confessional conditionings and their grip on our cultural perspectives, at least with regard to the first decades following 1391. The heated polemics and religious-ideological rivalry, even animosity, did not spell intellectual seclusion or social isolation between Jews and converts, and surely not between such converts as Duran and Pablo. That Duran was personally aware of Pablo’s scholarship should not come as a surprise given his own standing as a Christian astronomer in the royal court of Aragon. Naturally, the reverse was also true. I would suggest, for example, that when Pablo discussed the dating of Christ’s Passion before his Christian audience, he was drawing on Duran’s astronomical and calendric calculations as they are found in Hishev haefod. Or, consider this striking parallel: around 1403, in the introduction to his Hebrew grammar book, Ma’aseh efod, Duran invoked the tale of Jerome’s out-of-body experience, where he is condemned and flogged for reading pagan literature. The tale, taken from Jerome’s letter to Eustochium (xxii), served Duran as an example of biblical devotion. A few years afterward, we find that Pablo does the very same in the introduction to his historical poem in Castilian, La siete edades del mundo. By no means could this be considered a mere coincidence. Such commonalities between the works of these two

84 Bittul, p. 34.
86 Be not like your Fathers, as quoted above. For my choice of word in the translation, see note 6.
87 Duran addressed the dating of the Passion in chapter 28 of his treatise. See Munich – Bayerische Staatsbibliothek, Cod. hebr. 299, 41.v-43.f. For Pablo’s discussion see Philipp E. Nothaft, Dating the Passion: The Life of Jesus and the Emergence of Scientific Chronology 200-1600, Leiden 2012, pp. 212-22.
converts are far too frequent to be treated as isolated cases. Their unique critical perspectives on the shared histories of the Church and the rabbis, their acute textual criticism of the Vulgate, and their attempts to promote a Biblicist reform based on Hebraic skills, bear the fingerprints of the same intellectual habitat.

Duran and Pablo were definitely demarcating their distinct religious identities and affiliations one against the other. Yet, historians who seek to better understand the dramatic and creative developments that were set in motion during these years in biblical scholarship, historical criticism, and even dogmatic formulations, ought not to be misled by their confrontational rhetoric, and surely not by that of their later readers. For example, we should keep in mind that Yosef ibn Shem Tov, whose translation, interpolation, and commentaries on Crescas’ *Refutation of the Christian Principles* and Duran’s *Be not like your Fathers*, have framed much of our polemical readings in them, was active around the mid-fifteenth century in what was already a very different environment. In the 1390s and the first decades of the fifteenth century, by contrast, both Jewish and Christian elites could still intimately engage with the emerging scene of convert scholars, an engagement that showed very little of the traditional (and future) cultural, linguistic or religious barriers. This resulted in “discoveries” of the kind that Pablo presented in his commentary to Genesis 1:9.

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89 Recently, Maurice Kriegel has pointed to the similarities between their perception of Israel’s providential history in “Paul de Burgos et Profiat Duran déchiffrent 1391”, in *The Jews of Europe around 1400: Disruption, Crisis, and Resilience*, Lukas Clemens and Christoph Cluse (eds.), Wiesbaden 2018, pp. 235-257.

Appendix

The *Additions* on Genesis 1:9

...totum terrae elementum principaliter dicitur terra, prout ibi “Terra autem erat inanis et vacua”, sed communiori modo loquendi arida dicitur terra et ideo “vocavit Deus aridam terram”. De opere tertiae diei qualiter intelligatur hoc: *CONGREGATIO AQUAE IN UNO LOCO*. Non modicam videtur habere difficilatem, cum enim terra secundum suae naturae gravitatem absolutam undique debeat esse aquis cooperta, non videtur aliquis locus super terram ad quem, seu in quo aquee naturaliter sint congregatae, sic ut terra discooperiretur. Ad quam difficultatem tollendam diversi varie scripserunt. Quudem enim dicunt, quod terra praebuit aliquas partes concavas, in quibus aquae confluentes ad partes terrae, quae nunc est discooperta recipiuntur. Sed hoc non videtur posse stare. Nam elementum aquee est multo rarius quam terra, sicut et aer multo rarior est aqua, ut patet ad sensum, nam modica quantitas aquee in vaporem aereum per operationem ignis resoluta, multo maiorem quantitatem aeream facit. Unde quidam philosophi dicunt elementum aquee indecuplicata quantitate esse maius terra. Similiter et elementum aeris, in multo maiori proportione excedere quantitatem elementi aquee, prout satis patet consideranti loca propria elementorum, quae quanto magis recedunt a centro versus circumferentiam, tanto sunt multo maioris capacitatis. Non ergo terra habet capacitatem recipiendi in concavitatibus suis tantam quantitatem aquee, quanta erat super totam terram habitabilem, quae est quarta pars fere totius orbis terrae secundum astronomos. Unde alii dixerunt quod aquae ante eius congregationem erat valde nebulosa, quae post congregationem densata est, idcirco minorem occupat locum, quod etiam non videtur valere. Tum quia littera non dicit “condensentur aquee”, sed “congregentur”. Tum quia sensibiliter videmus, quod aquee recepae in concavitatibus terrae non sunt magis condensatae, quam aliae. Tum, quia quantitas elementi aquee semper

1 The text follows the 1588 Venice edition of the *Biblia sacra cum glossis interlineari et ordinaria* ... ; 1:31D-32B. It has been compared with two early manuscripts: Ms. Basel, Universitätsbibliothek, B I 17,17.v-19.r. Dated to 1436, and hereafter marked as – B; Ms. Porrentruy, Bibliothèque cantonale jurassienne, 6c, 15.r-16.v. Dated to the second third of the 15th century, and hereafter marked as – P. Alternative versions appear in the notes in angel brackets, and additions as a free text.

2 B, P: usque

3 B: <dierum>

4 B, P: depressata

5 P: in

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excedit quantitatem elementi terrae, propter aquae raritatem in magna proportione ut dictum est, et sic idem inconveniens sequitur sicut prius, scilicet, quod capacitas terrae non sufficit ad tantam aquae quantitatem in concavitatis suis recipere. Unde aliter dicitur ab aliis, scilicet, quod aquae in loco ubi nunc sunt congregatae, in maiorem sunt elevatae altitudinem. Nam ut dicit Basilius experimento compertum est in mari rubro, mare esse alius terrae quae quidem responsio adhuc non totaliter videtur sufficere. Tum quaia pluris in scriptura euntes ad mare descendere dicuntur\(^6\) Ps. “Qui descendunt mare in navibus”,\(^7\) et in\(^8\) Jona,\(^9\) de Iona eunte in mare dicitur: “et descendens in Ioppen invenit navem”, etc.\(^{10}\) Tum quia aquae cum de sui\(^{11}\) natura\(^{12}\) sit fluida, non potest habere in se partes montuosas, scilicet, caeteris altiores sicut in terra propter sua soliditatem hoc contingit. Tum, quia rotunditas aquae potest demonstrari physice, sicut et terrae rotunditas, quod patet. Nam qualibet partes aquae habent aquallem inclinationem naturaliter ad centrum, elevatio etiam poli in diversis partibus maris, similiter et diversitas in ortu et occasu solis et stellarum, uniformiter se habet sicut et in terra, et ubique sunt navigantes in mari Oceano, seu Mediterraneo tempore tranquillitatis semper vident hemisphaira plana absque montuositate, seu altitudine in aliqua sui parte, sicut fit in planissima terra in qua nulli montes, seu colles reperiuntur. Et ideo (salvo semper meliori iudicio) ulterius videtur de hoc aliquid dicendum. Pro quo attendendum est, quod sicut terra secundum astronomos et philosophos est in medio universi, tanquam eius centrum et est rotunda seu sphaericum, cuius centrum est idem centro universi prout demonstrative probatur in utraque scientia praedicta, sic elementum aquae ratione pari de sui natura est rotundum, seu sphaericum, cuius centrum est idem in sua prima productione cum centro terrae seu universi, sed\(^{13}\) oportuit terram esse discooperam ab aquis secundam aliquas partes sui propter necessitatem finis, scilicet, propter habitationem animalium et huiusmodi. Sapientia autem divina (quae disposit omnia suaviter) sic disposit, ut elementum aquae seruando suam rotunditatem naturalem haberet centrum separatum a centro terrae et universi, sicut secundum astronomos qui motus siderum diligenter investigarunt centrum quorumdam orbium planetarum est separatum a centro universi. Unde apud eos tales orbes dicuntur ecentrici, seu egressae

\(^{6}\) B: <sicut in>
\(^{7}\) Psal. 106:23
\(^{8}\) B: <->
\(^{9}\) B: primo capitulo
\(^{10}\) Jonah 1:3
\(^{11}\) P: <sua>
\(^{12}\) V: aquae cum de sui natura. B: cum aqua quod sui natura
\(^{13}\) P: <->
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cuspidis, ut in Almagesto, et in aliis locis illius libri pertractatur. Que quidem diversitas, seu distantia utriusque centri, scilicet, terrae et aquae, ab inuicem sic a Deo fuit disposita et ut inde sequerentur quinque ad propositum pertinentia. Quorum primum, quod licet sint multae congregations aquarum in diversis locis tamen omnes aquae quae sub caelo sunt, sunt ad unum locum congregatae prout Deus disposit. Nam quaelibet aqua habet aequalem inclinationem ad centrum elementi aquae, sicut quaelibet pars terrae ad centrum terrae, et sic habetur verus intellectus illius quod dicitur, "Congregentur aquae ad locum unum", hoc est dicere, inlinentur aquae omnes quae sub caelo sunt ad unum locum, scilicet, ad unum centrum seorsum a centro terrae, ad quod centrum congregentur aquae sicut partes terrae.

Quae quidem congregatio veritatem etiam habet in omnibus congregationibus aquarum sive in fluminibus, sive in stagnis, sive in cisternis et hujusmodi. Nam omnes aquae ubi aquae sint habent inclinationem ad centrum aquae ad quod fluunt cessante impedimento, sicut partes terrae etiam si sint in aer et extra terram suspensae semper habent inclinationem ad suum centrum. Seu secundum quod sequitur ex praedicta distantia est, quod aqua non totam cooperiat terram, sed aliquam partem dimittat disopertam prout requirit talis distantia centrorum ab invicem, et de hoc dicit in littera, "et appareat arida". Sequitur tertium ex hujusmodi distantia centorum, quod haec congregatio fuit a Deo facta per certam legem seu dispositionem in gyro vallanet abyssos, scilicet, multitudinem aquarum, prout littera sonat Prov. "Quando certa lege et gyro vallabat abyssos".

Quartum sequitur ex praedicta distantia, quod licet in ripa maris communiter terra et aqua sint aequalis altitudinis, tamen procedendo in mari per elongationem a terra, mare semper est altius terra, unde in Psal. "veni in altitudinem maris", Et intantum quandoque proceditur, quod mare est altius quam montes in terra, et sic intelligitur illud Psal. "Super montes stabunt aquae", quia altiores sunt aquae Oceani praesertim procedendo versus medium quam montes terrae. Sequitur quintum ex praedicta distantia quod incedentes per terram ad
mare descendentes debent dici sicut in auctoritate praeligata, et in aliis quamplurimis habetur. Similiter quod mare dicitur esse seu fundari super terram prout legitur in Psal. \textit{“Ipse super maria fundauit eam.”}\textsuperscript{25} Et ut praedicta clarissim intelligatur, ponitur haec figura quae repraesentat haec elementa, scilicet, terram et aquam, tam in prima eorum productione, quam post aquae congregationem. In qua figura licet corpus mathematice consideratum non possit in superficie plene representari, tamen satis sufficit recte imaginanti.\textsuperscript{26}

In hac figura sit a. centrum terrae, quod est etiam centrum universi et sit sphaera terrae b. d. g. e. super centrum a. et sit sphaera aquae ante eius congregationem m. n. o. super centrum a. supradictum quod est centrum universi. Nam aqua ex sui primaeva natura aequaliter habebat circundare terram, cum quaelibet pars aquae aequaliter haberet inclinationem ad centrum terrae, quod est centrum universi. Disposuit autem Deus quod haec sphaere aquae congregaretur ad unum locum, sic ut arida appareret. Sit ergo sphaera aquae secunda, scilicet, post huiusmodi iussionem congregatae ubi nunc est sphaere c. h. i.\textsuperscript{27} quae quidam sphaera est aequalis primae sphaerae aquae, scilicet, m. n. o. sit etiam centrum sphaerae aquae post eius congregationem f. quod est ecentricum, ut dictum est, eo quod distat seu egreditur a centro a. quod est centrum universi. Intersecet ergo haec sphaera aquae sphaeram terrae in duobus punctis seu locis, scilicet, d. e. Pater igitur in hac figura primum intentum, scilicet, quod omnes aquae ubicunque fuerint\textsuperscript{28} sub caelo ad sphaeram aquae sunt virtualiter congregatae et per consequens ad unum locum. Nam quaelibet aqua habet aqualam inclinationem naturalem ad sphaeram seu centrum sui elementi, scilicet, aquae quod est f. etiam si sint separatae in locis alii, ubi impediantur ne possint fluere ad locum suum, sicut etiam partes terrae ubicunque suspendantur seu detineantur, ad sphaeram terrae seu ad centrum terrae habent inclinationem naturalem. Et hoc est quod dicitur “Congregentur aquae ad unum locum” ubi notanter dicitur, “quae sub caelo sunt” ad excludendum aquas superiores, quae non intelliguntur sub hac ordinatone. Patet etiam in hac figura secundum intentum, scilicet, quod aqua non totam\textsuperscript{29} cooperiat terram, sed\textsuperscript{30} aliquam eius partem dimittat discoportam, nam arcus e. b. d. qui est in sphaera terrae est discoportus ab aquis, ut patet in hac figura, quod secundum cosmographos est fere quarta pars terrae caeteris partibus ipsius terrae remanentibus sub aqua coopertis. Unde notanter dicitur, “vocavit Deus aridam terram” ad differentiam terrae.
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coopertae aquis, quae non dicitur arida. Patet etiam in hac figura tertium intentum, scilicet, quod haec congregatio fuit a Deo facta per certam legem seu institutionem qua Deus vallavit, id est circummunuit in gyro, hoc est in circumitu abyssos, scilicet, aquarum multitudinem. Nam per gyrum, seu per circumitum sphaericum, scilicet, c. h. i. vallavit totam multitudinem aquarum virtualiter, sic quod quaelibet aquae quae sub caelo est, ad hunc gyrum ex certa lege divina habeat inclinationem connaturalem, et sic habetur verus sensus huius dicti, “certa lege et gyro vallabat abyssos”. Similiter et huius quod dicitur “Circundedi mari terminum suum” et similium. Patet etiam quartum intentum in hac figura, scilicet, quod licet in ripa maris terra et aqua in eodem loco concurrant, ut puta in d. procedendo tamen in mari per elongationem a terra mare semper est altius terra. Quod sic patet, nam si procedatur a loco d. in quo concurrunt terra et mare (ut dictum est) per elongationem a terra usque ad aliquem locum, ut puta ad locum c. qui est in superficie maris, tunc c. est locus altior quam d. Nam si protrahatur linea ab a. quod est centrum terrae seu universi usque ad c. talis linea intersecabit superficiem terrae in aliquo loco, et sit verbi gratia in g. Et cum a. d. et a. g. sint aequales, quia procedunt a centro ad circumferentiam, sequitur quod linea a. c. est maior quam linea a. d. et per consequens c. locus est altior d. quia magis ad circumferentiam universi quam d. Et quia diameter elementi aquae est in magna quantitate maior diametro terrae, ut puta in decuplum ut dictum est, sequitur quod tantum posset procedi per elongationem a terra, quod sit mare ibi altius quam montes in terra. Nam montes quantumcumque alti nullam proportionem perceptibilem habent per comparationem ad orbem terrae, ut patet in eclipsibus lunaribus, in quibus ex quantitate umbrae a terra causatae, commensuratur certitudinaliter quantitas eclipsis, nulla mentione facta de umbra montium, ratione praedicta. Idem etiam patet in commensuratione dierum et noctium, in qua non sit aliqua mentio de altitudine montium acsi esset terra sphaerica penitus, et sic

31 B, P: <.s.>
32 B: <d. c. d. e.>
33 Prov. 8:29
34 B, P: <Patet in hac figuram quartum intentum>
35 B, P: <rrīpa>
36 B, P: <aqua>
37 B, P: <b>
38 B, P: <b>
39 B: <aacedit> P: <accredit>
40 B, P: <dyametri>
41 B, P: <maius quam dyametorum terra>
42 B, P: <<>
43 P: < penitus sphaerica>
intelligitur illud Psal., “super monte sstabant aquae”, scilicet, quod altiores sunt aquae Oceani procedendo verus medium, quam montes terrae. Sequitur quintum intentum, scilicet, quod incendentes per terram ad mare descendere dicuntur, sicut patet in auctoritate praeallegata, et in aliis quod sic patet, nam assignetur aliquis locus in superficie terrae discooptetae circa ripam, et sit b. et sic protrahatur linea a centro aquae quod est f. usque ad punctum b. tunc talis linea intersecabit superficiem aquae in aliquo loco, et sit8 verbi gratia in puncto a. et tunc constat quod linea f. b. est maior quam linea f. a. et per consequens locus respectum f. quod est centrum aquae, est altior quam locus d. ubi est ripa, ut patet manifeste. Et sic patet ratio quare aquae ubicunque ponantur in terra naturaliter descendendo fluunt ad mare, nisi impediantur. Iuxta illud Eccles: “Omnia flumina intrant in mare”.

Et ex hoc sequitur quod incendentes per terram ad mare, descendentes debent dici, ut supra allegatum est, nam de communi modo loquendi, loca terrae a quibus aquae fluunt dicuntur superioresa super locorum ad quae fluunt. Patet etiam in hac figura quod terra diciturfundari super mare, ut in Psal. “Quia ipse super maria fundauit eam”. Terra enim habitabilis, s. d. b. super elementum aquae fundatur, altior enim est respetu f. quod est centrum aquae, quam totam sphaera aquae post eius congregationem et eadem ratione dicitur esse terra super flumina. Nam flumina a terra descendunt in mari ut dictum est tanquam a superiori loco ad inferiorem. Ex quibus bene consideratis potest haber verus intellectus scripturarum quae de comparatione aquae ad terram quo ad situm tractant, quae diversimode ab aliquibus expositoribus exponuntur. Patet etiam ex supradictis quod terram esse discoopertam secundum aliquam partem ab aquis modo praedicto, nulli potest attribui, nisi potestati et ordinationi divinae, ut scriptura in multis locis testatur. Unde Hierem. “Me ergo non timebitis ait dominus, et a facie mea non dolebitis, qui posui arenam terminum mari”.

Ex quo patet hoc pertinere ad omnipotentiam divinam solum. Similiter et
ad eius ineffabili providentiam, quae disponens omnia suaviter, locum
dedit aquis miro modo connaturalem, ne ulterius terram cooperirent, iuxta
illud Psalm. “Terminum posuisti quem non transgresserunt, nec converterentur
operire terram”. 58 Et hoc est satis manifestum, nam licet exiccatione 59 superficii
terrae aliquo modo possit causari ex actione solis desiccans et huiusmodi,
mutatio tamen seu separatio centri aequae a loco sibi in prima productione
debito, ad alium locum distantem, non potest causari, nisi a Deo qui solus est
institutor naturae. In hoc enim quod Deus dixit, “Congregentur aquae etc”.
modo praedicto, dedit aquis aliam naturalem inclinationem ab illa quam in
primordio habuerant, ut supra exposuit est. Et ideo rationabiliter huiusmodi
congregatio aequarum fuit facta antequam sol fieret, ut innueret terram esse
discoopertam, non per excicationem solis (ut quidam erroneae putant) sed
iussione divina. Idem patet ex modo loquendi scripturae in hoc loco non enim
dixit, desiccentur aquae quae sunt super terram, ut appareat arida, sed dixit:
“Congregentur aquae”. Quanta autem sit distantia unius centri ab altero, valde
difficile esset humanitus investigare, sed sufficit quod tanta est illa distantia,
quanta requiritur ad hoc ut praedicta inde sequantur. Potest etiam probabiliter
opinari, non tamen certitudinaliter, quod centrum aequae elementaris sit idem
cum centro lunae, eo quod elementum aequae prout experimur, sequitur
motum lunae secundum fluxum et refluxum.

58 Ps. 103:9
59 B: <exsicato>; P: <exsicatione>