

Extraterrestrials of the New World

Alexandre Vigne

The fact that the Earth is no longer seen as at the centre of the Universe is the reason normally put forward to explain the rejection of heliocentrism. However, this version does not hit the mark. We should remember particularly that Man's position at the mid-point of the heavens was not all glorious; in the medieval world's hierarchical vision, only Hell is lower than the Earth, above which rises the celestial sphere, the whole being transcended by divine infinity. Observing that this lowly spiritual position reflects a cosmic reality, Nicolas Oresme (d. 1382) thought it wiser to assign the central place to the Sun. Anticipating Copernicus, he even advanced the hypothesis that it was the Earth that moved rather than Heaven. In any case, the important point was less Man's place in the Universe than in Creation, which might in fact contain another Universe side by side with ours, also with an inhabited Earth at its centre, as certain reputable theologians maintained from the thirteenth century. Thus humanity's loss of the central position in Creation had already been sidelined by the hypothesis of a plurality of worlds. However, Giordano Bruno was condemned in 1600, eleven years before the heliocentrism of Copernicus and Galileo, for having defended the vision of an infinite Universe and the idea of extraterrestrial life. How should we explain the fact that in the thirteenth century the papacy was battling with the universities to persuade them to teach that God could create other worlds, whilst in the seventeenth century philosophers, scientists and free-thinkers were risking their lives trying to persuade the Inquisition that solar systems similar to our own exist in the Universe?

Enlargement of the Universe to other worlds

In fact it was during the century when, from Innocent III to Boniface VIII, the papacy was attempting to assume the power of God on Earth, that it took it upon itself to demonstrate its benefits in the heavens. On 18 January 1277, the Portuguese Pope John XXI (Peter Juliani, known as Peter of Spain), sent a bull to the University of Paris warning about the teaching given there. On 7 March Etienne Tempier, Bishop of Paris, representing a committee of theologians meeting in the name of John XXI, announced that it was forbidden to teach 'That the First Cause could not make several Worlds'. This ban extended to 219 other items inspired by the works of Aristotle, which the Christian West was in the process of rediscovering, especially through his Arab commentators such as Averroës, who had been translated into Latin by the Jews. After investiture, indulgences, the crusades and the inquisition, the university was turning into an institution at odds with the worldly within and without, the temporal and the spiritual. For certain

propositions being questioned were linked with a free-thinking attitude, a mixture of disbelief and scepticism, or even fiercely subversive ideology: 'Fornication is not a sin; one only needs to appear to make confession; Christian law is an obstacle to education; theologians' doctrines are based on fables; there is no need to pray; happiness is to be found in this world and not in the other; death is the end of everything; there is no need to worry about your burial place', etc.¹

Nevertheless, the opponents of the hypothesis of extraterrestrial life were certainly not all inspired by anti-clerical motives. They included many prestigious theologians seeking in the laws of matter something to justify divine wisdom, for example Thomas Aquinas (1228–1274), who thought the uniqueness of the world, far from limiting divine power, revealed it all the more. In his view, perfection was the attribute of the unique and not the multiple; as the world is unique, it was pointless for God, who cannot act in vain, to create others. Aquinas died three years before Étienne Tempier's episcopal decree, which forced his master, Albert le Grand, to come to the University of Paris to defend his teaching. In the opinion of Roger Bacon (c. 1214–1294), who studied at Oxford and then Paris, where he became master of arts, since no reason could be found to justify the creation of a limited number of worlds, an infinity had to be assumed, which was contrary to reason. These limits which he attributed to the Universe did not arise from a lack of inventiveness on Bacon's part. He promised Princes that eventually science would give them 'exterminating mirrors', 'submarine chariots', 'vapours that could kill at long range' and . . . 'flying ships'.² His ideal city, ruled by the pope with the assistance of scholars, governed the citizens by the Scriptures and science. From reading Avicenna, an Arab philosopher targeted in the 1277 condemnations, he concluded that the pope was a 'human god'. Thus Aristotle's philosophy and the Arab commentaries on it had an influence on theologians' cosmic and social doctrines but did not define any specific cosmology.

Influence of ETs on theology, cosmology and politics

Three political cosmo-theologies found favour with the popes, who were trying to maintain their independence and defend the power of God: these accepted the hypothesis of other inhabited worlds and supported either the pope's autonomy in his own sphere, or his spiritual and temporal supremacy over kingdoms and the Empire. In each case it now seemed necessary, contrary to the cosmological views of the Fathers of the Church, for divine largesse to be capable of populating the universe with life beyond the Earth. This is why two fifteenth-century theologians, fired up by cosmic daring, were able to befriend Pope Pius II (1458–1464): they were Guillaume de Vaurouillon and Nicolas de Cusa, the pioneers of spiritual exploration of the Universe.

The former had studied and taught at the University of Paris before coming to defend the papacy's powers in 1433 at the Council of Basel, which deposed the pontiff and proceeded to elect the last anti-pope in history. He wrote a commentary on the work of his Franciscan brother François de Meyronnes (d. after 1328), who was Duns Scotus's student in Paris and reported the discussions questioning geocentrism: 'A certain Doctor states that, if the Earth were moving and Heaven still, this arrangement would be the best. But this is disputed because of the variety of movements in the sky, which could not

be preserved.³ In cosmology Guillaume de Vaurouillon could see no reason why God should not have been able to create an infinite number of worlds surpassing ours in perfection. But, unlike his forerunners, he was not content to put forward this hypothesis. As a pragmatic theologian, he had to react to the consequences resulting from it. Are the species populating other worlds different from those on Earth? It is quite possible, the Franciscan admits. Can these creatures communicate with us? Yes, he goes on, but only through the angels or by the grace of divine intervention. Did Adam's sin leave a stain on extraterrestrial beings? Indeed not, our theologian assures us, because their humanity does not come from Adam. So does our redemption resulting from the Incarnation affect them? This is what he says: '... If Christ, by dying on this Earth, could redeem the inhabitants of another world, I would say He is able to do it, even if it would not be appropriate for Him to go to another world to die once more.'⁴

Maybe Guillaume de Vaurouillon was keen to raise these marginal questions of the council with Nicolas de Cusa. The latter appeared there in the same year to present a treatise designed to democratize pontifical rule without subordinating it to imperial power, a doctrine which his friend, the future Pius II, also defended in Basel. The councils, which by their very nature were conducive to debate about ideas, were designed to foster intellectual risk-taking. When he was sailing back from Constantinople with his 'orthodox' brothers, whom he was responsible for bringing back to the Ecumenical Council of Florence, Nicolas de Cusa was inspired to write *La docte ignorance* (1439). In it he sets out a vision of human beings experiencing transcendence, even in the midst of their inability to imagine the dimensions of the huge contingent universe in which they are immersed. So the future cardinal discovered that the limits of rationality are transcended experientially when he reported to Latin Christendom the first description of extraterrestrials. Pointing out that it is impossible to know the true nature of these thinking beings, he suggested: 'We suspect the inhabitants of the Sun are more sun-like, more enlightened, inspired and intellectual; we assume they are more spiritual than those on the Moon, who are more variable; and finally on Earth they are more material and crude [...] The position is similar for the regions of other stars, for we believe that not one of them is uninhabited.'⁵ The efforts of Nicolas de Cusa, which peopled the celestial bodies, and those of Guillaume de Vaurouillon, which included those beings in Christian redemption, are of interest to us because they revise the shape and limits of the Universe. Since our world is not unique, the vast heavens might be limitless and not necessarily part of a sphere. Indeed, Nicolas de Cusa maintained that there was a sphere of the stars but he claimed that they moved, just like the Earth and the other celestial bodies, even going so far as to say that their paths were not really circular, which Kepler subsequently demonstrated. In addition, his universe did not have precise proportions, it was neither finite nor infinite, and he went further than Copernicus (who admired him) in removing all traces of a hierarchy of stars, seeing the sky as 'A circle whose centre is everywhere and whose circumference is nowhere'.

Thus Étienne Tempier's decree had had a lasting effect. At Oxford Richard of Middleton (thirteenth to early fourteenth century) acknowledged its authority and adopted the hypothesis of the plurality of worlds. On the other hand, Gilles de Rome (fl. 1247–1316), a follower and contemporary of Thomas Aquinas, was obliged to accept the condemnation of his master in order to teach in his turn at the University of Paris. Similarly, Godefroi

de Fontaines (d. 1303), fearing excommunication and dismissed from his teaching post, did not teach Thomism and, like Gilles de Rome, took up the idea that God had created another universe parallel to ours. This cosmological option had the great advantage of having been supported by Henri de Gand (d. 1293), the influential theology teacher at the University of Paris, who was a member of Étienne Tempier's committee. The Aristotelians managed to make the monarchy aware that they had been sidelined and on 1 March 1473, seizing the opportunity offered them, Parliament promulgated an edict rehabilitating, in particular, Albert le Grand, Thomas Aquinas and Gilles de Rome, and excluding their opponents from Paris's university of theology: the Franciscan William of Ockham (fl. 1290–1350), who argued the hypothesis of an extraterrestrial life superior to ours, Bishop Pierre d'Ailly (1350–1420), who popularized his work as Chancellor of the University of Paris, Jean Buridan (fl. 1300–after 1358), who anticipated Galileo and argued against Aristotle for the notion of impetus to explain the continuous movement of a body, and Albert de Saxe (1316–1390), rector of the University, who believed that God could transcend physical laws to create another world.

Of course, the parliamentarians had their designs on control of university teaching rather than the issue of extraterrestrials. They were certainly either little versed in cosmogonies or considered them of no importance, for they did not even take account of teachers' political doctrines when they made their decision. In fact, they revived the dissertations of teachers who had endorsed the Church's supremacy over the State (St Bonaventure, Gilles de Rome) and suppressed the teaching of fervent supporters of the temporal power against papal theocracy (William of Ockham). Thus Parliament's support for the Aristotelians was utterly lacking in intellectual basis. It was motivated solely by the desire for power. So it was through this type of calculation, passion and ideological intervention that extraterrestrials were quite incidentally involved in the power struggles between Church and State. Their opponents managed to eliminate most of their supporters with the help of Louis XI, without him being aware of the full cosmic effect of his intervention. The hypothesis of the plurality of worlds was rejected as accidentally as it had appeared intentionally. But two events brought it back to the forefront of concerns, so much so that it turned the confrontation between the extraterrestrial party and the one-world party into a drama: these events were the Protestant Reformation and the encounter with the New World.

Copernicophiles and Copernicophobes

The Protestant reformers took advantage of the invention of printing to encourage the translation and reading of the Holy Scriptures in the vernacular. This technical revolution was decisive and presided over the emancipation of the radical reform movements and their transformation into autonomous Churches. It meant they could bypass the papacy by handing over the Church's functions to God's people, who, Bible in hand, could support the spiritual ambitions of princes and come into their own as a political and religious force. It should not surprise us to learn that the democratization of the Holy Book, by bringing about this raising of consciousness, should have encouraged some to defend, without distinguishing between them, the moral and cosmic orthodoxy endorsed by the

very Scriptures that had ensured their emancipation. Protestant scientists, philosophers and publishers interested in the new cosmology needed to retain a plausible representation of reality. As long as the religious schism remained unresolved, they could not support heliocentrism without risking spreading confusion among a section of popular opinion. An anxious Luther forcefully exclaimed: 'the madman wants to turn the science of astronomy upside down. But as Holy Scripture shows, it was the Sun and not the Earth that Joshua ordered to stop!'⁶

A follower of Luther, Phillip Melancton was also a friend of Rheticus, who had managed to persuade his master, Copernicus, to publish his world system. The anonymous preface was written by the Lutheran theologian Andreas Osiander, who presented the new cosmology as an invention, a working hypothesis. As proof of the doctrine's lack of legitimacy, Melancton's son-in-law Gaspar Peucer, a mathematician and rector of the University of Wittenberg, admitted: 'I do not stop to explain Copernicus's system, from fear that beginners are influenced by this absurd hypothesis.'⁷ Even a pastor of Calvin's calibre, convinced as he was that the Bible was not an astronomy manual and concerned for the emancipation of the sciences, sometimes found it hard to mobilize the assembly and reform the spiritual order, except by rejecting those who dared to reform the natural order:

Let us not be like those crazy people who are motivated by a spirit of resentment and contradiction and always find something to question, perverting the order of nature. We see some who are so obsessed, not only in religion, but with showing off to everyone that they are monstrous in nature, that they will say the Sun is still, and it is the Earth that moves and turns. When we see such spirits, we have to recognize that the devil has got into them, and that God is providing them as mirrors for us, to make us continue to fear him.⁸

On the other hand, a century after the warning issued by the man who had inspired them, the enlightened Puritans of New England pronounced themselves supporters of heliocentrism. Influenced by the ideas of Pierre de la Ramée, whom the University of Harvard defended, they thought that, as the senses could delude reason, the latter should work together with God's spirit to attain to knowledge of reality. Indeed they considered the new cosmology to be the sign of Man's reconciliation with Truth, given that after the Fall Adam had lost all natural understanding of celestial mechanics.⁹

The duty the early reformers felt to give an example forbade them to vulgarize this kind of argument to prove their good faith. Thus during the sixteenth century Lutherans and then Calvinists inserted maps in the Holy Book locating the Earthly Paradise. Calvin himself drew its geographical location. In opposition to those who maintained it was near the Moon – in order to explain the fact that the Flood did not affect it – he recommended that the Old Testament should be followed to the letter and that it should be relocated down on Earth. Similarly, even though the Catholic Church did not put maps in the Bible, in the seventeenth century it abandoned the plural, allegorical interpretation that had prevailed in the Middle Ages. With this in mind the influential Jesuit theologian Francisco Suarez (1548–1617) advocated the literal meaning for an understanding of creation. So the natural position of Paradise was definitely on Earth and in any case, he added, the rotation of the heavens, the wind and the proximity of the stars, among them our Sun, meant that this haven of peace could not be situated near the Moon.

Indians ejecting ET from the New World

In this context, extraterrestrials were no longer invited to sing hymns of praise to the divine glory. Being among the absent guests in the First and Second Testament, they were not about to be welcomed into theological conversations. In 1550 Melancton, who defended geocentrism in the name of Aristotle and the Bible, while at the same time appearing tolerant of Copernicus and heliocentrism, said of Christ:

We are not going to decide that he should be situated in another world so that he can also take care of other people [...] He does not appear elsewhere, any more than he died and was resurrected elsewhere. This is why we should not imagine that several worlds exist, for we should not imagine that Christ died and was resurrected more than once, and it is impossible to imagine that people could be promised eternal life on other worlds without knowing the Son of God.¹⁰

Given its hospitable tradition in regard of extraterrestrials, the Catholic Church was less forthcoming. However, presenting them in their best light would not have been enough to overcome a polite but embarrassed silence. During the sixteenth century they became even more irksome, so much so that they were soon seen as *persona non grata*. For now another being was sitting at the negotiating table: the American Indian.¹¹ Although God could populate the Universe, the Earth alone was inhabited, was Francisco López de Gomara's estimation. And according to Cortés's chaplain, 'the greatest event since the creation of the world (setting aside the incarnation and death of Him who created it) is the discovery of the Indies, which is why we call them the New World.'¹² On the other hand, Doctor Gui Patin noted a close similarity between Amerindians and extraterrestrials. In an exchange of letters, he wrote that in Paris he had met 'a man who said that above the Moon there was a new world where there were new people, new forests and new seas just like those here. I have seen another, he went on, who said that America and *tota illa terra Australis nobis incognita* was a new world that was not part of Adam's creation and that Jesus Christ did not come to save them.'¹³

This exceptional encounter raised some serious questions: were Indians members of the human race? If so, was their way of life not inferior to that of Christian civilization? If they were descended from Adam, how did they manage to reach that continent after the Flood? Could earthly paradise be situated in such a place? Rather than having a common ancestor, are human populations not the result of natural conditions existing in each land? But then how can they be equally affected by original sin? Without knowing Christ and belonging to his Church, can they be saved? On the answer to these questions depended the issues, the equity and the form of the colonial enterprise. Did the Indians' nature justify the use of force or did it require a peaceful style of evangelization? Did their millet beer and manioc flour not show forth the true Presence of Christ, just as bread and wine did, and if not, was it necessary to accept, like the Calvinists, a symbolic notion of the sacrament of the Eucharist? Should they follow the Europeans' liturgical calendar, or adapt it to their own succession of the seasons? Could they govern themselves, or should they be under administrative supervision? Was it right that France, Great Britain and Holland should be kept out of these territories, just because in his papal bulls Alexander VI (1492–1503) had granted them to their 'first occupiers', Spain and Portugal? Needless

to say, all possible answers were given and fiercely defended. The American Indians were approached through political, economic and religious interests very far removed from their universe.

The controversy over the new world gave rise to a general climate of suspicion and closer surveillance, as illustrated by the 1565 massacre of around a thousand French Huguenots on the grounds, according to their Spanish executioner Pedro Menéndez de Avilés in his letters to the anti-Protestant King Philip II, that these Florida 'Lutherans' were spreading heresy in the New World and jeopardizing the Indians' salvation. The following year the Protestants published a 'Papist World Map' which showed monks and priests with animal heads. In the view of Calvin's envoys to Brazil, Catholics were monsters, worse than the savages. For, they argued, if cannibals cook human flesh, Catholics are happy during their mass to eat raw what they believe to be the very Body of Christ.¹⁴ Christian hope was, as it were, eroded in many places by the fear of the Other. Henceforth the debate removed extraterrestrials from the agenda, especially as they were incorporated into Christian salvation by the syncretists: Garcilaso de la Vega, who was born in the capital of the Inca Empire, Cuzco, of an indigenous mother and a Spanish father, explained in 1604, in his *Royal commentaries on the Peru of the Incas*, that the Sun God sent to his homeland a couple charged with civilizing the population and, through the religion of the sun, prepared it to 'receive the Catholic faith'.¹⁵

In 1615 the Jesuit Giovanni Ciampoli reported to his friend Galileo the mistrust his words were arousing in Rome:

Be very cautious in what you say, for where you simply establish some resemblance between the Earth and the Moon, someone else embroiders on it and says you think there are people living on the Moon, then starts to discuss how they can be descended from Adam or have come out of Noah's Ark, adding many other fancy details you have never dreamed of.¹⁶

His followers were exposed to similar pressures to drop completely heliocentric cosmology and the hypothesis of extraterrestrial beings. In France the Jesuit rector of the Collège de Dijon tried, but in vain, to persuade Abbé Gassendi to call a halt to his research:

Think less of what you perhaps believe yourself than of what most other people will believe when they are persuaded by your authority or your arguments and come to be convinced that the Earth moves around among the planets. They will conclude first that, if there is no doubt that Earth is one of the planets, just as it has its inhabitants, it is right to believe that the others have them too, and that the fixed stars are not uninhabited either, that they are even superior to us, to the same degree that the other stars surpass the Earth in size and perfection. This is what caused doubts about Genesis, which says the Earth was created before the stars, and they were created only on the fourth day, to light the Earth and measure the seasons and the years. Thus the whole economy of the Word made flesh and the truth of the Gospels will be suspect. What am I saying? It will be the same for the whole of the Christian faith, which assumes and teaches that all the stars were produced by God the creator, not for other people and other creatures to live on, but solely to give light and fertility to the Earth with their rays. So you see how dangerous it is for these ideas to be spread about publicly, especially by living men who, because of their authority, seem to give them credibility. Thus it is not without good reason that, since Copernicus's time, the Church has always been opposed to this error; and that, quite recently again, not a few cardinals, as you say, but the supreme head of the Church, in a papal decree,

condemned it in Galileo, and in very holy terms (*sanctissime*) forbade the teaching of it in future, whether orally or in writing.¹⁷

Creating a precedent, one of twelve accusations brought against Bruno by the Venetian judges after his arrest in 1592 was indeed his belief in a multitude of eternal worlds.

Heliocentrism legitimized the notion of solar systems identical to our own, as the Protestant astronomer Kepler maintained; his ideas on other inhabited worlds were submitted to Galileo for his approval in 1611 by the Dominican philosopher Campanella.¹⁸ However, Galileo had rejected the idea that Jupiter, Venus, Saturn and the Moon could contain animals and people like Earth, even if he could not state that no life existed elsewhere. In 1613 he officially accepted heliocentrism, a system that was irrefutably demonstrated only with the experiments conducted by James Bradley (1728), Friedrich Besrel (1837) or Léon Foucault (1851). By adopting it, was he too going to turn into an apostle of pantheism? That is a question that may well have occurred to the Church authorities who had burnt Bruno at the stake in Rome in 1600 for having rejected the divinity of Christ while spiritualizing the celestial bodies. They were afraid that the confusion between the attributes of God and those of the Universe might efface the former in favour of the latter. Events proved them right, for that is exactly what happened. In a short space of time the status of God changed and henceforth was concerned only with ensuring harmony among the elements of the cosmos. At Cambridge Newton taught that He needed space in order to feel things and move the parts of the Universe. Universal gravitation affected not only the heavenly bodies but also the chosen, who became the true extraterrestrials:

And just as Christ, after his sojourn in the regions of this Earth or near these regions, rose up to heaven, so, after the resurrection of the dead, it will be in their power to quit this Earth when they wish and go with Him to any part of the heavens, so that no region of the entire Universe shall be without inhabitants.¹⁹

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With the exploration of vast stretches of the earth and sky the medieval relationship between life on earth and life beyond was utterly transformed. In the vertical hierarchical Universe of the Middle Ages the figures of God, Angel and Man are seen as distinct. By contrast in the horizontal non-hierarchical world of Bruno and Galileo, the picture seems to become blurred, since Heaven and Space end up meeting and merging. It was the identification of God with the Universe that the Inquisition feared when it reduced Galileo to silence and Bruno to ashes. The telescoping we have noted at many points was also picked up by the English bishop Francis Godwin whose *Man in the Moon* (written c. 1627–29) implies that the Indians are descended from the Selenites who have lost their way in the New World; similarly, the Spanish Jesuit Baltazar Gracián y Morales reports that *The Hero* (1630), Charles V, expressed his anxiety in these words: 'Is there another world to rule?' Extraterrestrials, who were created by an episcopal decree dated 7 March 1277, should be capable of existing, according to the Bishop of Paris acting in the name of the Portuguese pope John XXI, since nothing was impossible for God. Indeed, but then fiction turned into reality and divine power encountered human limits. The controversies involving theologians and *conquistadores*, missionaries and slave-traders, Catholics and

Protestants, pope and emperor, as to Amerindians' nature, origin or civil and religious rights, encouraged the Roman Curia to stifle speculation about inhabited planets. On 19 June 1538, or a year after his bull *Sublimis Deus* (9 June 1537), which included savages among the human race and forbade the trade in them, Paul III withdrew his threat to excommunicate persistent offenders, under pressure from the Spanish government. The revolutions described by Copernicus and Galileo were becoming confused with those of the 'extraterrestrials' from the New World.

What is the position today, now that human history has become one and walks in space? When the first men on the moon returned to earth, Paul VI stated that 'It would be a sin of omission' and 'It would be stupid not to reflect on this superhuman historic adventure . . .' (papal audience of 23 July 1969). Following in his footsteps, John Paul II said he wished to rehabilitate Galileo personally (address at the University of Pisa, September 1989), the doctrine of evolution (address at the Papal Academy of Sciences, October 1996), and recently Copernicus (speech at the Nicolas Copernicus University of Torun, June 1999). However, the context of the debate has also been transformed. Unlike Renaissance Europeans, we can no longer suddenly discover a new living world and acclimatize ourselves to it. In the short term only the opposite hypothesis, an extraordinary visit, is plausible, since the Mariner satellite in 1971 and the Viking mission in 1976 have shown that Mars, the nearest to us and the most habitable planet in our solar system, has definitely not supported intelligent life. Thus, at this stage in our progress, the aim is limited to establishing human colonies in space by building spaceships or taking life to another planet. Still, is there no extraterrestrial to be glimpsed on the horizon? In adapting to their new environment, human beings could very well be tempted to modify their genetic heritage. Then the challenge that would be forced on the Judeo-Christian would not only be to answer the question: will human beings live in space? For behind this fundamental question another one slips in that has an entirely different ethical and spiritual dimension: what species will they belong to?

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(translated from the French by Jean Burrell)

Notes

1. Propositions listed by Etienne Gilson (1962), in *La philosophie au Moyen Age. Des origines patristiques à la fin du XIVe siècle* (Paris, Payot, 2nd ed.), p. 559. See *La condamnation parisienne de 1277*, latin text, translation, introduction and commentary by David Piché, with the assistance of Claude Lafleur (Paris J. Vrin, 1999).
2. See George de Lagarde (1956), *La naissance de l'esprit laïque au déclin du Moyen Age* (Louvain-Paris, Editions Nauwelaerts), vol. II, pp. 151–152.
3. François de Meyronnes, *Commentaires sur les Sentences*, quoted in Etienne Gilson, *La philosophie au Moyen Age, op. cit.*, p. 611.
4. Guillaume de Vaurouillon, *Sentences, distinction XLIV, Livre I*, quoted by Steven J. Dick (1989), *La pluralité des Mondes*, trans. Marc Rolland (Arles, Actes Sud), p. 64.
5. Nicolas de Cusa, *La docte ignorance*, trans. Pierre Duhem (1965), in *Le Système du Monde, Histoire des doctrines cosmologiques de Platon à Copernic* (Paris, Hermann), 10, p. 324.
6. Martin Luther, *Tischreden*, quoted by Alexandre Calame in the introduction to Bernard Le Bovier de Fontenelle (1966), *Entretiens sur la pluralité des Mondes* (Paris, Librairie Marcel Didier), p. xxxiv. According to Lauterbach, a witness to the scene, Luther expressed his view with less force and anxiety: 'People who wish to be

- intelligent should not be satisfied with others' opinions. They should always say what they believe themselves, just like that fellow who wants to overturn the whole of astrology. But even though astrology has been upset, I personally believe in Holy Scripture for Joshua [cf. Joshua 10, 12–14] commanded the Sun and not the Earth to stop.' Martin Luther, *Tischreden* quoted by Richard Stauffer (1975) in 'L'attitude des réformateurs à l'égard de Copernic', *Avant, Avec, Après Copernic. La représentation de l'Univers et ses conséquences épistémologiques* (Paris, Librairie Albert Blanchard), p. 160. This position of Luther's, which is less forthright than the previous one, fits with his belief, also articulated in his after-dinner speeches, that 'Wisdom, intelligence, knowledge, the pen, that is what should rule the world'. Martin Luther (1975), *Propos de table*, trans. Louis Sauzin (Paris, Montaigne), vol. II, p. 476.
7. Gaspar Peucer (1571), *Hypotheses astronomicae*, quoted by Pierre Marcel (1980), in 'Calvin et Copernic. La légende ou les faits? La science et l'astronomie chez Calvin', *La Revue Réformée*, 31, March, p. 162.
 8. Jean Calvin, *8ème Sermon sur I Co 10, 19–24*, a sermon delivered c. 1556 and published in 1558, *ibid.*, pp. 26–27.
 9. See Donald Fleming (1964), 'The judgement upon Copernicus in Puritan New England', *L'aventure de l'esprit, Mélanges Alexandre Koyré* (Paris, Hermann), 2, pp. 160–175.
 10. Philipp Melancthon (1550), *Initia doctrinae physicae* (Wittenberg), quoted by Steven J. Dick, *La pluralité des mondes*, op. cit., p. 129. His *Doctrines of Physics* were published in nine new editions between 1550 and 1566.
 11. On Europeans' view of that Other challenging them, see Jean-Bruno Renard (1984), 'L'homme sauvage et l'extra-terrestre: deux figures de l'imaginaire évolutionniste', *Diogène*, 127, July–September, pp. 70–88.
 12. Francisco López de Gómara (1552), *Hispania victris, Primera & segunda parte de la Historia general de las Indias*, quoted by Jacques Lafaye (1974), in *Quetzalcóatl et Guadeloupe. La formation de la conscience nationale au Mexique* (Paris, Gallimard), p. 59.
 13. Gui Patin, letter of 14 Septembre 1643, in *Lettres de Gui Patin*, presented by J.H. Reveillé-Parisse, J.B. Baillière (Paris, 1846), 1, p. 297.
 14. See Franck Lestringant (1996), 'Calvinistes et cannibales: les écrits protestants sur le Brésil français (1555–1560)', in *L'expérience huguenote au nouveau monde (XVIe siècle)*, (Geneva, Droz), pp. 77–118
 15. See Alfredo Gómez-Muller (1993), 'L'être-Métis: l'inca Garcilaso de la Vega', in *Penser la rencontre de deux mondes*, under the direction of Alfredo Gómez-Muller (Paris, PUF), pp. 35–61. The prime position given to the Sun must have seemed intolerable to Europeans, who were convinced of the superiority of values over phenomena and discovered that the Indians started wars or sacrificed their children in order to feed warm hearts to the incandescent star.
 16. Letter from Ciampoli to Galileo, February 1615, quoted by Camille Flammarion (1864), in *La pluralité des Mondes habités. Étude où l'on expose les conditions d'habitabilité des terres célestes discutées au point de vue de l'astronomie, de la physiologie et de la philosophie naturelle* (Paris, Didier et Cie), pp. 425–426.
 17. Letter addressed by Father Gazrée to Gassendi three years after Galileo's death, quoted by Camille Flammarion, *ibid.*, pp. 426–427.
 18. Campanella fit éditer par son ami luthérien Tobias Adami une 'Apologie de Galilée' (1622). Lire l'introduction de Richard J. Blackwell à l'édition anglaise de Thomas Campanella, 'A Defense of Galileo, the Mathematician from Florence', translated by Richard J. Blackwell, University of Notre Dame Press, London 1994, p. 157.
 19. Isaac Newton (1996), *Écrits sur la religion* (Paris, Gallimard), p. 261.