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## **Looking at the Earth from Outer Space: Ancient Views on the Power of Globes**

Christian Jacob

Globes belong to the history of cartography. But there is something special with them. The making of globes, indeed, is a specific technical process. Globes are three-dimensional artifacts, built from various materials, wood, metal, cardboard, plaster and so on. Their visible spherical surface sometimes hides a sophisticated construction. Globes need a pedestal and machinery allowing them to rotate around an axis. Various technical tricks allow the display of the map on their spherical surface: either the map is drawn directly on this surface, either a manuscript or a printed map is pasted onto it. But it is impossible to paste a square sheet of paper onto a spherical surface. The map has to be cut into ellipsoidal sections, from North to South, in order to fit to the spherical surface, from pole to pole.

The Stewart Museum exhibition suggests very strongly the special place of globes within the history of cartography. Globes add many dimensions to the flat map itself. Most of them are masterpieces of artistry, and the art of mapmaking meets the art of the goldsmith or silversmith, of sculpture, of three-dimensional modeling. Some globes were standard objects. Other

globes were made to measure objects, intended for princes, kings, and aristocrats of the Church or of the Court. Such globes condensed the best of the art and of the artistry in a given area and at a given period.

But the specific nature of globes is not limited to these technical features or to their artistic achievement. Globes add something else, and cannot be simply considered as three-dimensional maps. Looking at a globe, settling a globe in one's own house, or in a palace, has specific effects. Looking at a globe is not like looking at a map. It is much more than that.

Actually, a mappamundi, an atlas, a terrestrial globe, all these devices are supposed to display a whole picture, or a picture of the whole. There is not only one single way to view the whole world. Its totality can be grasped through various devices, from various standpoints. The mappamundi and the world map are offered to a panoptic gaze: the entire world is under my eyes, as a single flat surface that does not conceal anything. The network of parallels and meridians is depicted as a grid, with or without the illusion of curvature, and the gaze of the observer is supposed to re-establish the continuity broken by the projection on a flat sheet of paper.

Looking at a world map is a way to achieving a visual mastery of the Earth in its entirety. It is a cultural vision, since the geographical picture is usually framed according to our Western point of view. Laplander, Inuit, Chinese, Oceanian, Australian viewers could conceive different centered pictures of the world. But one has to train oneself in order to shift from the flat projection to the three-dimensional appearance of the sphere: the terrestrial

globe exists only in the imagination of the viewer, familiar with the visual codes of maps.

If a world map allows the vision of the whole, the atlas brings an encyclopedic and a dynamic mastery of the world: shifting from the regional maps to the continent or world map is the specific visual and intellectual exercise involved into the browsing of an atlas. The viewer has to shift from the partial views to the whole view and from the whole flat view to the vision of the terrestrial sphere itself. The totality is grasped through the accumulation of partial views, as a quantitative effect and as a visual zooming through the scales of cartographic representation.

The sphere itself provides an additional degree of mimesis. The viewer stands in front of the world. He or she can grasp its spherical form. He or she can turn around it. He or she can see it from above, from below. He or she can see it as a totality, from a distant position, or observe its details, from very close. Looking at the globe implies a gain in mimesis -- one looks at the Earth as a sphere -- but also a loss, since the ideal, the continuity of the world map, is now broken, is limited by an horizon, by the curvature of the sphere. Looking at the globe is losing the synoptical gaze upon the map. One can see only one half of the world. This could have symbolic consequences. Turning around the sphere or making the sphere turn around its axis, the viewer looks at one terrestrial hemisphere slowly rotating. According to the way he or she moves, a part of the Earth appears while the other vanishes. The viewer is like the Sun, either in a pre-Copernican cosmos, when turning around the Earth and illuminating it through his or her gaze, or in a post-Copernican cosmos: if the terrestrial

sphere itself is rotating, one of its hemispheres being exposed to the Sunlight, while the other is dark. Looking at a terrestrial globe has such cosmological implications<sup>1</sup>.

A terrestrial globe is not only a map. It is also a statement about the materiality and about the shape of the world. The globe is a model of the world. In the Western tradition, globes are supposed to depict the terrestrial as well as the celestial sphere. The same geometric form applies itself to the Earth and to the sky. In a striking way, the material object relies on metaphysical and physical hypotheses. It presupposes a cosmological system, where the form and the place of the Earth are defined in relation with the form and the organization of the cosmos. This correspondence, this analogy between the two spheres, were the starting points of ancient Greek astronomy and cartography. They allowed a bold hypothesis: observing, measuring and conceptualizing the celestial sphere was a way of exploring and organizing the terrestrial one. Calculations on the former were analogic tools allowing one to determine terrestrial locations. Since the axis of the world cut the celestial and the terrestrial sphere, and since the two spheres had the same centre, it was possible to construct an analogy between the circles of the celestial sphere and the circles of the terrestrial sphere: equator, tropics and celestial circles<sup>2</sup>.

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<sup>1</sup> For a general survey of this tradition, see Denis E. Cosgrove, *Apollo's Eye: A Cartographic Genealogy of the Earth in the Western Imagination* (Baltimore, 2001).

<sup>2</sup> See Germaine Aujac, *Strabon et la science de son temps* (Paris, 1966); *La géographie dans le monde antique* (Paris, 1975); "The Foundations of Theoretical Cartography in Archaic and Classical Greece. Prepared by the editors from materials supplied by Germaine Aujac", in: *The History of Cartography, Volume One, Cartography in Prehistoric, Ancient and Medieval Europe and the Mediterranean*, ed. J. Brian Harley and David Woodward, (Chicago-London, 1987), 130-147; "The Growth of an Empirical

A terrestrial globe by itself does not tell us if the depicted Earth is mobile or immobile, if it is at the centre of the whole universe or if it is only a heavenly body among many others. To a certain extent, a schematic celestial sphere does not necessarily reveal its cosmological foundations either. The history of globe making in the Western world cannot be separated from the history of cosmology. The Copernican revolution, for instance, changed the meaning, the function, and the power of globes. At least, it did so for the viewer who was familiar with cosmology and astronomy. A terrestrial globe by itself is not a statement about the place of the Earth in the cosmos: is the Earth at its centre? Is it immobile or is it moving around the Sun? One can look at the terrestrial globe from these two different hypotheses. The viewer, in his or her mind, has to choose between these options. He or she could also decide to look at the globe for itself, without considering its cosmological surrounding. While delivering some basic and identical information, such as the geographical outlines, the meaning of a terrestrial globe could vary according to these options and hypotheses.

Looking at a terrestrial or at a celestial globe is something special. Globes condense all the symbolical effects implied in the viewing of maps. Any map is a metaphysical device and questions the viewer: Who am I? What is my place? From which place am I looking at this map? The globe adds another dimension. I am not only above the space depicted: I look at it from the outside. I am elsewhere, and from elsewhere, my gaze looks at the Earth where I am, where I live, from which I see and from which I think.

In my ongoing research on the subject of cartography, I have always been fascinated by this basic question: what do we look at when we look at maps?<sup>3</sup> I think that terrestrial globes push this question a step further. What does it mean to look at the Earth from the outside, from outer space? What does it mean to look at the Earth as a totality, as a physical spherical body and not only as a flat drawing? A very intellectual and abstract training is needed for separating oneself from the world where one lives, for considering it as an objective, as an external reality.

Such fundamental questions concern the place of the viewer, that is, his or her identity, his or her belonging to this world. More than maps or atlases, globes summon up all of a society's concerns about its relationship with the world, with reality, with space and time, with divinity and eternity. Such a visual experience has intellectual consequences and leads to a critical examination of basic metaphysical assumptions: What is the world I am living in? And who am I in this world?

There is not a single, general answer to these questions. On the one hand, the history of globe making looks like a continuous process, with steps of technical and material improvements. Globemakers always had to deal with the same basic problem: how does one draw geographical outlines on a spherical form? On the other hand, the metaphysical questions raised by globes make sense only within a specific cultural area and at a given time,

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<sup>3</sup> See Christian Jacob, *L'Empire des cartes. Approche théorique de la cartographie à travers l'histoire* (Paris, 1992). American translation: *The Sovereign Map*, The University of Chicago Press, forthcoming.

for people sharing a given knowledge, basic questions and philosophical hypotheses.

The existence of terrestrial and celestial globes, from classical Antiquity to today, from Western culture to Islamic or Chinese culture, does not imply that these globes always had the same functions and the same meaning. The object itself does not have an intrinsic meaning, independent from its cultural and historical background. It makes sense only when it meets the gaze of a viewer, with his or her knowledge and his or her mental representations. And sometimes it could not make sense at all, if the viewer does not share the basic cosmological assumptions implied in the spherical form of the world. This is a general issue in the history of cartography. Maps and globes answer questions raised at a given time, in a given culture. Maps and globes are social artifacts: their purpose is to make sense within a group or a society, to be a shared representations allowing discourses to be understood and symbolic values to be effective. As a matter of fact, philosophy, history, ethics and the sciences give sense to the challenging visual and intellectual experience of looking at a globe, assumed to be a model of the world where we are living. Any society, any culture provides viewers with specific tools allowing them to make sense of the world in which they are living. These tools could be myths, religious beliefs, scientific theories, visual models. Within one culture, one could find various discourses, from the scholarly and esoteric level to the popular level. Depending on the shared knowledge, on the available intellectual tools and on the specific training of the viewers, there will be different ways of looking at globes, not only from one society to the other one, but also within one society, between its various social and cultural communities. The



intellectual, spiritual and imaginary effects will vary according to the identity of the viewers.

Globes belong to a general class of objects: models. Miniaturization, abstraction, symbolization and intellectual effectiveness are among the key features of models. Models allow the grasping of a level of reality that cannot be reached through the senses. Models allow the viewer to act upon an inaccessible reality, to study it and to understand it, to comment on it, through a mediation. A model can be a three-dimensional object, a drawing, a statement or a concept. The terrestrial globe is a statement and a concept, for instance, when one says: "Earth has a spherical shape.". Both the map and the globe are material models, but these models differ in their scope and in their effectiveness.

In this contribution, I would like to suggest the network of cultural links, of social behavior, of scholarly practices involved in the viewing of globes in Antiquity. It is my hope that this case study will shed light on the basic methodological assumptions I have discussed above.

Let us consider this Roman mosaic, the so-called "Mosaic of the Philosophers". Are we in Athens? Or in Alexandria? Are we in a garden? In the courtyard of a philosophical school? Or in the courtyard of the Museum of Alexandria? Seven bearded philosophers are sitting or standing, in the shade of a tree or of an *exhedra*. This kind of building with its portico was common in the Hellenistic world. It was associated with philosophical schools and also with the Museum of Alexandria. In the background, we can see a column and at the top of it, a Sundial. These philosophers look

serious and focussed. They hold papyrus book-rolls. They are listening to a lesson or a lecture. On the left, a philosopher seems to provide his fellows with explanations. At the centre of the scene, one can see a sphere incised with lines. One of the philosophers directs a stick toward the sphere, and it is obvious that the sphere is the focus of the conversation or of the lesson.

The so-called “ Mosaic of the Philosophers ”, found in Torre Annunziata, in Pompeii, is dated from the beginning of the 1<sup>st</sup> century A.D. It is contemporary with Augustus and Strabo. This mosaic is probably a copy of a previous Hellenistic painting, since it could be compared to another mosaic, currently shown at the Villa Albani in Rome. These two mosaics are variations made from a same model.

Historians have suggested various identifications of these characters: are they the Seven Wise Men surrounding Thales of Miletus? Or is it the School of Aristotle? Or is it a meeting of Platonic philosophers at the Academy in Athens, discussing the new astronomical theses of Heraclides Ponticus?

In a recent monograph, a German historian, Conrad Gaiser, tried to identify the characters depicted, the meaning of the drawings seen on the sphere, and the stage of the history of Greek astronomy that is alluded to<sup>4</sup>. He concludes that the depicted scene took place in the Museum of Alexandria, and that one of the characters was Eratosthenes himself. He also

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<sup>4</sup> Konrad Gaiser, *Das Philosophenmosaik in Neapel. Eine Darstellung der Platonischen Akademie* (Heidelberg, 1980).

concludes that the double system of parallel lines seen on the surface of the globe refers to Eratosthenes's astronomical work, while he was a member of the Museum of Alexandria. We can see two systems of parallel lines, the first one according to the horizon line that defines the visible hemisphere of the celestial sphere from a given terrestrial stand-point, the second one according to the circles of the celestial sphere, that is, polar circles, tropic circles and the equator.

I will not comment upon the astronomical meaning of this particular globe, but I will rather raise a general question. Why did Ancient philosophers take an interest in globes? There is a first obvious answer: mathematics, astronomy and geometry were parts of philosophy. They were tools for exploring the cosmos, its structure, and its laws. The Schools of Pythagoras, of Plato and of Aristotle gave an important place to cosmological speculation, as well as to geometry, and to other scientific disciplines. The Museum of Alexandria continued this tradition: Eratosthenes had his philosophical training in Athens, in the School of Plato, and he was responsible for the development of a whole field of scientific studies in Alexandria, influenced by philosophy: these included cartography, geodesy, astronomy, chronology, all these disciplines were ruled by calculation, numbers, symmetry and intervals<sup>5</sup>.

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<sup>5</sup> For a general survey of the scientific activity in the Museum of Alexandria, see Peter M. Fraser, *Ptolemaic Alexandria* (Oxford, 1972; reprint 1998), vol. I, chapt. 6: "Ptolemaic Patronage: the Mouseion and Library" (pp. 305-335) and chapt. 7: "Alexandrian Science" (pp. 336-446).

The “ Mosaic of the Philosophers ” is most likely the representation of a working session in a philosophical school or in a “research institute” such as the Museum of Alexandria. The three-dimensional model is a visual aid for the understanding of the rules of the cosmos, of its organization, of its complex mechanism. There is a relationship between the drawings on the globe and the basket that supports it: this basket defines the visible horizon of the sphere and hides the other one from the gaze of the viewers. But looking at a celestial sphere goes beyond mathematics and cosmology. Or rather, mathematics and cosmology are not necessarily an end in themselves. Ancient philosophy was not restricted to pure scientific research but dealt also with metaphysics and ethics. Actually, there was no gap between the former and the later, but rather a natural continuity.

Specialized philosophers and scholars were involved in complex astronomical speculations and calculations. They belonged to philosophical schools or to the Museum in Alexandria. Such themes were also addressed in public lectures, in written treatises, in social circles. They were also evoked by iconography, such as coins, wall paintings and mosaics<sup>6</sup>. Metaphysics and ethics were more commonly widespread among individuals interested in philosophy.

By the time the “ Mosaic of the Philosophers ” was set on the floor of a Pompeii villa, at the beginning of first century A.D., Platonic and Stoic philosophies were fashionable trends among wealthy and literate Romans, fond of Greek culture. Themes of this philosophy were diffused not only in

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<sup>6</sup> See Pascal Arnaud, “L’image du globe dans le monde romain: Science, iconographie, symbolique”, *Mélanges de l’École Française de Rome (MEFRA)*, 96, 1 (1984), 53-116.

specialized treatises, such as Plato's dialogues, but also in a more understandable form, in literary texts, in moral exhortations and dialogues, in letters. To name but a few authors, Cicero (first century B.C.), Seneca and Plutarch (first century A.D.), Marcus Aurelius, Lucian and Maximus of Tyre (second century A.D.), all contributed to the diffusion of philosophical topics beyond the circle of specialists. Such a popularization is an interesting cultural phenomenon: philosophical themes were widely spread through the educated levels of the Roman Empire society, Latin-speaking and Greek-speaking.

In this philosophical vulgate, a recurring theme is the power of the human soul which can free itself from the body, move freely and wander through the whole cosmos, without the restraints of our human and mortal condition<sup>7</sup>. So, the soul can ascend to the sky, while the body stays on the ground. In the sky, the soul can contemplate the cosmos, the human world as well as the physical or the divine world. Flying from the body, the soul is freed from the flesh, from its desires, from its diseases, and it then becomes a pure gaze, absorbed in contemplation. It contemplates truth, the real nature of the cosmos, and not colours, physical shapes, misleading clouds. The "eyes" of the soul are different from the "eyes" of the body. They look at the reality itself, not at its appearances.

Such a split between the soul and the body occurs indeed at the time of death, when the soul leaves the body and reaches the upper regions of the cosmos, either the Moon, or the Sun, or the sphere of fixed stars. But the

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<sup>7</sup> In this paper, we are summarizing the main lines of a work in progress, "Flights of the soul", a part of my forthcoming book *Daedalus the Geographer*.

flight of the soul could be experienced by humans during their lifetime, while sleeping and dreaming or while practicing philosophical meditation. There is a long and fascinating tradition in the Ancient world about magicians and shamans who were able to leave their bodily envelope for a time and to travel through the world as mere souls<sup>8</sup>. Magicians usually claimed the ability to fly, and under the reign of Nero, that is, 1<sup>st</sup> century A.D., one of them tried to fly from the top of an amphitheater in Rome, in the presence of thousands of viewers and of the emperor himself. Indeed, he crashed to the ground<sup>9</sup>. The interesting fact, however, is that thousands of people gathered to view the event. Dream and meditation were safer ways to experiment with human flight, to simulate the experience of death, and to separate the soul from the body, in order to let the soul freely contemplate the cosmos<sup>10</sup>. Such a philosophical pattern has strong epistemological consequences. Flying from the terrestrial world to the celestial world, the soul goes beyond the misleading appearances seen through the eyes of the body. The soul does not encounter any barrier: it flies over the surface of the terrestrial sphere, across lands and seas, follows the Sun through its course, the planets moving above the Earth. Encyclopedic knowledge is

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<sup>8</sup> See James David Pennington Bolton, *Aristeas of Proconnesus* (Oxford, 1962), as an entry-point into the question of ancient Greek shamanism. On the topic of the ascension of the soul: Ioan Petru Culianu, *Psychnodia I. A Survey of the evidence concerning the ascension of the soul and its relevance* (Leiden: 1983).

<sup>9</sup> See Ioan Petru Culianu, "Le vol magique dans l'Antiquité tardive (Quelques considérations)", *Revue de l'Histoire des Religions*, 198, 1 (1981), 57-66.

<sup>10</sup> For a general frame about this "spiritual practice" of ancient philosophers, see Pierre Hadot, "La terre vue d'en haut et le voyage cosmique. Le point de vue du poète, du philosophe et de l'historien", in *Frontiers and Space Conques: the philosopher's touchstone*, ed. Jean Schneider and Monique Léger-Orine (Dordrecht, 1988), 31-39; Pierre Hadot, *La citadelle intérieure. Introduction aux Pensées de Marc Aurèle* (Paris: 1992).

thus within easy reach: the soul can grasp either knowledge of the celestial and divine world, or knowledge of the human world itself.

At the same time, this intellectual gaze can grasp the whole reality and all its individual parts. Flying from the Earth to the sky, the soul moves away through successive steps, from large-scale to small-scale views of the Earth. At a certain point, the Earth is seen as a sphere, one that encompasses the inhabited part of it. Then, the eye of the soul encompasses the whole world. At that time the Earth might disappear.

The flight of the soul is a very common topic in the literature of the first centuries A.D. I would like to suggest that cartography could be related to this topic, and that looking at a map, at a terrestrial or at a celestial globe, was a way of experiencing this cosmic gaze of the soul and for triggering the meditation process. In this hypothesis, the cartographic drawing or the three-dimensional model were used as a visual and a material help for meditation. They could be compared to Tibetan mandala maps, those cosmological drawings used to explore the metaphysical worlds: vision induced a mental and a spiritual process<sup>11</sup>. Looking at a map or at a globe is experiencing the division between the soul and the body. The body stays on the terrestrial ground, while the soul looks at the Earth from outer space. Just as in the meditation experience, this vision from above and from a distant viewpoint makes abstraction of the colours and of the empirical

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<sup>11</sup> See *The History of Cartography, Volume Two, Book two, Cartography in the Traditional East and Southeast Asian Societies*, ed. J. Brian Harley and David Woodward (Chicago-London: 1994), specially chapter 15, *Maps of Greater Tibet*, by Joseph E. Schwartzberg, pp. 607-681.

forms that clutter up the vision of Earthly things. Geometry is the vehicle of the soul, its is compared to a chariot flying through the cosmos: it carries the soul above the Earth, and along the path of stars. The soul can see the rising and the settings of celestial bodies, their complex trajectories. Looking at a celestial sphere or at an armillary sphere provides such a geometric and a structural vision. As in the flight of the soul, the viewer of the globe discovers the cosmos as a piece of machinery ruled by reason and understandable through reason<sup>12</sup>.

A poetic epigram, supposed to have been written in the second century A.D. by Claudius Ptolemy, the astronomer and mapmaker, clearly links the metaphysical frame of astronomical observation<sup>13</sup>: “ I know I am a mortal and my lifetime is only one day long. But when I am looking after the circular and ongoing revolutions of stars, my feet are no more on the Earth, I am close to Zeus himself and I feast myself with ambrosia, the food of gods .”

This poem suggests the symbolic relationship between observing the machinery of the stars -- possibly through an armillary sphere -- and the cosmic flight, making the observer an equal of the gods. Humans reach immortality through the cosmic gaze on the world.

This epigram by Ptolemy is perhaps a fake: Greek poets sometimes attributed their verses to famous scholars or characters. However, this

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<sup>12</sup> See Maximus of Tyre, *Orations*, XXXVII. 8; Marcus Aurelius, *Meditations*, VII 47; Seneca, *Natural Questions*, I.12.

<sup>13</sup> *Palatine Anthology* , IX 577.



epigram is also part of a well-known tradition. In the third century B.C., Eratosthenes, who is possibly depicted on the “Mosaic of the Philosophers,” wrote a cosmological poem entitled “Hermes.” It was an account of a cosmic journey of the god Hermes, looking at the Milky Way, at the Harmony of Spheres and at the terrestrial sphere itself, at the centre of the celestial sphere: the Earth displayed its climatic zones, easily recognizable through their colours: torrid zones, frigid zones, temperate zones. In the northern temperate zone lay the inhabited Earth, that is, our human world. In the southern zone lived the humankind of the Antipodes<sup>14</sup>.

It is noteworthy that Eratosthenes and perhaps Ptolemy, two leading mapmakers and astronomers of Alexandria, chose poetry and the theme of the cosmic gaze to evoke their activity.

Eratosthenes’s poem was one of the sources used by Cicero in his famous description of the cosmos and of the terrestrial sphere, in the *De Republica*<sup>15</sup>. This episode is known as the *Dream of Scipio* and was the starting point of a long tradition through Western culture<sup>16</sup>. The whole pre-Copernican cosmos appears under the eyes of Publius Cornelius Scipio. Nine spheres are enclosed each in another, from the Earth at the centre, to the sphere of the sky with the fixed stars, that is, the outer limit of the

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<sup>14</sup> John Undershell Powell, *Collectanea Alexandrina* (Oxford, 1925), fragm. 13 and 14.

<sup>15</sup> Cicero, *De Republica*, VI.17. See also *Tusculans*, I.28.68-69.

<sup>16</sup> The main link with the Western European tradition is the *Commentary* written by Macrobius (fifth century A.D.). During the Middle Ages, this text inspired the drawing of schematic zonal mappaemundi: see David Woodward, “Medieval Mappaemundi”, in: *The History of Cartography, Volume One, Cartography in Prehistoric, Ancient and Medieval Europe and the Mediterranean*, ed. J. Brian Harley and David Woodward (Chicago-London: 1987), 353.

cosmic sphere. The sphere of the sky is moving according to a circular motion. Between the Earth and the sphere of the sky, the seven spheres of the planets are rotating in the opposite direction. The Earth stands motionless, at the centre. In front of this dramatic panorama, Scipio however keeps focussed on the terrestrial globe. Like the Hermes referred by Eratosthenes, he looks at the climatic zones of the Earth. Unlike Hermes, he also looks at the four inhabited worlds symmetrically distributed over the surface of the globe. Such a view of the terrestrial globe was held in Pergamon, not in Alexandria. Stoic philosophers shared it, but not a Platonist such as Eratosthenes.

Among these four worlds, the world actually inhabited by humanity, that is, the Roman Empire, was only a tiny part of the Northern Hemisphere of the terrestrial globe.

Seen from the cosmos, the terrestrial globe appears as a geometrical sphere: the viewer contemplates a structure, such as the division of climatic zones. For Cicero, such contemplation provided far more knowledge than travelling through the known inhabited Earth, from west to east, from north to south.

In these philosophical speculations, the gaze of the soul or the gaze of the dreamer are directed towards the Earth. But they are also located within the celestial sphere, somewhere between the sphere of the fixed stars and the Earth. The cosmos was then finite, and the only possible or conceivable standpoint was from within the cosmic sphere itself. In the “Mosaic of the Philosophers,” we have a typical scene where human observers look at a

three-dimensional model of the celestial sphere. They look at it from the outside. But that is from an impossible standpoint.

What is striking is the shift from the philosophical meditation scenario to the look at the artifact, at the three-dimensional model. Looking at the cosmos from the outside, the standpoint of these philosophers is nowhere. They stand outside the celestial sphere, beyond the fixed stars sphere, the final sphere of the cosmos. On the contrary, in philosophical texts, the soul always stays within this sphere. Looking at the celestial sphere from the outside, the philosophers of the mosaic define the border between reality and representation, between life and imagination, between the empirical world and the mimesis of the cosmos. This distance is perhaps the prerequisite condition for defining a new relationship between the viewing subject and the viewed reality. Such a gap makes possible an intellectual distance between the thinking subject and the object of thought. The model externalizes the reality to be conceived. Mastering the external shape of the celestial sphere means viewing it from the outside and looking at the whole cosmos through its external surface. Looking at a celestial globe from the outside is training oneself in order to penetrate into the sphere and to let one's gaze wander within it, looking at its machinery and at the terrestrial globe that stands at its centre.

One could stress the fact that the philosophers of the mosaic are looking at a solid sphere of the sky. Even if the original model of the artist was an armillary sphere, with metal circles, it is now a solid sphere. Looking within this sphere is out of the reach of the bodily senses. Only the soul can penetrate this surface and wander within the sphere. So I propose again the

hypothesis that material globes acted as triggers of an intellectual process, and that the viewing of them allowed the experience of the journey of the soul within the globe itself. This means that globes were, so to say, visual aids to philosophical meditation. Viewing them helped in testing the dissociation of the soul from the body, the shift from the empirical world to the world of abstraction, from the vision of the senses to the vision of the mind. One can then understand why it was fashionable, in the Hellenistic and Roman world, to have spheres depicted on the ground or on the walls of houses.

I would like to stress a final point. Looking at the Earth from the celestial sphere has strong ethical consequences. Even the solid celestial sphere of the “ Mosaic of the Philosophers ” raises the question of the looking at the centre of it, that is, at the Earth.

The cosmic flight of the human soul leads the viewer to experience the variation of scales. From the sky, from the celestial sphere, the Earth looks like a dot. Greek astronomers stressed the fact that from the most remote sphere of the fixed stars, the Earth would not be visible at all<sup>17</sup>. Philosophers and moralists used this evidence as a way to revise the scale of human values and pride. Looking at the Earth from outer space is expressed by the Greek verb *kataskopein* (Latin: *despicere*). Its meaning is at the same time looking from above and despising what is seen. This intellectual and spiritual view-point first leads the viewer to look at the

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<sup>17</sup> Aristotle, *Meteorologics*, I.14 352a 28; Cleomedes, *De motu circulari corporum caelestium*, I.10; I.11; II.1.69; II.8.97; Geminus, *Elementa astronomiae*, XVIII.16; XVI.29.

terrestrial sphere in its totality, that is, to locate his or her inhabited world in relation to the whole sphere and to the three other inhabited worlds located on its surface. In a second step, only the climatic zones of the sphere are visible. In a third step, even these zones disappear and the terrestrial globe looks like a tiny dot and finally disappears.

The Roman emperor and Stoic philosopher Marcus Aurelius clearly described this experience: “ Asia and Europe are tiny places in the cosmos. The ocean is a drop of water in the cosmos. The Athos Mountain is a clod in the cosmos. The present time is only a dot in the cosmos. Everything is tiny, unstable; everything fades away in the immensity .” <sup>18</sup>

An armillary sphere of the sky, with the Earth at its centre, provokes the same visual and spiritual feeling.

Looking at the world from above, from outer space, is one among the spiritual exercises practised by Stoic, Cynic and Neoplatonic philosophers. The wise learns how to adjust his or her scale of values to the successive steps of this vision. Individuals learn how to free themselves from human passions, values and desires, such as glory, wealth, and political power. Through such a look at the Earth, the wise is protected against human passions and suffering. Viewing the Earth from outer space allows one to look at human things from the standpoint of death, that is, from the standpoint of the soul freed from the body.

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<sup>18</sup> Marcus Aurelius, *Meditations*, VI.36.1.

Here is this human world about which tribes and nations are fighting through wars and violence, says Seneca<sup>19</sup>. The inhabited Earth looks so tiny: from Spain to India, the navigation through the Atlantic Ocean is just a short journey, an easy and quick navigation, if one considers that the most rapid planet needs thirty years to complete its celestial course... This intriguing statement in the *Natural Questions* of Seneca played an important part in the intellectual genesis of trans-Atlantic navigation in the fifteenth and sixteenth centuries.

Looking at the inhabited world from above or from far away favours the dreams of imperial rule. But when the terrestrial globe is seen from the cosmos, the scale inverts the meaning of the vision. The Roman Empire is a dot on the terrestrial sphere. Roman glory and pride are restricted to only one of the four inhabited worlds spread over the surface of the terrestrial globe. The Roman Empire is nothing.

I would like to draw some conclusions from this overview.

1. Globes have to be considered in their cultural background, as discursive objects, as objects used and viewed in specific cultural practices. It is misleading to write a history of ancient globe making without unfolding this cultural background and linking globes with a wide range of literary texts and iconographic representations (frescoes, paintings etc).

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<sup>19</sup> Seneca, *Natural Questions*, I.8-9

2. In a particular society, various social groups and various users provide the globes with specific and different meanings. In Rome, emperors used the celestial spheres or the terrestrial spheres as an iconographic theme for their coins. Spheres reflected the cosmic rule of the emperor. When used by philosophers, spheres were scientific models assisting in the learning of astronomy and cosmology. These disciplines, however, were not closed upon themselves. They were linked to metaphysics, ethics, religion and spirituality.

3. The celestial sphere, either a material sphere or an armillary sphere, was used to trigger a mental and a spiritual process: the viewer was experiencing the dissociation of the soul from the body; his or her soul was flying in the cosmos and was able to grasp a view of its totality and of its machinery. During this process, the terrestrial sphere and the human world were seen in relationship with the immensity of the cosmos. They looked like a dot in the universe. Looking at the sphere was a way of redefining the scale of human values. The cartographic scale was an intellectual operator that defined a new viewpoint upon humanity, human history, and human pride.

4. Looking at a sphere was a mental experience. The material artifact was the support of meditation, of a spiritual exercise, allowing the viewer to experience a merely intellectual gaze upon his or her world, a gaze from the outside. If meditating or dreaming allow the wandering of the soul within the celestial sphere itself, the viewer of a globe is also looking at the cosmos from the outside.

5. Looking at globes is a complex experience: it is not viewing an empirical reality with the eyes of the body. It is contemplating a model of the world through the eyes of the mind. The model allows the shift from the material vision to the mental vision: the latter can see the stars, the planet, the Earth, and experience the metaphysical effects of such a vision, while the eyes of the body can see only metal, wood, stone, and incised drawings.

6. If I am correct in linking globes and maps, on the one hand, and this broad philosophical trend, on the other, consequences should be drawn about the nature and the purpose of maps and globes in the Roman Empire. They were used in a curriculum of philosophical education. The first step was the encyclopedic knowledge of the human and physical world, made possible by world maps and geographical treatises. The ultimate step was the contemplation of the whole cosmos and the understanding of the true scale of values, that is, to despise some human values. Such a contemplation was triggered by celestial spheres. They provoked a shift from encyclopedic knowledge to metaphysics, allowing a spiritual and a religious experience.

7. My approach to Greek and Roman cartography and globemaking gets an interesting confirmation from Strabo. As mentioned previously, he lived at the time when an artist designed the “Mosaic of the Philosophers” in Pompeii. Strabo wrote in his *Prolegomena* that geography is a philosophical study par excellence<sup>20</sup>. It implies an encyclopedic knowledge that is proper to someone contemplating the divine as well as the human world. Geography implies observing the sky and visible celestial bodies from the



Earth, but also the ascension of the mind into the region of celestial phenomena. Looking at the sky is the way to study the Earth -- its size, its physical features, its inhabited and desert zones, their dimensions<sup>21</sup>.

Geography, says Strabo, implies the study of celestial regions and geometry, that is, the measuring of the Earth. So the geographer makes the Earth and the sky closer, he masters the gap between them through his mental activity.

These ancient views of the power of globes are the starting point of a long and fascinating tradition, and all of us might perhaps feel the same intellectual and spiritual emotion while looking at the wonderful exhibition here at the Stewart Museum.

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<sup>20</sup> Strabo, *Geography*, I.1 C1.

<sup>21</sup> Strabo, *Geography*, I.1.14-15 C 8.