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HUSSERL'S ARGUMENTATION FOR THE PRE-COPERNICAN VIEW OF THE EARTH

JUHA HIMANKA

I

EDMUND HUSSERL'S *NACHLASS* includes a text enclosed in an envelope on which is written: "Overthrow of the Copernican theory in usual interpretation of a world view. The original ark, earth, does not move."¹ This text was chosen to be one of the first posthumous publications of Husserl. The editor, however, chose to use a less controversial title: "Foundational Investigations of the Phenomenological Origin of the Spatiality of Nature." The title nevertheless does not change the radicality of the text itself; it boldly claims that the earth does not move. Husserl knew that with such a statement he risked becoming a laughing stock. For the Western scientific community the Copernican view of the earth's movement is the symbol of the victory of science over common sense views and religion.

The text on the earth is a hot potato for Husserl researchers. Should it be taken seriously? Or is Husserl just playing with names as he presents the unmoving Ur-earth although he must know that the earth moves?² Sometimes commentators feel a need to explain that

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¹ Edmund Husserl, "Foundational Investigations of the Phenomenological Origin of the Spatiality of Nature," trans. Fred Kersten, in Husserl, *Shorter Works*, ed. Peter McCormick and Frederick A. Elliston (Indiana: University of Notre Dame Press, 1981), 222–33; "Grundlegende Untersuchungen zum phänomenologischen Ursprung der räumlichkeit der Natur," in *Philosophical Essays in Memory of Edmund Husserl*, ed. Marvin Farber (Cambridge: Harvard University Press, 1940), 307–25.

² Roberto Casati, "Formal Structures in the Phenomenology of Motion," in *Naturalizing Phenomenology*, ed. by Jean Petitot, Francisco J. Varela, Bernard Pachoud, and Jean-Michel Roy (Stanford: Stanford University Press, 1999), 372–84.

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Husserl really was aware of scientific theories³ or at least to take some distance from Husserl's extreme position. Husserl's view, however, is also taken seriously.

French commentators especially⁴—for example, Emmanuel Levinas, Maurice Merleau-Ponty, and Jacques Derrida—have taken his view on the earth thoughtfully. The French translation furthermore dares to state it in the title: *La terre ne se meut pas*.⁵ Also, toward the turn of the millenium, the German-speaking world has paid rising attention to Husserl's manuscript.⁶ Anglo-American philosophers have been more reserved, but lately there has been interest on the ethical and ecological aspects of Husserl's view.⁷ Yet, there has

³ Alfred Schulz, "Editor's Preface" to Edmund Husserl, "Notizen zur Raumkonstitution," *Philosophy and Phenomenological Research* 1 (1940): 21–3; Fred Kersten, "Introduction" in Edmund Husserl, *Shorter Works*.

⁴ Maurice Merleau-Ponty refers to the text already in *Phénoménologie de la Perception* (Paris: Gallimard, 1945), 85. As he uses the other title ("Umstruz der kopernikanische Lehre: die Erde bewegt sich nicht") and notes that the text is *inédit*, it is obvious that he was not aware of the publication of the text in 1940. A longer exposition of Husserl's text is to be found in "Husserl's Concept of Nature," trans. Drew Leder, in *Text and Dialogues* (New Jersey: Atlantic Highlights, 1992), 162–8; Compare also "Philosopher and His Shadow," in *Signs*, trans. Richard C. McCleary (Evanston: Northwestern University Press, 1964) 149–81; and *Themes from the Lectures at the Collège de France 1952-1960* (Evanston: Northwestern University Press, 1970), 121; Jacques Derrida, "Introduction," in Edmund Husserl, *Origin of Geometry*, trans. John P. Leavey (Hays: Stone Brooks, 1978), 23–154. On Levinas's and Husserl's earth compare, John Llewelyn, *Emmanuel Levinas* (London: Routledge 1995), 89–90. Outside the French-speaking world, Hannah Arendt took Husserl's view seriously from the beginning. See her *The Human Condition* (Chicago: The University of Chicago Press, 1958). Another exception is John Sallis, who has dealt with the theme in his *Double Truth* (New York: State University of New York Press, 1995), *Force of Imagination* (Bloomington: Indiana University Press, 2000) and "Beyond the Political: Reclaiming the Community of the Earth," in *Phenomenology of Interculturality and Life-world* (München: Alber, 1998), 192–208. Compare also Juha Himanka, "Does the Earth Move?" in *Philosophical Forum* 31 (2000): 57–83.

⁵ Edmund Husserl, *La terre ne se meut pas* (Paris: Les éditions de minuit, 1989).

⁶ Here the work and teaching of Klaus Held has had its influence. (Compare the articles of John Sallis, Raphaél Célis, and Dean Komel in *Die Ercheinende Welt, Herausgegebenen von Heinrich Hüni and Peter Trawny* (Berlin: Duncker & Humblot, 2002); Klaus Held, "Sky and Earth as Invariants of Natural Life-World," in *Phenomenology of Interculturality and Life-World*, 21–41. Compare also Stephan Günzel, "On the Archaeology of the Earth, Body and Life-world," *Phainomena* 12 (2003): 148–169.

been little discussion of whether Husserl's view is actually phenomenologically valid.

This essay states that Husserl's argument in "Foundational Investigations of the Phenomenological Origin of the Spatiality of Nature" is phenomenologically solid. The text follows Husserl's methodological reflections so faithfully that it can be presented as an example of phenomenological procedure.⁸ Although phenomenological research does not have to be argumentative in the narrow sense of the word, this text of Husserl actually contains a powerful philosophical argument. Earlier commentators have overlooked this argumentative side of Husserl's text.

It is clear that there is a tension between Husserl's views on the earth and the scientific views of our time. This does not, however, have to mean that there is a contradiction between Husserl's views and scientific theories. According to Husserl, phenomenology ends where objective science begins.⁹ Phenomenology aims to be more original than the sciences. It aims to be the link between our experienced reality and the theoretical and experimental reality of modern science. This task is strongly present in Husserl's investigation of the earth.

II

The ideal of Husserlian phenomenology is *strenge Wissenschaft*, an immediate view that covers all that appears. It can be argued that it is impossible to reach such a goal, and it is clear that Husserl never actually succeeded in reaching this aim. It does not, however, follow that the ideal itself is meaningless. It is this ideal that motivated Husserl to start over again and again.

Husserl's readers sometimes confuse the ideal of *strenge Wissenschaft* with the starting point of the exact sciences. Actually, the ideal has the opposite effect. Husserl's clearest and most radical exposition

⁷ Compare *Eco-Phenomenology, Back to the Earth Itself*, ed. Charles S. Brown and Ted Toadvine (Albany: State University of New York Press, 2003). The theme is present in Robert Frodeman, *Geo-Logic* (Albany: State University of New York Press, 2003).

⁸ Juha Himanka, *Se ei sittenkään pyöri* (Pieksämäki: Tammi 2002).

⁹ Edmund Husserl, *The Idea of Phenomenology*, trans. Lee Hardy (Dordrecht: Kluwer Academic Publishers, 1999), 43.

of the relation between phenomenology and science is to be found in his lectures on the *Idea of Phenomenology*.

At the end of the first lecture, Husserl first states that from the perspective of phenomenology or philosophy there is no difference between different levels of knowing. He writes: "Exact knowledge is no less enigmatic than non-exact knowledge, scientific no less than prescientific."¹⁰ A little later he elaborates this further:

The most rigorous forms of mathematics and mathematical natural science here have not the slightest advantage over any actual or alleged knowledge belonging to common experience.¹¹

This does not mean that Husserl did not respect the achievements of, for example, mathematics. He actually saw it as a model for a science. Philosophy, however, does have a different field to cover and different method to follow. In order to reach this one has to start from a radical split between existing sciences and phenomenology. Husserl continues his radical setting of the initial boundaries between philosophy and science:

In comparison to all positive knowledge, philosophy . . . lies in a new dimension; and to this new dimension there corresponds a fundamentally new method which is to be contrasted with "natural" method Anyone who denies this has failed to understand the peculiar level at which the problems of the critique of knowledge must be posed, and thus has failed to understand what philosophy actually wants to accomplish—and should accomplish—and what gives philosophy, as opposed to all positive knowledge and science, its proper character and authority.¹²

For a philosopher, it is tempting to take the highest forms of knowing—formal logic, higher mathematics, mathematical physics, cognitive science, and so forth—as a starting point for philosophical reflection. Husserl denies this possibility categorically. Instead of starting from the highest achievements, one should start from the beginning. With such a start it is also possible to disagree with the Copernican view of the earth—and to do so from the ground of first-hand evidence and philosophically solid argumentation.

¹⁰ Husserl, *The Idea of Phenomenology*, 20.

¹¹ *Ibid.*, 21.

¹² *Ibid.*

When the methods and results of the sciences are set aside, what is there left to begin with? Instead of beginning with the relative beginnings of the sciences, phenomenology begins with the absolute beginning, with the principle of principles. This principle is introduced in the well-celebrated chapter 24 of *Ideas I*. It claims

*[T]hat every originary presentive intuition is a legitimizing source of cognition, that everything originarily (so to speak, in its "personal" actuality) offered to us in 'intuition' is to be accepted simply as what it is presented as being, but also only within the limits in which it is presented there.*¹³

It might at first seem that Husserl has put a lot of emphasis on a sentence that actually says very little. The formulation of the principle is so general that it does not seem to work as advice for someone trying to figure out what phenomenology is all about. If the sentence is read carefully, however, one's attention turns to the passage in parenthesis. That which is originally given is exemplified as given "in its 'personal' actuality" [*in seiner leibhaften Wirklichkeit*]. Here we have a piece of advice: when we investigate something, we should accept into our phenomenological study only that which is given in its personal, lively actuality or presence.

About fifteen years later, in *Cartesian Meditations*, Husserl reformulated the phenomenological principle, now calling it the first methodological principle. According to this principle:

I . . . must neither make nor go on accepting any judgments . . . that I have not derived from evidence, from "experiences" in which the affairs and affair-complexes in question are present to me as "*they themselves*."¹⁴

I must experience those things that I investigate in the presence of them themselves. The investigated thing must be experienced as itself. The principle itself is simple and almost obvious but if it is followed faithfully it does lead to interesting and even surprising results—as Husserl's text on the earth exemplifies.

¹³ Edmund Husserl, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy, First Book*, trans. Fred Kersten (The Hague: Kluwer Academic Publishers, 1983), 44 (emphasis in original).

¹⁴ Edmund Husserl, *Cartesian Meditations, An Introduction to Phenomenology*, trans. Dorion Cairns (The Hague: Martinus Nijhoff Publishers, 1960), 13.

Husserl's principles give a starting point for phenomenological investigations. Yet, in order to see the full power of Husserl's argument on the earth we also need to understand how we should phenomenologically relate those objects that appear originally in experience to each other. For this purpose we outline the main point of Husserl's *Third Logical Investigation*, "On the Theory of Wholes and Parts."¹⁵

Objects relate to each other as wholes and parts. Husserl's aim in the *Investigation* is to illuminate what kind of connections these relations are. For this purpose, Husserl distinguishes two types of parts; pieces and moments. Pieces are kinds of parts that are separable from their wholes. A door is a part of a house, but as there is no problem in separating it from the house, it is a piece. Moments are kind of parts that are inseparable from one another and from their wholes. Robert Sokolowski gives us some examples of moments: "I cannot disengage brightness from color, I cannot consider color without locating it within a certain surface, and I cannot consider surface without seeing it as a moment of an extended thing."¹⁶ From this example we see that the relationships among moments are rigorously determined: "Brightness cannot be immediately blended with surface, it must be mediated by color."¹⁷

From the philosophical perspective pieces are of little interest. By contrast, to recognize moments and to see the necessities and order within them plays an essential role in philosophical investigations. From the Husserlian point of view, many of the shortcomings of philosophies are failures in this respect.

III

In the *De Caelo* Aristotle states:

¹⁵ Edmund Husserl, *Logical Investigations*, vol. 2, trans. J. N. Findley (London: Routledge, 2001), 1–176.

¹⁶ Robert Sokolowski, "The Logic of Parts and Wholes in Husserl's *Investigations*," *Philosophy and Phenomenological Research* 37 (1967–68): 537–53.

¹⁷ *Ibid.*, 540.

There are many different ways in which the movement or rest of the earth has been conceived. The difficulty must have occurred to every one The difficulty then, has naturally passed into a commonplace of philosophy.¹⁸

After considering different possibilities—including double movement around the sun—Aristotle states his conclusion: “It is clear, then, that the earth must be at the center and immovable.”¹⁹ From the phenomenological point of view it is essential that Aristotle considers together the possibilities of the earth’s movement and position at the center.

This view of the earth as the immobile center was then elaborated further by Claudius Ptolemy in his *Almagest*²⁰ in the second century A.D. His formulation of geocentric theory prevailed for the next 1400 years. Although Leonardo da Vinci and Nicholas of Cusa had already questioned the traditional position of the earth as an unmoving center, it was Nicolaus Copernicus’s work *De revolutionibus orbium coelestium* (1543) that really challenged the Ptolemaic theory.

Today we would like to think that Copernicus’s theory was, in comparison to the Ptolemaic one, superior from the very beginning. Yet, we should bear in mind that Copernicus insisted on ancient observations and that he also conceived his “new” model to interpret the data from ancient authors.²¹ Furthermore, at the time of the publication of the work the advantage of the Copernican theory over the Ptolemaic one was not at all obvious. Both theories were complicated and problematic. Because Copernicus was not able to explain why bodies fall toward the center of the earth, it would even be more reasonable to prefer the geocentric view. The situation in this respect did change with the work of Galileo Galilei and Isaac Newton. Yet, it has been claimed that the dispute between the Ptolemaic and Copernican views was never really solved within natural science. Fred Hoyle states in his book *Nicolaus Copernicus* that

¹⁸ Aristotle, *De Caelo*, trans. J. L. Stocks (Oxford: Clarendon Press, 1930), 2.13.294a.

¹⁹ *Ibid.*, 2.14.296b.

²⁰ Claudius Ptolemaeus, *Almagest*, trans. G.J. Toomer (London: Duckworth, 1984).

²¹ Nicolaus Copernicus, *De Revolutionibus* (Hildesheim: Gerstenberg Verlag, 1984), 4.

[t]oday [1973] we cannot say that the Copernican theory is 'right' and Ptolemaic theory 'wrong' in any meaningful physical sense. The two theories are . . . physically equivalent to one another.²²

The two views are really two different ways of arranging the same data. In fact, by acknowledging this, one actually enters into the gates of the theory of relativity. However, from the point of view of the Western worldview, the triumph of the Copernican view over the Ptolemaic is clear.

Martin Luther was one of those contemporaries of Copernicus who did not accept the new heliocentric view. In one of his table talks, Martin Luther made fun of a new scientist "who wanted to prove that the earth moves." Although this happened in 1539, a few years before the publication of Copernicus's main work, Luther certainly had in mind Copernicus, whose model was already being taught in Wittenberg. Luther said that "this would be as if someone were riding in a cart or a ship and imagined that he was standing still while the earth and the trees were moving."²³ Although Luther's comment might today seem ridiculous, it points out that the whole dispute is finally all about the relativity of motion.

The situation between the Ptolemaic and Copernican views is, from the scientific point of view, more complicated than from the point of view of the Western worldview. The same holds for the famous confrontation between Galileo and the Catholic Church, which led to the condemnation of Galileo in 1616 and 1633. It is sometimes thought that the Church was simply dogmatic and did not want to see the obvious truth of Copernican view. Modern philosophy of science sees the situation differently. Pierre Duhem writes:

The physicists of our day [1908], having gauged the worth of the hypotheses employed in astronomy and physics more minutely than did their predecessors, having seen so many illusions dissipated that previously passed for certainties, have been compelled to acknowledge and proclaim that logic sides with Oslander, Bellarmine and Urban VIII, not with Kepler and Galileo—that the former understood the exact scope of the experimental method and that, in this respect, Kepler and Galileo were mistaken.²⁴

²² Fred Hoyle, *Nicolaus Copernicus* (Suffolk: Heinemann, 1973), 79.

²³ Martin Luther, *Table Talk, Luther's Works*, Vol. 54 (Philadelphia: Fortress Press, 1967), talk 4638.

Duhem here points out that Galileo did not see and acknowledge the limits of natural science. Hannah Arendt quotes Cardinal Bellarmine on the same point: "to prove that the hypothesis . . . saves the appearances is not at all the same thing as to demonstrate the reality of the movement of the earth."²⁵ Cardinal Maffeo Barberini (the future Urban VIII) pointed this out to Galileo in a meeting after the condemnation of 1616. In place of an answer, the following was written down: "Having heard these words, the great scientist remained silent."²⁶ However, if the Cardinal would have asked about situation within physics, Galileo would certainly had had much to say. The situation in this respect took a decisive step forward with Newton's *Principia* in 1687.

One of the main problems of setting the earth to movement was the problem of objective movement. We often perceive the same movement differently. In order to present a view of movement that I share with others, I explain a movement in relation to the earth. To someone who is inside a ship and not looking out and to someone else standing on the shore, the ship appears to move at different speeds. Yet, if the movement is understood in relation to the earth, we share an understanding of the movement. In the first Scholium of *Principia*, Newton first explains this everyday view:

If the earth is truly at rest, a body that is relatively at rest on a ship will move truly and absolutely with the velocity with which the ship is moving on the earth.

After this he turns to a scientific view:

But if the earth is also moving, the true and absolute motion of the body will arise partly from the true motion of the earth in unmoving space and partly from the relative motion of the ship on the earth.²⁷

As the earth is set to a motion, we need unmoving space to guarantee the objective description of movement. Newton called this kind of entity "absolute space."

²⁴ Pierre Duhem, *To Save the Phenomena, An Essay on the Idea of a Physical Theory from Plato to Galileo*, trans. Edmund Doland and Chaninah Maschler (Chicago: The University of Chicago Press, 1969), 113.

²⁵ Hannah Arendt, *Human Condition*, 260.

²⁶ Pierre Duhem, *To Save the Phenomena*, 111.

²⁷ Isaac Newton, *The Principia, Mathematical Principles of Natural Philosophy*, trans. I. Bernard Cohen and Anne Whitman (Berkeley: University of California Press, 1999), 409.

Although Newton's theory gained ground relatively quickly, the view of the earth as moving body—against our own senses—was difficult to acknowledge. In his *The Origin of Species* (1859) Darwin writes “the belief in the revolution of the earth on its own axis was until lately supported by hardly any direct evidence.”²⁸ Darwin probably has in mind Foucault's experiment with the pendulum conducted in 1851. It was this experiment that made the final step toward the establishment of the Copernican view. Yet, the scientific ground for the Newtonian theory had already begun to shake.

According to Newton's own principles, the concept of absolute space should be explained in scientific terms. The *Principia*, however, did not manage to do this. From Hegel's point of view, Newton's mistake was to even attempt to explain the concepts of metaphysics (space, time) within natural science: physics tried to do without thinking (Hegel) or metaphysics (Newton). Nevertheless, efforts to discover an objective reference point for movement that is not the earth continued after Hegel's critique.

After Hegel's time, the science of mathematics went through a period of rapid development. At the turn of the nineteenth century there were more advanced mathematical models to serve for more exact formulations of relativistic views of physics. Also experiments—like the Michelson-Morley Experiment that failed to measure the velocity of the earth in space—prepared the way to a new understanding of physics. It turned out that after we gave up our original view of understanding movement in relation to the earth, there was no scientific way to point to a new, common reference point for movement. The candidates—the sun, absolute space, landscape of the stars—that serve as a possible reference, failed to show a unique nature as the one and final reference point for all movement. Natural science accepted the relativity of movement and formulated it as the cosmological principle: each point of the universe could equally well serve as a reference point for movement.

What does this mean from the point of view of the Copernican view of the earth? Our culture was convinced by Foucault's pendulum, which demonstrated that the earth rotates. If this holds abso-

²⁸ Charles Darwin, *The Origin of Species by Means of Natural Selection or The Preservation of Favoured Races in the Struggle for Life* (London: Senate, 1994), 421.

lutely, it also follows that there is absolute motion. In fact, "rotation is . . . the paradigm of absolute motion in Newton's mechanics."²⁹ It is clear that the view of an absolute motion of rotation presents a "serious challenge for any claim that *all* motions are relative."³⁰ The challenge of absolute rotation was presented to Einstein in the form of the earth's rotation in 1916–17 by Willem De Sitter.³¹ We will not enter into the details of this controversy; for our purposes, it is enough to set aside the oversimplified popularizations of the more sophisticated views of the natural sciences. From this point of view, the field of physics was already opened by Ernst Mach's *Science of Mechanics*. He writes: "If the earth is affected with an absolute rotation about its axis . . . the plane of Foucault's pendulum rotates. . . . This, indeed, is the case if we start *ab initio* from the idea of absolute space. But if we take our start on the basis of facts, we shall find we have knowledge only of relative spaces and motions."³²

The physics of Galileo and of Newton turned against Aristotelian views in natural science. At the beginning of the twentieth century, physics instead turned in many respects toward Aristotle.³³ The main point of the Copernican view had, however, in the interim become firmly rooted in the Western world; that is, that the earth is a body. It is this aspect of the worldview and not the actual theories of natural science that Husserl questioned in his manuscript. Although Husserl does not mention the theory of relativity or Einstein in the manuscript, he had—at least to some extent—followed the debate on the philosophical or cosmological aspects of physics. Oscar Becker wrote his Habilitationsschrift *Beiträge zur phänomenologischen Begründung der Geometrie und ihrer physikalische Anwendung* (1922–23) under Husserl's guidance. The final sections of Becker's work (§§18–21) aim to explicate those principles behind the Einsteinian theory regarding

²⁹ Pierre Kerszberg, *The Invented Universe, The Einstein–De Sitter Controversy (1916–17) and the Rise of Relativistic Cosmology* (Oxford: Clarendon Press, 1989), 104.

³⁰ *Ibid.*

³¹ *Ibid.*, 119–35.

³² Ernst Mach, *The Science of Mechanics: A Critical and Historical Account of its Development*, trans. Thomas J. McCormack (La Salle: University of Illinois Press, 1960), 283.

³³ Oscar Becker, *Beiträge zur phänomenologischen Begründung der Geometrie und ihrer physikalische Anwendung* (Tübingen: Max Niemeyer, 1973), 156.

that of which physics as a positive science is not, and cannot be, explicitly aware.³⁴

The point of this section has not been to challenge the authority of physics. Yet, as the background of our view on earth comes from natural science, it is important to take a distance from the oversimplified and popularized versions Copernicanism.

IV

Husserl's manuscript begins:

Regardless of their many repetitions and corrections, the following pages are, in any case, foundational for a phenomenological *theory of the origin of spatiality, corporeality, Nature in the sense of the natural sciences*, and therefore for a *transcendental theory of natural scientific cognition*. The beginning sets up particularly high expectations: Husserl claims that this text is foundational not only for the phenomenological view on spatiality and corporeality, but also that it opens up a view of the conditions for the possibility of natural science.³⁵

The actual text opens with explications of how we understand the environment or space. Although the surrounding world opens without an end, as infinite, this openness does have a structure of territories. As I think of the existence of the infinite world, I start from my immediate environment. I can then enlarge this territory to include the country and the continent on which I am. Ultimately I end up with the earth. Is this the border where the whole scope of nature is presented? Here we have reached the point where human cultures of different places and different ages disagree. Husserl continues with the view of our culture and our time:

We Copernicans, we moderns say: the earth is not the "whole of nature"; it is one of the stars in the infinite world-space. The earth is a globe-shaped body, certainly not perceivable in its wholeness all at once and by one person Yet, it is a body.³⁶

³⁴ Pierre Kerszberg convincingly reads Husserl's text on the earth as an alternative to the theory of relativity. See his "The Phenomenological Analysis of the Earth's Motion," *Philosophy and Phenomenological Research* 48 (1987): 177–208.

³⁵ Husserl, "Foundational Investigations," 222 (emphasis in original).

³⁶ *Ibid.*

For Husserl, the essence of Copernicanism is not the double movement of the earth but the view behind this theory, the earth as a body. In the phenomenological approach all that which appears also has a way of appearing originally. When we conduct a phenomenological study we should follow phenomenological principles, we should investigate things in their original way of appearing. A body appears originally in perception. In perception a body is situated in a place and either moves or rests. When we turn our attention to earth we notice that its mode of appearing is not similar to that of the perception of a body. The earth as we quite normally "see" it is not situated in a place and does not include a horizon of movement or rest.

The phenomenological starting point of Husserl's argumentation is to see that the earth originally, in the first level of its constitution, is not a thing: "In conformity with its original idea, the earth does not move or does not rest."³⁷ All of us, including Copernicus himself, do not originally see the earth as a body. From this it does not follow that the Copernican theory is wrong. At first we acknowledge only that it is not a legitimate starting point for a phenomenological investigation of the earth. The aim, then, is to follow the path of Copernicus or our culture from the original or primitive starting point to a more developed view of earth as a thing. If we succeed in this we have reached the sense of the Copernicanism. The levels are following:

(B) The Copernican view of the earth as a planet, a body that moves.

(A) The original view of the earth, in relation to which things can move but which itself is not a thing and therefore cannot move.

Although we are normally satisfied to start from level B, the phenomenological principles obligate us to start from the more original and primitive level A. The problem now is the transition from level A, of the experienced earth, to level B, of the Copernican view. In other words, we need to find a way how "the earth gains constitutive acceptance as body."³⁸

From the phenomenological point of view, we should now consider with what kind of whole and pieces we are dealing with. This way we avoid the danger of investigating a moment as a piece, a part without its essential context. From Husserl's manuscript we find a list

³⁷ *Ibid.*, 223.

³⁸ *Ibid.*

of moments belonging together: “the intuition of single bodies, the intuition of space, the intuition of time, the intuition of the causality of Nature.”³⁹ From the point of view of Husserl’s argument the important point is to understand that we should not separate the Copernican worldview from the intuitive considerations of space and time. At the intuitive level, an investigation of space means a consideration of place, rest, and movement. We have to begin by considering the earth together with the intuition of a single body in place.

In the next paragraph, Husserl considers intuition or perception of a single body. The result is that bodies move or could move in relation to the earth-basis [*Erdboden*]. For bodies there is an open horizon of possible movements, and these open horizons are deeply seated in our actual [*wirklich*] world. This is the theme of the next paragraph: the worldview, which constitutes the world according to horizons. The following paragraph ends with a result:

Obtaining here: rest is given as something decisive and absolute, and likewise motion: that is to say, they are given at the first level in itself of constitution of the earth as basis.⁴⁰

Rest and movement are given absolutely in relation to the earth as a basis. Yet, immediately before this Husserl writes that in this result there is “an aspect in which everything is still not decided.”⁴¹ This undecided aspect is the Copernican view. If we accept it and “the earth becomes a world-body,” it follows that “rest and motion cease to be absolute. Motion and rest necessarily become relative.”⁴² In other words, if we accept that the earth is a body we will necessarily enter into a relative view of motion and rest.

Could there be a dispute over this? Could someone deny the relative view on motion and rest? Husserl’s answer is that this dispute could take place only in the level of “modern apperception of the world as the world of infinite Copernican horizons.”⁴³ If there could be a dispute between relative and absolute views on motion and rest, this dispute should be a dispute over the question whether the earth is a body or not. If we accept that the earth is a body, the dispute is over

³⁹ *Ibid.*

⁴⁰ Husserl, “Foundational Investigations,” 224.

⁴¹ *Ibid.*

⁴² *Ibid.*

⁴³ *Ibid.*

and the theory of relativity is the only remaining alternative. The question to be asked, then, is whether the Copernican worldview in the basis of the theory of relativity is valid. Is the view of the earth as a body only a theory, or has the earth really constituted itself to us as a body?

From the phenomenological point of view, the constitutions of the earth and body are so different that it is strange to claim that the earth is a body. In what follows Husserl will first explicate how one can reach such a strange view and then give the result of the phenomenological study.

Husserl has already introduced a body—a thing that can move or rest—and an earth-basis in relation to which bodies move or stay still. In order to understand how Copernicanism was born, we need a third possibility between these: basis-body. Husserl's example is a railway car, a body that carries me and moves. Something inside the railway car might move in relation to my body exactly like a tree which I see through a window, but I know that actually the tree stays still. On what ground am I aware of this? Husserl explains this way of contextualization of movement in reference to his childhood when the differences between earth-basis, basis-body, and body had first occurred to him. Here Husserl's exposition gives ontological weight to the play of children: "I know the reversal of the ways of experiencing the rest and motion of toy wagon from which I have so often jumped on and off."⁴⁴ As a result of phenomenological investigation we now have three basic fields in relation to movement and rest:

E: earth-basis

BB: basis-body

B: body

In addition to this there is my animate body, that I can move myself, and other animate bodies, of which I know that they can move themselves.

According to Luther the mistake of Copernicus was to think that the earth is like a ship or a car, that is that an earth-basis is a basis-body. This is also how Husserl understands the origin of Copernicanism. It does not make sense to claim directly that earth-basis is a body, as it never appears as a body. Yet, one might imagine that earth-

⁴⁴ *Ibid.*

basis is like a railway car, a vehicle that moves in universe. Instead of claiming directly that $E=B$, “Copernicus” asserts that $E=BB$ and $BB=B$. The result is the Copernican view $E=B$. Is this a phenomenologically valid constitution?

In section 21 of the *Third Logical Investigation* Husserl writes: “A content of the species A is founded upon a content of the species B, if an A can by its essence (i.e. legally, in virtue of its specific nature) not exist, unless a B also exist.”⁴⁵ Is the relation between earth-basis and moving bodies similar kind of essential relation? The title of the manuscript—“Foundational Investigations . . .”—suggests that a founding relation plays an essential role.

Near the end of the manuscript Husserl writes: “The earth . . . makes possible in the first place the sense of all motion and all rest as mode of motion.” A body is something that either moves or rests and it is through the earth that a body receives its state of motion. Existence of a body as something that moves or rests is founded on the existence of the earth. From this it follows that the earth could be a body and could move only if there would be an earth in relation to which this earth would receive its sense as a body. If there is no earth to earth, the earth as a body that could move or rest does not have sense. The same holds also with the basis-body: something can become basis-body only in relation to an already existing earth. Although it is easier to understand the earth first as a basis-body, this does not make the difference from the point of view of the argument.

Maurice Merleau-Ponty explains Husserl’s point:

In prescientific experience there is by no means any “earth,” or earth in movement. Its immobility is manifest. But neither is it resting. The originary earth is neither at rest nor in movement, it is on this side of rest and movement, according to a type of being that includes all further possibilities of experience. It is something initial, a possibility of reality, the earth as a pure fact, the cradle, the basis and the ground of all experience. Knowledge has affected all this, it has forgotten this ontological relief, the open horizons of the *Offenheit* [openness].⁴⁶

The original earth that neither moves nor rests is something that knowledge tends to cover rather than uncover. In Husserl’s terminology, the original earth is sedimented under the layers of ever-new knowledge. The task of the phenomenologist is then to dig into the

⁴⁵ Husserl, *Logical Investigations*, vol. 2, 34.

⁴⁶ Merleau-Ponty, “Husserl’s Concept of Nature,” 166.

origin through these layers of sedimentation and to reach the original level of constitution.

The crucial point in Husserl's argument is whether there is only one earth, or whether there could be another earth. Before considering whether another earth could be constituted or has been constituted, we will summarize the argument.

Husserl's argument concerning the earth has the following stages: (1) Following phenomenological principles, the investigation begins from the primitive level of original, pre-Copernican experienced earth. (2) Body (movement, rest, and place) and earth must be considered together. (3) There is an essential order between earth and body: bodies are founded as bodies in relation to the earth. (4) It does not make a difference from the point of view of the argument to claim that the earth is a basis-body instead of the direct equation, "the earth is a body." (5) In order for the earth to have sense as a body there must be another earth in relation to which the earth will receive its sense as a body.

V

Husserl was an extremely self-critical writer. His manuscript about the earth contains severe attacks against his own view. He writes: "Objection: Is not the difficulty of the constitution of the earth as a body hopelessly exaggerated?"⁴⁷ This is a very natural reaction for anyone within Western culture. Husserl will then try his best to show the invalidity of his own exposition of earth.

We know that "any part of the earth could move."⁴⁸ Does it follow from this that "motion, hence corporeality"⁴⁹ is meaningful for the whole of earth? Husserl does not answer this directly but the rest of the manuscript clearly denies the possibility that the earth could move. We can see how Husserl can overcome this critique by imagining the last part of earth to be moved. In relation to what could we move the very last piece of earth? It could be moved only in relation to another earth.

⁴⁷ Husserl, "Foundational Investigations," 225.

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

In the second objection Husserl assumes that he is a bird and can fly. Someone who can fly could fly “so high that the earth seems like a globe. . . . I therefore discover that it is a large globe-body.”⁵⁰ Yet, one still has to ask in relation to what might this globe move? Husserl radicalizes the counterexample by imagining a flying machine. This machine is a basis-body, but could it function as a basis-earth in relation to which the earth could move? Can one transform the sense of earth as a basis-earth to a basis-body, if one can see the earth as a globe and stay in a basis-body for a long time? Husserl had to imagine this; today we can rely on the experience of other human beings.

Husserl never experienced the earth other than through horizons. After Husserl, however, some human beings have seen the earth as a globe, and everyone has seen such pictures of the earth. Did this change the situation? Astronaut William Anders seems to think so: “We came all this way to explore the moon, and the most important thing is that we discovered the earth.”⁵¹ Did we really reach another level of constitution, or, in other words, did mankind really take a determinative step in our intentional history, *Urstiftung*, as the earth was seen from the space?

If I jump up and move away from the earth, I might try to interpret this as a movement of the earth. How does the experience of the cosmonauts, astronauts, and cinkanauts differ from this? According to what astronauts have told us, it is quite an experience to see the earthrise. Normally we experience the earth through a horizon: in the moon one sees the earth rising from the horizon of the moon. Does this make a difference that transforms the moon into an earth-basis? Husserl’s answer is no. I can still understand the situation as a rotation movement of the moon. I cannot imagine a situation where I must interpret a movement as a movement of the earth. As Pierre Kerszberg concludes: “The motion of the earth, as it revolves about its axis or around the sun, is never perceived as such.”⁵²

Husserl’s own objection, however, is even more radical than a man on the moon. All astronauts have been born on earth and have learned to situate movement in relation to the earth. It is natural for

⁵⁰ Ibid.

⁵¹ Andrew Chaikin, *A Man on the Moon* (New York: Viking Penguin, 1994), 119.

⁵² Pierre Kerszberg, “The Phenomenological Analysis of the Earth’s Motion,” 196.

us earthborn to do so. Husserl, however, also considers the possibility that I am born on a flying vessel. That vessel would then be "my 'earth,' my primitive home."⁵³ According to Husserl, even that would not change the situation. My parents would connect me to the primitive history of humankind on earth. If this connection disappears, the connection to humanity would also vanish. A creature with no connection to the original earth as a primitive home of humans is not a human being, and there is no guarantee that we could ever understand such a being. Merleau-Ponty comments on the possibility that there would be two earths:

I cannot think two earths: they are two pieces of the same earths, one single humanity, grasped in communicative experience. For humankind, there is nothing except humankind. If I enter into communication with another planet, it is a double, a variant of the earth; its inhabitants, if we recognize them, are variants of humanity.⁵⁴

After these objections, Husserl enters into his conclusion: "There is only one humanity and one earth."⁵⁵ As there is no earth-basis in relation to which the original earth could move, it follows that "the earth does not move."⁵⁶ It is a part of the essence of the earth to be first and original: a second earth could not be *the* earth.

Although Husserl stretches his imagination in testing the result by counterexamples, there seems to be an obvious omission. Why does he not consider the evidence of natural sciences? We saw above that for Husserl it is crucial to separate natural attitude and natural science from phenomenology and philosophy. The radical consequences of this radical separation are nowhere in *Husserliana* as present as in the manuscript on earth.

Husserl understood that for others "it would be well-nigh amusing to want to believe after Copernicus that the earth is the midpoint of the world 'merely because by accident we live on it.'"⁵⁷ It was also clear for him that in the scientific community his exposition would be seen as "the most unbelievable philosophical hybris."⁵⁸ Despite this, "we would not back down from the consequences for the clarification of necessities pertaining to all bestowal of sense for what exists."⁵⁹

⁵³ Husserl, "Foundational Investigations," 228.

⁵⁴ Merleau-Ponty, "Husserl's Concept of Nature," 162–8.

⁵⁵ Husserl, "Foundational Investigations," 230.

⁵⁶ *Ibid.*, 225.

⁵⁷ *Ibid.*, 229.

⁵⁸ *Ibid.*, 230.

⁵⁹ *Ibid.*

Husserl is convinced that the viewpoint of constitution is more fundamental than the point of view of natural science. Husserl also dares to claim that it is the point of view of natural science that is naïve, as “it naively believes it has acquired absolute truth about the world in its theories.”⁶⁰

It is possible to argue that the point of view of natural science is not the only point of view from which to consider the earth: the earth is a central theme in poetry and the arts and also in religion and mythology. Nevertheless, it is a strange omission to leave the evidence of natural science completely out of a consideration that claims to be rigorously scientific. Furthermore, scientists do not state that they have acquired the absolute truth, they do not claim they have found the absolute foundation. Although there are all kinds of things done in the name of science, scientists themselves are content to present results that are open to critique and counterarguments. If Husserl does not agree with generally acknowledged scientific theories, it is his duty to take the presented evidence seriously and argue against it. How could phenomenology escape from this obligation? Is there a responsible way to declare the autonomy of philosophy in our age?

In Husserl’s day, physics was sometimes seen as a general theory of movement and rest. How are we to understand the position of earth in this framework? There are three possibilities: the earth either moves (Copernicus), does not move (Ptolemaios), or its movement depends on how we observe it (Einstein). We notice that there is no position for the phenomenological view within these possibilities. When Husserl writes in the manuscript that “we do not even touch upon physics”⁶¹ he means that the earth in the original sense is not situated within these possibilities of movement or rest.

It is certainly not so that it moves in space, although it could move, but rather as we tried to show above: the earth is the ark which makes possible in the first place the sense of all motion and all rest as mode of motion. But its rest is not a mode of motion.⁶²

Original earth is not a matter of physics because it does not situate in its field of objects where everything moves or rests. Although in contemporary physics these things are much more complicated

⁶⁰ *Ibid.*, 229.

⁶¹ Husserl, “Foundational Investigations,” 230.

⁶² *Ibid.*

then they were a hundred years ago, Husserl can still argue from the point of view of the worldview upon which the sciences are built.

We tend to situate all that appears in a place. For example, as my own thoughts appear they are not situated in a place but in the stream of my inner time-consciousness. Yet, we have a strong tendency to assign a place in my brain to these thoughts. Nevertheless, the situation on the level of phenomenological constitution—that my thoughts as they appear do not appear in place—does not change, no matter what results scientific experiments give us. This is how we are also to understand Husserl's investigation of the earth. No matter how much experimental evidence the Copernican theories gain, they do not set the original earth that I experience into motion. The test results do not change the constitution, and "what belongs to constitution is, and is alone, absolute and final necessity. Only on that basis is everything conceivable concerning the constituted world to be determined."⁶³

The naïveté of the natural scientific attitude is not in its incorrect facts: Husserl does not want to deny the results of sciences. The problem is that, in its naïve form, science refuses to acknowledge that there is a more original or primitive level of constitution without which the scientific enterprise does not finally have sense or value.

In many cases there is no real problem connecting the original level of experience or phenomenology with theoretical views. For example, phenomenology investigates number. Husserl's result is that a number is constituted in the act of counting, between the absence and presence of number.⁶⁴ Theoretical mathematics then deals with more abstract levels, but there is a continuation from our experience of number to these more theoretical levels. The case of movement and the earth is more difficult because the Copernican worldview is not built upon our experience but denies it. We might stand on the equator and experience no movement at all. Yet, scientists might convince us that the earth under our feet actually moves at the speed of a jet plane. It is this loss of connection between scientific theories and the life we experience that Husserl saw as a crisis of science. With Hannah Arendt, we can point out that we are "freed" from the human

⁶³ *Ibid.*, 231.

⁶⁴ J. Philip Miller, *Numbers in Presence and Absence, A Study of Husserl's Philosophy of Mathematics* (The Hague: Martinus Nijhoff Publishers, 1982).

condition of being an inhabitant of the earth, “but this means also that we are freed from the given reality altogether.”⁶⁵

In our culture there is a tendency to understand everything as objects in space in the sense of natural sciences. As Copernicans we are also convinced that the earth is an object that has a place in the homogenized space of natural science. Is this the only way to understand our environment? Merleau-Ponty answers that “[i]n reality, it is not necessary to present things this way” and continues:

Husserl, in fact, introduces a whole system of experience, including quasi-objects. The *Umwelt* [surrounding world] is different from the world constituted by science, the world of pure things. It is a lived world that cannot be derived from *blosse Sachen*. Husserl deals with beings that are not yet objects. He describes what he calls the universe of the earth, of primordial contact, the ground [*sol*] of experience. Not the earth as *Körper*, but the earth before the work of homogenization. The earth has since been converted into a thing and an object.⁶⁶

The status of the earth as a quasi-object, an object without a position in physics, does not necessarily mean that the constitution of the earth is not real to us.

This prescientific field of our experience on which we live despite all the theories we learn cannot become an object of a natural science. This is manifested in the case of the original earth. Jacques Derrida writes:

If an objective science of earthly things is possible, an objective science of the Earth itself, the ground and foundation of these objects, is as radically impossible as that of transcendental subjectivity. The transcendental Earth is not an object and can never become one.⁶⁷

Could we accept a view that science cannot study the earth? There certainly are earth sciences that do important and objectively valid work. Is their earth different from the phenomenological earth? Are there two earths after all?

⁶⁵ Hannah Arendt, *Human Condition*, 285.

⁶⁶ Merleau-Ponty, “Husserl’s Concept of Nature,” 166.

⁶⁷ Derrida, “Introduction,” 83, n. 4.

VI

The Copernican view on the earth of natural attitude and natural science is correct in its own right, and Husserl does not try to deny this. This, however, is also true another way around: experimental evidence of natural science cannot refute the phenomenological view. A phenomenologist watching Foucault's pendulum would notice only that it really moves slightly differently than one would expect. That someone could also notice that this movement is seen and understood in relation to the original earth. Perhaps it should also be pointed out that if one wants an explanation, there is certainly more than one to choose from. Furthermore, scientists of our time do not even understand the movement of the pendulum as absolute. Yet, our phenomenologist will at some point return to the natural attitude and also see how convincing the data of the natural sciences and natural world are. The question of the earth is a dispute not only between science and phenomenology but also within each of us.

The obvious solution to the situation would be to divide the concept of earth into two concepts. On the one hand, we have the earth as a body, the Copernican earth. On the other hand, we have the original earth of our experience, which is not a body. The first concept is empirical and the second transcendental. Here we should bear in mind that the empirical in this sense is not derived from experience but from experiments and that, for Husserl, transcendental is not an abstract concept. What Husserl discovered is rather transcendental experience that is nonempirical and concrete.⁶⁸ Does this division of fields of research resolve the situation?

From the Copernican point of view, the earth is a body like any other body in the universe. When one has acknowledged this starting point, it is not a problem to add phenomenological or even poetical descriptions of the earth as a primitive home of humanity. On the other side of the dispute, Husserl claims the right to that first determination of the earth. From the phenomenological point of view, it is "wholly apparent"⁶⁹ what is

⁶⁸ Jacques Derrida, "'Genesis and Structure' of Phenomenology," in Jacques Derrida, *Writing and Difference* (Chicago: The University of Chicago Press, 1978), 154–168.

⁶⁹ Husserl, *The Idea of Phenomenology*, 29.

lacking from the natural attitude. Husserl exemplifies this in the lectures on the *Idea of Phenomenology*:

A person born deaf knows what are tones, that harmonies are based on tones, and that a splendid art is derived from them. But such a person cannot understand *how* tones do such a thing, or how the tonal works of art are possible. . . . Knowledge of existence would be of no help here; and it would be absurd to propose to deduce the 'how' of music, to clarify its possibilities, by way of inference from such knowledge. It will not do to draw conclusions from the existence of things one merely knows but does not see.⁷⁰

Natural attitude knows the earth but does not acknowledge that it must first be seen and experienced. It starts with the theoretical and experimental statement which abolishes the original experienced difference between bodies and the earth. With this we also lose the sense of earth as a unique original earth that binds us all together⁷¹ to a human community within which "I necessarily understand everyone."⁷² As this is the case there must be a way to communication between Einstein and Husserl as they are both earthly beings. A search toward this link of communication is at the same time a search for a solution for the crisis of science, a search for the link between science and experienced reality.

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⁷⁰ Ibid., 30.

⁷¹ Earth as a unique earth common to all humans rises some fundamental ethical and ecological concerns. Compare Arendt, *Human Condition*; Held, "Sky and Earth as Invariants of the Natural Life World"; Sallis, "Beyond the Political: Reclaiming the Community of the Earth"; *Eco-Phenomenology*, ed. Bown and Toadvine.

⁷² Husserl, "Foundational Investigations," 226.