

THE BRUNIAN UNIVERSE – ARCHITECTURE OF THE NEW WORLD

MARIAN ȚĂRANU

Abstract. The “Brunian Revolution” hammers at two aspects of the old cosmology: the hierarchy of the celestial moves and the relation between space and place. As far as the first aspect is concerned, Bruno abates the immobility of the eighth sphere, the one of the fixed stars; within the second part of his approach aiming to replace the old Aristotelian perspective of the universe, the Neapolitan author extends the idea of the infinite towards the concepts of motion and sphere. The rejection of the Aristotelian model, of the hierarchized nature, has repercussions not only on motion, but also on time: instead of a unique time, Bruno conceives several times in direct relation to the worlds living herein and to the bodies that populate these worlds. Therefore, all the subsequent dimensions are relativized.

The structure of the Brunian speech is tributary to the Middle Age, but the numerous elements of inconstancy seem to establish one of the most important aspects of novelty from a methodological point of view. The fact that Bruno elaborates an ontology, which will broadly become his own philosophizing framework, indicates it as the unique fundament. From this perspective, *intellectus universalis* and *anima mundi (pneuma universalis)*, ontological topics that have subsequently decayed into cosmological, gnoseological or magical topics represent coordinates that prove the thread of the Brunian constancy. Sometimes lacking systematicity, Bruno makes use of several divisions of the manifestations of these two ontological entities (that become a dialectic unity if regarded within a specific analysis), by means of which he construes the world, the universe, and their order.

The monist dialectic interpretation of the two entities follow a new and surprising trajectory: there is a rigorous analysis focused on the manifestations of the soul of the world and of the universal intellect within a somehow random hierarchy (an issue that is quite unexpected at Bruno is the consistency with which phenomena are treated: based on the ontological principles, the Nolan infers the same degrees of importance, if not the very immeasurability of the phenomena), which are dominated by formal principles (the order of the approach and of references). For Bruno, the animal world represents a multitude of forms of the universal intellect, one of the infinite manifestations of the soul of the world: man, who is a series of manifestations himself (soul, body, ingenium, beast, hunter, etc.), represents only one aspect of the animal world, which is a more ample phenomenon (taken without any value connotations) of cosmos, a plenary manifestation of the dialectic unity.

For Nolan, *Coincidentia oppositorum* represents a radical formulation of the infinite approach as a preferred method of argumentation. The *infinite reduction* is the most frequently used, but even this method may be regarded as a diminution of

the method that Bruno had taken over from Cusanus. Actually, the distinction between the *infinite reduction* and *coincidentia oppositorum* varies from antipodes to interpreters: from supporting their identity (Gentile) to drawing a distinction of nature between the two operations (specific for two different fields – Trinanzi).

One of the premises of this study has also been formulated by I.P. Culianu¹, and it may be found in the subtext. *De la causa* contains the point of origin, which does not include the abundant problematizations from other works, representing the starting point of various subsequent programmes. One may have noticed the fact that, on the background of two traditions, Bruno uses two conceptual registries, attempting, without succeeding all the time though, to build only one speech. In the cardinal points of his ontology, the Nolan drafted a plan for the elaboration of his future speeches.

Although Bruno has experienced multiple interpretations, many of his interpreters looking for speculative depths, often without any justified results, as it is demonstrated by *De la causa*; the Italian author presents in a scholastic manner (with modern signification though) a doctrine that he programmatically conceives as the rival of an entire tradition (most of which he is not able to escape – from both a thematic point of view and especially as conceptual usage). There are numerous instances where Bruno has a crystalline expression; in other circumstances, when the philosophic speech of the day could not bear with this sort of expression, he insists, by means of several characters, aiming at further clarifications. There is no use trying to find in Bruno's work problematizations related to *being* and *essence*; actually, these terms do not appear in this text, not even once, and, each time, the word *existence* means the concrete, the individual.

In *De la causa*, Giordano Bruno is not a poet, although he makes abundant use of figures of speech; he is not a hermetic philosopher, although he does approach the themes of this current, nor does he announce modernity, although certain ideas, which were subsequently elaborated, have been taken over by this trend. In the dialogue *De la causa, principio et uno*, Bruno seems to be a thinker who is preoccupied by the issues of the day, as well as by the issue of a solution to these matters. This is where his philosophy comes to life.

The natural philosophy presented in the dialogue *De la causa* represents the focal point of expression and radicalization of the humanist crises that has brought up the issue of the logic-metaphysical edifice of mediaeval rationalism. Therefore, for instance, *De la causa, principio et uno*, which appears in the same year as *Cena delle ceneri*, also mentions the problem regarding the infinity of the universe; but, although there is no genuine demonstration hereby, it is put in direct relationship

¹ Agreeing to the fact that there may be vocabulary differences between Bruno's magic treaties and his philosophic work, one may never accept any essential difference of principle or method – Cf. I.P. Culianu, *Eros și magie în Renaștere* (Eros and Magic in Renaissance), 1484, Nemira, București, 1999, p. 117.

with the conceptual reformulations of the theoretic references that have been used. The goal of this dialogue is to annul the philosophic practice and vocabulary that were valid and used at that time. Bruno hereby redefines the Aristotelian notions of substance and accident, matter and shape, deed and potency, elaborating a coherent monist vision. As far as the assessment of the conceptual instruments of knowledge is concerned, *De la causa* represents the epistemological preliminaries of an encyclopedic programme, which is developed in the following works based on certain new and specific points of view, which will build the image of any speculative science as “une peinture de la réalité omniforme de l’Un”². The destruction of the mediaeval architectonics of knowledge is implied by the rejection of theology as the ordering science: for Bruno, the distinction between philosophy and theology does not represent mere critical preliminaries used in order to circumscribe the sphere of natural reason, securing its autonomy, but the statement of two types of faith, and of two sorts of light – the natural light, on which science is based, and the supernatural one, which fundaments the system of ignorance and assinity. There is no relation of epistemological continuity between the two – one excludes the other; the infinity of truth opposes to the finitude of human knowledge. If we empty the metaphors of mystic theology of their traditional significance, just as the hierarchic language of neo-Platonic ontology is deprived of its metaphysical meaning, Bruno uses the unity primate thesis not in order to introduce transcendence, but in order to clarify the situation of the knowing subject, whose conceptual instruments never surpass the infinite productivity of unity. The analysis of the dialogue *De la causa* shows that Bruno systematically denaturizes the meaning of the ideas that he has taken from the traditional sources, introducing them in quite a different context than the original one. In fact, there are two sources of this kind: the neo-Platonic tradition, which is mainly represented by Marsilio Ficino, and the papers of Nicolaus Cusanus, which makes further reference to Pseudo Dionysie Areopagit’s tradition of negative theology. One may easily notice that Bruno eliminates a fundamental notion for these two traditions, rejecting any type of privileged mediation between the first principle – God – and the world. Ficino’s entire effort aims at the individualization of an intermediary between the perfection of the intellectual world and the world of living creatures. This is how the leader of the Florentine academy gets to use the notion of intellectual matter and soul of the world, two notions that represent the connection between two different realities; by means of these notions, certain properties of the intellectual world (the coincidence of the deed and potency, for instance) could be transferred to the corporal world. Although he does not embraces the neo-Platonic emanations and the division of reality in various presentations between God and matter, Cusanus sustains the thesis of Christ – the

² T. Dragon, *Unité de l’être et dialectique. L’idée de philosophie naturelle chez Giordano Bruno*, Vrin, Paris, 1999, p. 238.

mediator between God and the world, a mediator who allows the unification of the two beings. Bruno uses the notions provided by the two trends eliminating the distance between the universe and the first principle, and, thus, the necessity of a mediation: the properties that Ficino acknowledged for the intellectual matter and the souls of the world, in the name of the coincidence between form and matter, are now attributed only to matter; Bruno's infinite universe may be revealed with all the properties that Cusanus reserves for divinity; his philosophy no longer needs a mediator between the two worlds, because the first principle and the universe are united. This demonstration is made in open polemics with the peripatetic philosophy, a philosophy that, for Bruno, does not represent merely the basics of a language by means of which he moves and formulates his reasoning and sustains his ideas, but also the main enemy – Bruno wants to defeat his enemy with his own weapons. The dialogue *De la causa* is consecrated to the search of a definition of the cause of the principle, and, from this perspective, Bruno criticizes the Aristotelian theory of the substance: he renews the notions of form and mater, replacing them by those related to the soul of the world and to matter, whose property is no longer a pure passivity, but which, since it is directly connected to the soul, eventually identifies itself with it. This union has the properties that Ficino has granted to the intellectual property and to the soul of the world, and Cusanus to God: the deed and the potency coincide here. According to Bruno, the Aristotelians have given the name of substance either to the compound, or to the substantial forms that succeed in matter; but, in the two cases, accidental and ephemeral aspects of living creatures are privileged. In a more rigorous analysis, one must admit the fact that this soul is present in all living creatures; it is the form and the action of things. The soul is one, but its effects are modified according to the dispositions of the matter that it receives for in-formation.

The notion of matter is nothing but one of the aspects of the idea of nature, which is more complex, and which, in Renaissance, is used with two essential meanings: *First of all nature was regarded within its physical and, especially, its mathematical relations. (...) But, on the other hand, nature could also be perceived with the other significance, the one provided by the pre-Socrates period, which implied the reduction to the material components, sometimes to a unique, undifferentiated matter³.*

The first formulation of the Brunian cosmology may be found in his dialogues from 1584: *La cena de le ceneri* and *De l'infinito, universo e mondi*, and the fundamental aspects are already stated in these two Italian dialogues where Bruno provides his own interpretation of Copernicanism, which he places within a homogeneous universe, having the following characteristics:

³ Edgar Papu, *Studiu introductiv la Giordano Bruno* (Introductive Study to Giordano Bruno), *Opere italiane* (Italian Works), I, Humanitas, Bucureşti, 2002, p. 35.

1. The Earth is a planet just like all the others, made of four elements, with the predominance of water; this is the motivation for naming this planet “waters”, and this also explains the spectral characteristic of their light, which is nothing but the reflection of the solar light on their aqueous surface.
2. The sphere of the fixed stars, as a limit of the physical universe, and as an immobile region, which is a qualitatively different region of the planetary system, does not exist anymore. By means of this negation, Bruno alienates from Copernicus and from other Copernican statements, as well as from the one of Thomas Digges – *Perfit Description* (1576), or of Kepler – *Mysterium Cosmographicum* (1596). Therefore, each star is a sun placed in the middle of its own planetary system, and the universe, as a whole, is an infinite sum of solar systems, which are very remote from one another and with no absolute periphery.
3. This infinite universe is, among other things, homogeneous, since it manifests the same structure in all regions: the four elements equally form the mass of the sun-stars, but the elements of fire is predominant; this is due to the fact that they shine by means of their light, which they deliver into the environment. The homogeneity of the universe is also manifested in the unique physical laws that govern the motion of the matter in all planetary systems.

By the infinite plurality of worlds, this cosmology resembles the Epicurean one, from which it takes over the atomism. Within the homogeneous infinite space, Bruno signals the arbitrary characteristic of the distinction between a finite region, occupied by only one world, and another one, an infinite and void region; the argumentation (against Stoics and their disciples from the lat Middle Age and Renaissance) being based on the principle of sufficient reason, on the one of plenitude, and on the rejection of the scholastic distinction between *potentia absoluta* and *potentia ordinta*, that is having as a starting point the necessary *ad extra* update of the infinite divine power and the necessary occupation of the infinite space by infinite worlds or solar systems.

From the contemporary perspective, that of the post-Copernicus conceptual system (according to his own argumentations, Bruno is some *sort of a Copernican*, of Renascent formation), the most important aspects are as follows:

1. The “mutual necessity”, of a metaphysical and physical-biological (alimentary) nature, of the contraries earth-sun imposes one of Bruno’s newest and most original cosmological theses: the necessity that each star-sun manifests in the relation with its planetary convoy, or else it cannot survive; there are no planets without a sun, and no sun without planets.⁴

⁴ Cf. Eugenio Garin, *La rivoluzione copernicana e il mito solare*, in *Rinascite e rivoluzioni. Movimenti culturali dal XIV al XVIII secolo*, Laterza, Roma-Bari, 1975, p. 279.

2. The planetary system is guided by an “immanent divine providence”, which creates it as such in accordance with a stable and permanent teleological disposition, guaranteeing the reproduction and continuity of each planetary system. Due to this presence of the immanent divine providence, stars are able to set a balance within the flux of the atoms that enter and leave the human body.⁵
3. Therefore, Bruno preserves the divinity of stars, which is typical for the Greek cosmology (the Platonic, Aristotelian and Stoic cosmology), and provides it with an important place within its cosmology, at the teleological and religious levels.⁶

But building an image, a photograph of Bruno is a modern procedure; fortunately, this is not the only way one may understand the work of a philosopher of times past.

A superficial reading of the Brunian dialogues reveals the fact that, unlike all the other ones, in two of these dialogues, Bruno quotes Lucretius extremely often; this is precisely the case of the dialogues entitled *De l'infinito* and *De immenso*. The Italian philosopher uses the theories of the ancient atomists in order to annihilate the peripatetic physics: he says that the theory of elements elaborated by Aristotle is misleading because it implies a distinction between skies, celestial spheres – which include a fifth incorruptible, immutable element – while the Earth is made of four elements (air, water, fire, earth), which are subject to generation and corruption. Nevertheless, he believes that all celestial bodies are made of the same matter, and that they are differentiated only by the relation between the water element and the fire element.

Bruno may not be regarded as an artisan of the new Galilean science because he establishes the nucleus of his cosmology not by experimental and mathematical means, but by gathering, sometimes in an eclectic manner, the motifs of the classic philosophy and the ones of the Hellenistic hermetism. The fundament of the theses regarding the infinite universe and the universe of the inhabited worlds is the result of the classic metaphysics, either Platonic or Aristotelian, re-analyzed and reformulated from the new perspective of the infinite.

Bruno's outlook regarding the relation between form and matter is nonconformist due to the cultural and historic context in which he lives: he claims, in complete contrast with the Aristotelian tradition, the idea of a living matter, a matter that is subject to an infinite multiplicity and diversifications, but which retains in itself the only complete creative power.

The essence of the entire Nolan “nova filosofia” resides in the ubiquitous and systematic effort of raising the minimum to the maximum, man to nature, universe to God, the inferior things to the superior ones, within a powerful tension of the universal unification.

⁵ Cfr. Alfonso Ingegno, *Cosmologia e filosofia nel pensiero di Giordano Bruno*, La Nuova Italia, Firenze, 1978, p. 175.

⁶ Cfr. Maurilio Frigerio, *Invito al pensiero di Bruno*, Mursia, Milano, 1991, pp. 128–129.

THE MORPHOLOGY OF A SELF-DETERMINED UNIVERSE IN EACH OF ITS CENTERS

In complete disagreement with Andrea Osiander, the author of the preface of *De revolutionibus orbium coelestis*, which grants it with the strict characteristic of a “mathematics hypothesis”, not only does Bruno state the veracity of the heliocentric thesis, but he also extends the Copernican revolution to the entire universe. Therefore, in his cosmologic papers⁷, he elaborates an original vision of the universe as an infinite and animated sphere, where every point is simultaneously a center and a circumference, where there is no up and down, center and margin, but the dimensions are always related to every body. These characteristics are valid not only for the infinite number of celestial bodies that Bruno construes as living, or only for planets (which are populated by people, as well as by other intelligent creatures), but also for each of their determinations.

The Brunian universe is self-determinant, and it is diversified by the forces within. From this perspective, the Nolan's arguments are directed towards the rejection of the distinction between celestial bodies and the sub-moon world, as well as towards the rejection of the idea of the First Motor included in the Aristotelian cosmology. The Brunian universe is neither geocentric, nor heliocentric (unlike the Ptolemaic and the Copernican outlooks, which are asserted in the age among various corrections of parallaxes and epicycles): it is an *omnicentric* universe. In the case of the omnicentric universe, in the absence of a celestial body having the position of a primate that may thus influence the motion of the other bodies, the suns and the planets mutually influence one another, at a level of complete parity. In the Brunian cosmology, the Earth seems to be intrinsically endowed with a generative force, in virtue of the action of the Spirit, corresponding to its impulsiveness, and which is immanent: the Spirit is the living force that is explained in creation. In its circular and dialectic motion, it manifests a creative love that leads all things towards unity: the Spirit is that *vis* that keeps the universe together, self-explaining and self-involving in a dialectic manner. The infinite generating potency of origins is perpetuated by the creatures' infinite diversification, with no subordination to a fix principle, in a strictly teleological manner, orienting the entire universe towards itself.

Unitary and incorruptible, interminable and immeasurable, nature must always be perceived as a whole, immobile in its eternal motion: “è tutto, è massimo, è uno, universo”. Therefore, a nature of this kind has no center and no circumference, “Perché dunque l'infinito è tutto quello che può essere, è immobile; perché in lui tutto è indifferente, è uno; e perché ha tutta la grandezza e perfezione

⁷ Most of Bruno's commentators mainly analyze the Italian dialogues *La Cena de le Ceneri* and *De l'infinito, universo e mondi*, both of them published in 1584, and the poem written in Latin *De innumerabilibus, immenso et infigurabili, seu De universo et mundis libri octo*, published in 1591.

che si possa oltre ed oltre avere, è massimo ed ottimo, immenso. Se il punto non differisce dal corpo, il centro da la circonferenza, il finito dall'infinito, il massimo dal minimo, sicuramente possiamo affermare che l'universo è tutto centro o che il centro de l'universo è per tutto, e che la circonferenza non è in parte alcuna per quanto è differente dal centro, o pur che la circonferenza è per tutto, ma il centro non si trova in quanto che è differente da quella. Ecco come non è impossibile , ma necessario, che l'ottimo, massimo, incomprensibile è tutto, è per tutto, è in tutto”⁸.

This position is not a strictly Pantheistic one, since Bruno hereby speaks about Nature as a whole, not about a God-natural principle, on whom he will focus from a separate perspective, which he adopts on behalf of theology. Bruno sustains the idea that a God – the infinite efficient cause, may not have a finite universe as an effect. Filoteo has previously insisted on the following: “Io dico l'universo «tutto infinito», perchè non ha margine, termino, né superficie; dico l'universo non essere «totalmente infinito», perchè ciascuna parte che di quello possiamo prendere, è finita, e de mondi innumerabili che contiene, ciascuno è finito. Io dico Dio « tutto infinito », perchè tutto lui è in tutto il mondo, ed in ciascuna sua parte infinitamente e totalmente al contrario dell'infinità de l'universo, la quale è totalmente in tutto, e non in queste parti (se pur, riferendosi all'infinito, possono esser chiamate « parti») che noi possiamo comprendere in quello”⁹. Bruno will push this idea forward to maximum consequences: God's identification with the world, within the universal dynamics, thus formulating the idea of a “Dio-mondo vivente”. It is precisely by these last consequences that Bruno is a Pantheist.

As we return to the importance of the vitalistic aspect regarding Bruno's cosmologic conception, there is for doubt for Badaloni that even *Cabala del cavallo pegaseo con l'aggiunta dell'Asino cilenico* (1585) expresses an Epicurean and Lucretian vitalistic and materialistic vision. Actually, it is a materialism that, in the Nolan's extreme philosophic simplification, inseparably connects water and earth, matter, as atomic aggregation, and spirit, as vital energy. This is the animated matter of living creatures with an omnipresent manifestation: it is the natural predisposition of matter towards the diversification of the structures of species, of the infinite living forms, in a world of perpetual transformations. Badaloni also quotes the poem *De immenso* in his argumentation of the spontaneous and causal origin of nature's life, of matter in uninterrupted transformations and interactions, in all worlds. Everything operates in everything, and in an infinite diversification: “omnia intelligunt, sentiunt et quomodocumque cognoscunt”. Based on this principle of life, the Nolan edifies an extraordinary anti-finalist and anti-creationist vision of unity and of the eternity of the uncreated universal nature, which sets no conditions and no limits, which does not inhibit the human capacity and freedom of

⁸ Giordano Bruno, *Dialoghi italiani*, a cura di Gentile-Aquilecchia, Sansoni, Firenze 1958, p. 215.

⁹ Ibidem, p.73.

reaching superior levels of reason, of intelligence, of knowledge, of dominating events and things, of self-knowledge.

Ciliberto focuses on the Brunian infinite matter outlook as well: “Nel *De la causa* all’ordine del giorno è la fondazione ontologica della cosmologia dell’infinito: conta dunque rilevare, in questo caso, il lavoro che Bruno compie per trasformare il concetto di materia portando l’anima, cioè la vita, dentro la materia, aprendo la strada al «prodursi» inesauribile dell’universo infinito. Conta cioè osservare lo sforzo che egli compie per mettere in «comunicazione», senza dissolvere distinzioni inesauribili – «corporeo» e «incorporeo», «sensibile» e «intelligibile», cioè in una parola «atto» e «potenza», «anima», «forma» e «materia». (...) nel *De la causa* è la materia universale che si situa al centro del processo, costituendosi essa stessa come «principio» della comunicazione fra «corporeo» e «incorporeo», fra «sensibile» e «intelligibile». Da un lato essa «ascende» a Dio, all’incorporeo (...) dall’altro «discende» verso il corporeo, il dimensionato (...) e ciò significa che nelle «cose inferiori» anima e materia tendono a coincidere, ad essere finalmente uno. Trasfigurata dalle fondamenta, nell’analisi di Bruno, la materia risorge come la fenice dalle ceneri, riconfigurandosi quale infinita energia formatrice....”¹⁰.

In more recent years, several pertinent positions have been created in an antithesis to the psychotic-hermetic interpretation of Bruno, the “big magician”; one of the authors belonging to this trend is Hilary Gatti¹¹. Even in her first Brunian studies, she notifies “che i suoi interessi fossero più spesso diretti altrove, verso argomenti come la nuova cosmologia o la ripresa dell’atomismo antico (argomento questo che lo vede in vesti pionieristiche), la teoria pitagorica dei numeri o la possibilità di investigare, misurare e riordinare in un nuovo quadro l’universo naturale”¹². Telesio’s, Bruno’s, Campanella’s “naturalism” are very different outlooks from a structural point of view, and, even if they are produced within the same cultural context, they have been arbitrarily assimilated together. Bruno is the only “propugnatore di una concezione della materia di tipo dinamico e vitalistico”¹³. Vitalism is a purely Brunian idea, and, therefore, Bruno has been evaluated as mystical by Yates¹⁴, with whom Gatti continues to share a dispute.

The difference from Copernicus, which Bruno underlines many times, is an important issue for the identity of the Nolan cosmology. If we return to a

¹⁰ *Antropologia e civiltà nel pensiero di Giordano Bruno*, La Nuova Italia, Firenze, 1968, p. 70.

¹¹ *Giordano Bruno e la scienza del Rinascimento*, Raffaello Cortina, Milano 2001.

¹² *Op. cit.*, p. XI.

¹³ *Ibidem*, p. 10.

¹⁴ The British researcher mainly launches this paradigm of the Brunian works (and not only, the Warburg Institute where she worked and which she administrated for a period of time after Kristeller’s death, bringing a significant contribution in this direction of interpretation regarding the entire Renaissance) in her paper entitled *Giordano Bruno and the Hermetic Tradition*, Routledge, London, 1964.

distinction that is typical for Bruno, we may notice that Copernicus does not manage to penetrate “dentro i sentimenti in modo organico, sistematicamente”; he remains caught within the universe of the word, which is typical for mathematicians, or for astronomers. Copernicus takes refuge in a strictly mathematic horizon; he remains an astronomer, he does not become a philosopher: this is exactly the intrinsic limit of his research. Copernicus’ interpretation is based on the idea of the infinite universe populated by an infinite number of forms, in a ceaseless movement of discomposure and coagulation, but all of them being homogeneous from the point of view of the material and spiritual structure. This leads to the idea of deconstructing the circumferential limits of the universe, of disintegrating the sky of the fixed stars, of dissolving the solid concentric spheres and the perfect circular move. Therefore, the fundamentals of Bruno’s critique regarding Copernicus lies in the idea of infinite, of universal motion, of eternal life, beyond all the ideational limits imposed by the traditions preceding the Nolan.

As he writes *De l’infinito*, Bruno pays growing attention to another key concept: space. Bruno’s infinite universe is a contradiction of the Aristotelian theory related to natural connections (similar to the case of the natural move theory). How could one identify the center and the periphery, up and down, left and right in an infinite universe?

Space¹⁵, vacuum, ether, field: for Bruno, these terms are equivalent. The Nolan modifies atomists’ notion of space. In his opinion, space is an undifferentiated receptacle of celestial bodies; he cannot accept the absolute vacuum. Space is only a vacuum because it is impenetrable and it may be compared to matter: it represents that passive force whose coincidence with the deed he demonstrates in *De la causa*. In *De immense*, Bruno summarizes Philipon’s considerations on space, to contradict the Aristotelian definition of place: space is a continuous entity, preceding by its nature all corporal things; regardless of its contents, it is impossible to establish segments, it contains everything and it is not contained by anything; it is neither substance nor accident. However, these opinions do not modify Bruno’s old convictions: the sky, space and vacuum are ether. As far as this notion is concerned, *De immenso* provides a more

¹⁵ Cfr. H. Védrine, *La Conception de la nature chez G. Bruno*, Paris, Vrin, 1967, p. 250, where he claims that, by the end of the 15th century, Renaissance people had already freed themselves of the place dogma, which they perceived in an Aristotelian manner as an “enveloppe immobile des corps”, rediscovering their interest in space. At all philosophers “on note une hésitation dans la choix d’une définition... . C’est qu’ils ont à répondre à un double problème: d’une part, l’espace paraît contenir l’univers, puisque tous les mouvements des astres se forment en lui; de l’autre, il semble indifférent aux objets et susceptible d’être conçu seulement comme ce qui a trois dimensions. Entre les qualités physiques que lui conférerait volontiers la cosmologie et l’étendue vide et abstraite des mathématiques, la synthèse est difficile. Bruno a plus que tout autre connaît ces problèmes et il est loin d’atteindre encore à une conception très épurée de l’espace. Il doit tenir compte du rôle du vide, de l’éther, de l’air et de l’âme”.

detailed explanation. Sometimes it is identical to the air that surrounds the Earth, but it is not a genuine element: it is inalterable, passive, since it is the place of bodies. The Ancients say that its power contains all the light and the heat of the stars, but that these properties are not manifested unless they are united in the element of water.

The sky is unique and fluid; however, Bruno does not accept a total equivalence between ether and air, just as he does not accept a material difference between skies and Earth; therefore, celestial spheres no longer exist: they are the imaginary and monstrous product of geo-centrism. On the other hand, Bruno had to find an explanation regarding the motion of terrestrial bodies and of the stars. Bruno believes that this motion is not caused, but finds itself within all compound things, and it is manifested as a wish of self-preservation. Thus the Nolan achieves the unification of the natural laws: since everything is animated, everything moves due to a motor that does not have an external origin, but an intrinsic one. The difference between the natural moves and the violent ones is not an equivalent of the difference between circular motions and those performed in a straight line, as claimed by Aristotle, but it is brought about by the type of moving cause (type of motor): when the latter is internal, there is no violent move, and all the compound bodies have a natural motion. At the same time, there are circular moves and those performed in line, and one must look for the cause of this difference. Bruno explains a prior distinction: between the bodies that represent an organic entity and their parts. The bodies that are constituted as a whole have a circular move: they move around their own axis or around their suns in view of self-preservation, which may be accomplished by finding equilibrium between the element of water and the element of fire. Parts move in a straight line, since they return to the totality that contains them and from which they once separated; or, if this detachment got them too far away from their unit, they will connect with the closest bodies, on the criterion of the resemblance with the whole in which they find their origin.

Space is uniform and bodies are not by nature heavy or light: these elements allow Bruno to reject the arguments brought forward by the geo-centric astronomy against the motion of the Earth. Not only the planet on which we live, but all the other celestial bodies do not oppose resistance to this motion, not because of their weight, but precisely due to the fact that they represent a genuine mechanical system. The bodies that may be found on our planet participate in its daily move not only because they have the same nature, but simply because they find themselves on it. It has been claimed, says Bruno, that the parts of the celestial bodies have the tendency of getting unified in a whole; but this phenomenon is not due to a particular nature that sets a difference, for instance, between the parts of Terra and those of Saturn, or from those of the Sun: beyond a certain distance, they would not be able to return to their original celestial body, and, in this case, they would go towards the closest star or planet. These ideas represent a progress

compared to Copernicus: the Polish priest tries to reject the objections of the geocentrism followers, by saying that the Earth and the bodies around it behave like a system because they share the same nature. The bodies that fall on the surface of our planet do not go towards the center of the world (the Sun), just as snow-flakes are not perturbed in their trajectory, simply because they all share the same common terrestrial nature.

Bruno draws a uniform universe, in which celestial bodies are different only by the quantity of water or fire that they contain; therefore, this is the first step towards the unification of terrestrial physics and the celestial one, disintegrating any difference among celestial bodies. Not only does the Nolan assume that planets resemble Terra and that the stars resemble the Sun, but also that the assembly of moving bodies manifests itself as a unique system. The only limit of Bruno's reasoning may be found in his use of the preservation principle: according to his outlook, a body coming from a planet, once it is removed from its original whole, and it is placed between another planet and the Sun, it will never fall on the latter if the celestial body is closer to him, because stars are dominated by the element of fire, being, therefore, contrary to the aqueous structure of planets.

In *De immenso*, one may easily notice a re-grouping of the themes spread in the previous Brunian works. No sensitive body may achieve a perfect geometric regularity (nor may it have a perfect spherical figure or follow a perfectly circular trajectory), and the true reason of this impossibility is represented by the fact that stars observe the law of universal vicissitude. This law applies to the modification and the succession of forms in matter: the universe is God's "explained" image, and, therefore, it must accomplish all potencies; each part of matter, being unable to simultaneously fulfill all potencies, it must successively embrace these possibilities. For example, the law of vicissitude applies to the changes that appear on Earth. Moreover, in *De immenso*, this law explains the motion of the stars: since celestial bodies never return in their initial status at the end of a revolution, they are to experience a perpetual transformation; the sky never has the same aspect in two different moments, which contradicts the Platonic idea of the Great Year of the world. Despite his cyclic outlook on history, Bruno excludes any form of the eternal return of the identical. In his opinion, the geometric figure that is closest to the exact description of stars trajectory would be the spiral.

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