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The role of iconic practice in Bruno's gnoseology

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The iconic praxis plays a vital role in Giordano Bruno's gnoseological process. Bruno considers the image to be both sensitive and intelligible according to its faculty of *Phantasia*, which traditionally is condemned as the *umbra* (shadow) or false reflection of the idea. Through the cognitive practice in the art of memory, Bruno's shadows symbolically take on those iconic forms and the mental schemas, and then the mnemotechnic shadows become a psychological vehicle, which can raise the human gradually up to the Divine glow. The theological rhythm of ascent and descent is also related to the operations of natural magic that can exert sympathetic links between the micro and the macrocosms. Hence the function of Bruno's illustrations does not lie in the mechanical interpretation but depends on the private experience of the people who practice them. By means of the interior *contractio* (contraction) of the soul, Bruno is able to collect the celestial influences with his theurgic xylographs, which make him unique among the Renaissance and early modern philosophers.

Introduction

What is an image? Someone might answer a mountain, a gesture or a photograph; others could say the memory of a familiar face, a lucky number or what they dream of. The cognitive power of images and imagination aroused the attention of the most originitive Medieval and Renaissance thinkers, who recognized a decisive role for images in the cognitive processes. As pointed out by Bruno (2009), echoing the *De anima* of Aristotle (1956), it is not possible "either to understand or to remember except through the images that the imagination can produce".

At the opening of *De imaginum, signorum, et idearum compositione* Bruno (2009) writes again "Our understanding, namely the operations of our intellect, is fantasy or not without fantasy". He repeats this in the same work "We do not intend if we do not look at the phantasms". Therefore, it is necessary to start thinking in images again, to regain possession of the 'vision' of nature from a technical point of view. According to the discussion on the creation of images in Giordano Bruno, images are both sensitive and intelligible, converging in the physical composition of the worlds and the visible intelligence of the Divine. Namely, the renovated *Vis imaginativa* (the power of imagination) intends to discover new and even more efficient ways to the Truth.

For the first 60 years or more of the twentieth century, the iconological approach raised by Bruno has been often regarded as both immature and incorrect by commentators. Koyré (1973, p. 57) simply called him "un mathématicien execrable". Yates's (1964) characterized Bruno's mnemonic diagram as Hermetical speculation, thus denying any scientific value to his philosophy at all.

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Recent efforts to gain a better understanding of Bruno's life and works have led to a reconsideration of his original thought. Bernart (1986) observed that Bruno's iconology reflects a quest for a theory of perception. Since the end of the nineteenth century a trend has developed examining Bruno's geometric illustrations in relation to his gnoseology. Sturlese (1991, pp. LIV-LXXIII) overturned the Hermetic interpretation of Yates and called for a new approach to Bruno's iconology based on a careful analysis of his sources, his philosophical agenda, and the historical circumstances under which he came to elaborate his art of memory. Bonker-Vallon (1995) has noted, Bruno believes that it is through metaphysical images (or mathesis) that the first principles can be accessed, pointed to, and recognized. Gatti (1999) offered a gnoseological model of Bruno's geometric figures as "meta-mathematics", which is both self-aware and aware of its role in God's creation.

In spite of these developments, Bruno continues to be regarded as a poor scientist and philosopher. The aim of this article is to challenge this received view by charting how the iconic praxis is intertwined with his "nova filosofia". Present article tries to emphasize that, for Bruno, to imagine and to think are two complementary aspects of the same gnoseological modality, which is able to be concretized and expressed graphically in the form of drawing, or scheme, or *sign* or *seal* in his xylographic works. Similar geometrical figures, which are intimately "mathematical", translate and are represented to the one who is observing the created structures, just like Bruno "sees" them with his *oculus mentis* (mind's eye).

Bruno applies the "visual" arts of the mind across all his works, manifesting them particularly in the "mnemonic" images, such as the treatises on *ars memoriae* (*De umbris idearum* 1582, *Cantus Circaeus* 1582 or *De imaginum, signorum, et idearum composition* 1591), and other philosophical and cosmological works (from the *De l'infinito, universo e mondi* 1584, *La Cena de le Ceneri* 1584, to *De la causa, principio, et uno* 1584), to the three metaphysical poems of Frankfurt. Bruno explores and investigates the multiple "metaphysical" implications that derive from the organization of an intellectual knowledge based on a necessary reform of the interpretative routes and schemes, with which the human mind can develop and amplify its own abilities: an elaboration of profound criticism and rethinking of the more solid categories of thought and interpretation of reality, which leads Bruno to deny and overturn the most important philosophical notions of his time.

In this paper, a textual analysis of Bruno's gnoseology is provided. By means of anthropology and mysticism, the paper examines the correlations between the art of memory and natural magic. Developing the conceptual analysis, we discuss the concept of *imago*, faculty of vision, human dignity, and natural magic. Hence, the theoretical and methodological attention enables an in-depth understanding and an appropriate semantic spectrum of the topical concepts, assuring a thorough and accurate analysis. In addition, the iconological investigation might offer us a key for decoding the expressive didactics of Bruno and, perhaps also, a key to better understand the controversial philosopher himself.

In fact, Bruno has not explained or clarified the intermediary function of his occult images. The fruitful autograph about the "artistic" production of Bruno consists of the wood engravings with which he adorns his printed volumes, and the essence of this article is trying to investigate how the graphic production represents the synthetic and practical realization of his magical and speculative idea. Let us proceed in order: firstly, we will analyze the meaning of Bruno's core ontological and epistemological concepts, on which his entire iconological and mnemotechnical system depends; secondly, we will further expand Bruno's iconographic practice to the theological and gnoseological claims, which

conjugate celestial, terrestrial, and human beings; finally, we will point out that Bruno's images do not depend on the quantitative mathematics, but on the magical practice of those who experience it.

Umbra and imago

According to Bruno, the composition of the universe is a triplex pattern i.e., ideal (archetypal, metaphysical, or divine), physical (or natural) and rational (logical, artificial or shadowy). Tracing back and reinterpreting Hermetic and Neoplatonic themes on the tripartite division of the universe, Bruno (2017) considers that first of all there is the idea, the archetype "that dwells in the divine mind", subsequently the natural things that keep the "vestiges" of that ideal world imprinted and, finally, rationality, namely man's mental world, which is able to understand and cognize through the "shadows" of the corresponding ideas (Bruno, 1584a, b, c). Just as ideas are considered as the archetypal forms, things are born and perish by the forming principles, and similarly, we confer form to "images" in ourselves; that is to say, the "shadows" of those ideas (Bruno, 1582).

The *Mundus triplex* (triplex world), in which the main actors essentially are God, Nature and Man, inevitably raises the question of the relationships and correlations among them; to explain the connections, it also concerns knowledge and epistemological reasons. In fact, it is inevitable that any subsequent reality after the One—double, triple and otherwise—generates the question of the creation or the procession relative to the same One, and consequently other questions like the meaning of the parts and the whole in respect of the One.

The reflections of Bruno's writings on mnemotechnics make us understand how the level of philosophical investigation intertwines and overlaps in Bruno with that of praxis as a path in the experience of human consciousness. With the goal of intellectually increasing, expanding and building the perception between oneself and the cosmos, the attempt to upgrade the effects of the art of memory gives rise to a real inner praxis, as much as the alchemical experiences or the Neoplatonic magicians' investigations on potentiality and the resources of the psychic internality. The metaphor of the shadow becomes the "visible sign" of a philosophical and interior conquest at the same time.

Now let us examine how Bruno confers to *umbrae* (the shadows) the status of a paradigmatic tool for the gnoseological procession. In *De imaginum, signorum* (Bruno, 1591), *et idearum composition* (Bruno, 1582), we see that ideas are the causes of things that go ahead of things, the vestiges of ideas are things themselves or within things, and the shadows of ideas come from things themselves or after things. In this triadic hierarchy, the "*umbra*" (shadow) represents the lowest level among them: idea/thing/shadow (Bruno, 1991, p.101). "The external forms", Bruno declares, "are considered as vestiges of ideas the interior shadows of these same ideas", and then he further points out that:

"We believe that the forms in the bodies are nothing but images of divine ideas, and these same images in the interior senses of men should be called by a more proper name supposing that they cannot be regarded as of the immediate shadows of divine ideas. From now on, the inferior shadows are distant from the reality of natural things, just as the distance between the natural things and the metaphysical truth?" (Bruno, 1582, p. 103).

From the iconographic and metaphysical views, this equidistance among the different levels of the cosmic hierarchy assumed by Bruno derives from the typical proportions of the medieval patristic schemas (Hispalensis, 1857), which depict the universe and the parts, God and his multiple degrees of creation. By means of these schemas, the correlation is usually articulated geometrically by concentric circles (with the commensurable

radiuses and the equidistant circumferences among them) as a didactic testimony of the harmonious link that unites all things.

Therefore, *le umbrae* (the shadows) are those particular interior representations or *imagines* (images, which are imprinted on the vestiges, traces) of the innumerable things of creation: the man “visually” (Bruno, 1591, p. 98) captures the latter with the external senses, then re-elaborates them within himself with those interiors. Significantly, Bruno adopts the theory of vision elaborated by the Greek atomists Leucippus and Democritus, whose doctrines are subsequently inherited and transmitted by Epicurus and Lucretius. According to ancient atomism, thanks to the effect of light, atoms are released and detached from the very thin veils on the surfaces of things, and then the atoms are able to reproduce the shape and structure of the things by themselves. These veils catch our senses and give rise to sensations. It concerns not only the images (*eidola*) of the things that set-in motion the process of sensitive knowledge by penetrating us, but also the fantastic being connected to our thought. In fact, through the rational activities of the memory and the imagination, it is symbolically effective that the *umbrae* (shadows) take on those iconic forms and the mental schemas, and then the shadows become imaginal vehicles that are suitable for helping and guiding the intellect to *gnosis*. According to Bruno (1583), the philosopher is like a painter, because thinking is engaged with the imaginative faculty, by composing and translating the concepts into images: “*non est philosophus, nisi qui fingit et pingit, unde [...] intelligere est phantasmata speculari*” (Bruno 1583, p. 133; Bruno 1591, p. 91).

According to Bruno, arts serve primarily the external eyes by means of writing or painting. Correspondingly, the activities of the art of memory (the core instrument of Bruno’s gnoseology) are expressed by letters, symbols, signs or images, and their works are fixed and remain on a page of a notebook, on a stone or a canvas, or on a table or a wall. In a similar way, the art of memory serves the inner eyes: the fantastic faculty can shape and create artificial images, symbols and letters by fixing them on a substrate or *subiectum*, which is an imaginal and well-defined space. As if the bare wall were well-deposited to be painted with many figures, the mnemotechnic *subiectum* is the blank page where a rhetorical speech could be stored.

Phantasia and the faculty of vision

Since it is guided by reason, the *Phantasia* (imagination or fantastic faculty) of Bruno places and arranges the artificial images in an orderly way. Thanks to the accurate organization, *Phantasia* can eventually remove, replace and combine the images as it wishes, but always in such a way that the single images or signs are conjugated to each other, connected with an analogical order as if they were, precisely, parts of a discourse or a figurative cycle.

The physiological mechanism which is situated as the foundation of such a process is explained in detail by Bruno in the *Cantus Circaeus* (Bruno, 2004). Following the conception of the ladder on the internal senses dictated by Albertus Magnus (1968), Bruno hereby illustrates the correlation among the cerebral ventricles. In the brain, there are four cavities or chambers that set off in sequence from the front of the head, the frontal, up to the nape, which respectively contains the common sense and the fantastic, cogitative and mnemonic faculties. In the first chamber of the brain, by a coherent way of coordination, common sense accommodates the innumerable perceptions received from the external world, which enter the human body through the “doors” and “windows” of the senses, just like the medieval metaphor of the “castle-body” in the Neoplatonic ability to ascend, which Bruno puts forward again on various occasions in his writings. These perceptions are transmitted from common sense to the

chamber of the *Phantasia*, in which they adopt more abstract forms and become conceptual images. The conceptual images are completely autonomous with respect to their original forms or images of things (seen, heard, touched, etc.) that have aroused them. The task of the fantastic faculty (which Bruno further subdivides into imagination and fantasy), in addition to elaborating these internal images (or species) and coordinating them, is carried out by the imagination, which shapes the figures by associating them with adequate mental contents, and by the fantasy that arranges them neatly into their suitable locations and places.

In the third chamber the cogitative faculty receives these no longer sensitive but imaginal figures: we can grasp the meaning of them with a sort of evaluation, and those that stimulate and solicit the strongest affections, such as love, hate, fear, hope, joy, sadness and horror (therefore the most violent and vivid images as such remain better impressed and tenaciously stuck in our memory), are stored, always in order, in the memory, namely in the following and last chamber of the brain.

Moreover, Bruno fundamentally underlines that *Phantasia* possesses a capacity of ordering, because it is able to realize a prompt mnemonic reminder of the collected data. Thanks to the location and concatenation acquired by *Phantasia*, in this way, we can purge the memory of any confusion. The final phase is a similar process of rational and mnemonic-imaginative activity that is ready to produce the noetic images. According to Bruno, noetic images give “visual body” to the thoughts, higher and higher, by which the faculty or intellectual power of the soul ascends increasingly to interact “visually” with the degree of luminosity within itself, with the ideal radiance of intelligible realities. The intellectual images of the gnoseological graduality are getting closer and closer to the desired idea (firstly as mirror images, and then coinciding with the highest), and they tend to become simpler and more essential, just like that principle with which they aspire to coincide. In such a way, they rise up and metamorphose until they merge into it, just as the subject that falls in love with the beloved object (according to the erotic metaphor in Bruno’s *De gli eroici furori*), which has its expressive and poetic vertex in the myth of Actaeon.

Bruno describes the complementary relationship between intellectual knowledge and heroic love at the beginning of the third dialog of *Eroici furori*:

“These passions which we are discussing are not a forgetting, but a memory; they are not the negligence of oneself, but love and desire of the beautiful and good through which one tries to perfect himself by resembling it and transforming himself into it. It is not a rapture under the laws of an unworthy fate with the snares of feral affections; but a rational impetus that pursues the intellectual apprehension of the good and beautiful which it knows, which it would likewise please by conforming to it. In this way, it comes to be kindled and imbued with quality and condition that make it appear illustrious and worthy” (Bassi, 2004).

In the *Eroici furori*, he also speaks of Archimedes’ mathesis, which refers to “knowledge” or “an act of learning”. Thus, Bruno includes both mathesis and love as the two primary guides of his gnoseology (art and magic being the two practical tools). Therefore, love and knowledge “enlightened a double joy” (Bassi, 2020), which following the structural parallelism in the dual goal of his Divinity: Good and Beauty.

This progression of the “visual” knowledge of the human soul, which is towards the superior intelligence and unity (Bruno, 2009, p. 216) is explicitly affirmed by Bruno. According to him, it is possible because, in the philosopher’s conception, the analogical compatibility among the different degrees of being is infinite and necessary for the unity of the whole: in a continuous universal

circulation of light, each species is the mirror of another, each *umbra* of an idea is the mother of all the knowledge.

In his degree of existence, Bruno's interior man cannot experience anything other than the shadows of ideas (Bruno, 1582, pp. 25–26). That is to say, by the imaginative faculty that produces any kind of shadows, mental images (exemplary assertion on the title page of *De umbris*: “*umbra profunda sumus*”) can rationally generate as many various forms as they wish (Bruno, 1591, pp. 119–20), so that an infinite chain of shadow, which is derived from any perceptible, conceivable, and representable thing refers to the ideal model, namely a hierarchical ladder of the interior shadow or “paintings” that stimulate it. Finally, the noble imaginative and conceptual progression of shadow can ascend to the same ideal world.

Bruno writes, “We believe that there are ideas of all things, because from everything we conceive that it would ascend to the same ideas. From all things, we give form to shadows of the ideas” (Bruno, 1582, p. 60). The remarkable distinction between external and internal senses is fundamental in Bruno's anthropology, because it establishes the two ways of “seeing” and “knowing” from man's aspect (Bruno et al., 2009, p. 268).

Basically, the images are received with the external senses, and with the internal ones, the images are created to approach the ideal figures, which reappear in the physical world through the images of things which, in their turn, nourish the external senses. In this way, the incessant concatenation of images (physical, mental and ideal) constitutes the natural and psychological ladder through which the philosopher can ascend from the sensitive data to metaphysics.

Hence, Bruno gives the undisputed primacy to the sense of “sight”, which is intended for all its possible values. For him, sight is the “most spiritual of all the senses”; it is “excellent” and “divine”. Thanks to the “eyes of the thoughts” (which means that the soul sees), “it conceives everything that is far from the very images of the world” (Bruno, 1582, p. 235; Bruno, 1591, p. 100; Bruno, 2009, pp. 211–12). Bruno is thus led to the extreme inference, which is certainly connected to the preponderant role that the imaginative faculty plays in its “physiology” of knowledge (Bruno, 1591, pp. 94–124). This noble consideration of “sight” has already been raised in Plato's *Timaeus* (47a–c) for reaching the real philosophical “vision”, in which Plato celebrates its extreme utility to understand oneself and the world. The Greek tradition is adopted by the Middle Ages and Renaissance, such as *De coniecturis* (On conjectures) of Cusa and *Theologia Platonica* of Ficino, where the cognitive process develops according to the same modality as the vision (Miller, 2003, pp. 171–82).

From *Umbra Dei* (shadow of God) to “Divine Shadow”

Similarly, in Bruno's opinion, the theory of vision and the primacy of the sense of sight is a result of the conception of the world, in which the causality of beings and the entire creation (anthological, cosmological and gnoseological) is based on light. The images of the material and natural universe perceived and seen again with the interior eye are indispensable *umbræ* (shadows) of another, the last imprints of the sublime light (Bruno, 1583, p. 171): thanks to the shadows, which participate in that light, the soul can go back again to knowledge, from the very imaginal shadow to the divine glow (Bruno, 1582, p. 26).

In its dynamic proportionality and procession between light and obscurity, the shadow (*pictura mentis*) (Bruno, 1582, p. 220) bears witness to the gradual connection of beauty in the order of the things, as the shadows that are placed in front of the interior eyes have passed through and interweaved the macrocosm with the microcosm: in fact, the ideas descend from the unity of the metaphysical degree to the physical or natural being, where they

manifest themselves as “vestiges”, and then turn to the mental being, where they are actually embodied as a shadow.

For tracing a similar procession to the principle, the starting point then turns out to be the mental or rational degree, the seat of the shadows, which is located in the head of man, where the four chambers of the interior faculties or senses can be found.

The order of the rational world—Bruno explains (Bruno, 1591, p. 96)—is made after the similitude of the natural being of the shadow, that in turn is an image of the divine of which it is a vestige: the rational world is a sort of “living mirror”, in which there is the image of the natural things and the shadow of the divine.

No doubt this mirror conceives the idea as the cause of the things: in the mind of whom it is in operation, it imbues the reason of the operator. Bruno continues: in this mirror, generally speaking, the images of the things and the figures are collected and preserved as if in their own place.

The shadow, between obscurity and light, is configured as an intermediary and paradigm of every possible knowledge of reality. The shadow rises to a dynamic hinge that simultaneously conjugates and distinguishes between the natural, human world and the divine world, between relative and absolute, between error and truth, between the rational sphere and the ideal sphere (Bruno, 1591). As mentioned above, this mediative function makes it to be an effective tool for the gradual journey of the soul, an upward process that is respectful and conscious of proportionality, that is, of the criterion that correlates multiplicity and unity according to the ordered numerology (Bruno, 2009, p. 176), in coordination which accords the macrocosm with the microcosm, the parts and the whole in the unity. Therefore, Bruno says, only with the conception of symmetry, we can know anything composed, connected, joined, mixed, united, and ordered.

In fact, although we clearly contemplate the exterior and interior in reference to the external and the interior sense's part by part, member by member, species by species, we are nevertheless unable to understand the reason for the perfection of the whole, if not for the harmonic and consonant analogy of all things with all things, or at least the analogy of the principal beings with the principal beings.

The philosopher's rhythm of the cognitive ascent and descent, in which the sensible world hierarchically joins and transmutes into the divine one (and vice versa), is guaranteed and certified by his specular and proportionate adherence to the macrocosmic chain of being, to the cosmic order, according to the symmetrical analogy that links the micro to the macrocosm in ancient philosophy, just like in the Middle Ages and Renaissance tradition that Bruno does not hesitate to compare with the kabbalistic theory (Yates, 1964, pp. 282–300).

Bruno writes: “God exerts his influence on the angels, angels on celestial bodies, celestial bodies on elements, elements on mixed substances, mixed substances on the senses, the senses on the soul, the soul on the living being; the living being ascends through the soul to the senses, through the senses to mixed substances, through the mixed substances to the elements, through the elements to the heavens, through the heavens to the demons or angels, through these to God or divine operations. That is the descent of God, or from God, through the universe to the living being; and indeed, the animated being ascends to God through the universe. God is at the top of the ladder and the kabbalistic Jacob at the root and foundation of him. The degrees of the intermediate creatures, according to their numbers, establish the height of the ladder: through these degrees the superior virtues of the operators descend to the inferior beings, the inferior virtues ascend to the superior ones. For this reason, the ancient authors of profound philosophy indicated this ascent and descent with the

exit and the entrance from the two gates of Cancer and Capricorn, of which the first is called humans', the second of gods" (Bruno, 2000, pp. 4–6).

In this passage, the remarkable evidence of Bruno's doctrinal syncretism is the symbolic convergence that Bruno grasps between the cosmological myth of the Homeric nymph (Homer and Merry, 1894, pp. 102–12) and Jacob's ladder. Firstly, it tells that there are two doors or entrances, which are situated in the two solstitial points of Cancer and Capricorn, through which, according to the Neoplatonic exegesis of Porphyry (Porfirio, 1986, pp. 36–189), the souls descend in the generation of this world, in the flesh and in the individual manifestation, and then go back to superindividual and divine states; therefore, they respectively can be called "door of the humans" and "door of the immortals". The second one appears in the famous dream of Jacob (Pico Della Mirandola, 1996, pp. 12–13), which alludes that by the touch of earth and sky, man and God are united through the ascending and descending motion of the angels on the ladder; it is evident that man is conferred the possibility to transcend from the current corporeal world to the other world.

Whatever names they are given—either solstitial doors or mystical ladder—the journey of the soul towards the wisdom configured by Bruno gives sanction to the dignity of man. Man's dignity can be acquired by searching the roots and the divine seed in himself, but always starting from the shadows, from the inner images that reflect the principle: "If it is a blessed gift to learn to understand the same God within ourselves, undoubtedly learning through the imagination is the more ancient and personal gift of an introspection" (Bruno, 1591, p. 120). As imagination is a faculty that lies between the senses and the intellect, it plays an intermediary role between the corporeal and the spiritual world, between particular and universal beings. Departing from the sensible reality perceived externally, man can, just as the painter does, paint or build the necessary figures, the pneumatic lexicon within himself.

Laboratory of speculation and natural magic

In Bruno's perspective, magical art is in no way separable or neutral with respect to theology and philosophy. There is an indissoluble link between ideas, shadows and the new art of memory. As it is written at the beginning of the *ars memoriae*, art "dwells in the shadow of ideas". It is a discursive architecture, a *habitus* of the reasoning soul that is an interior power entirely in communion with the generational dynamics of nature. As the first theologians and the ancient philosophers teach, the creation of such images "reveals and does not hide" the sense of the arcana of nature; because, by mentally describing and illustrating the images, it contributes to their higher learning (Bruno, 2000, p. 940).

With respect to Bruno's gnoseology, human reason or the rational world is like a living mirror that perceives images of natural things and the shadow of divines. The whole process takes place through act of meditation and interiorization, through the ability of "concentration" of the philosopher, the wise man, the magician, who "contracts what is possible in himself, would have a fate that is not similar to the multitude" (Bruno, 2004, pp. 888–89).

Bruno includes his own practice of *contractio animi* (Lucretius Carus, 1613) into a very noble paradigmatic tradition of famous personalities who would have implemented it, by retreating and gathering in solitary hermitages. The contraction of the soul is a speculative technique that can lead to the divine by "contracting within oneself" (Bruno, 2004, p. 821). Therefore, after 10 years of living in solitude, Pythagoras was able to contemplate nature; Zoroaster, after 20 years in similar conditions, was able to perfect

all the magical and divinatory arts; Moses, having returned from the desert, defeated the magicians of the pharaoh; Jesus began to do wonderful things after he had defeated the diabolical temptations in the desert. The contraction that comes from faith can move mountains, and the special contraction that makes the soul cross bodily limits allows it to freely wander and see elsewhere.

Bruno even distinguishes two types of contractions: the first is to contemplate the produced and invented images on material forms, the second on numerical forms (Bruno, 2009, pp. 213–15). We read in the *Sigillus sigillorum* that Apollo inspires the prophets with numbers, "so that you understand that the numbers are nothing but certain limpid metaphysical, physical and rational principles, which are both matter and intellect, when they unfold and expose themselves to the superior form of light, they are able to conceive in themselves according to one or another modality of knowledge" (Bruno and Gfrörer, 1836, pp. 214–15).

As it says in the *Sigillus sigillorum* (Bruno, 2009): "all the wise men agree in that the mathematics also contributes to the operations of the soul, because what is visible is the image of what is invisible. Thus, the same as in a mirror, the entities that are in the intelligible world become manifest in the sensible world. Here they move, they differ with each other, but there they remain motionless, according to a perpetual and immutable reason. By teaching us to abstract ourselves from matter, from motion and from time, mathematics enables us to understand and contemplate the intelligible species. Therefore, Pythagoras, Plato and all those who tried to teach us difficult and profound things did not use any other tools but the mathematics" (Bruno and Gfrörer 1836, pp. 194–97).

It is evident that Bruno's conception of mathematics is a powerful abstractive tool for the contemplative *gnosis* and an essential figure of the creation. On the mathematical theme, he writes many extraordinary and passionate treatises, especially the discussions in the *De minima* and *De monad* (Bruno and Fiorentino, 1962), which have nothing to do with the quantitative relation that is commonly meant by modern science. The number, the monad and the minimum are three ontological realities that multiply and expand according to a movement that pervades all over the world, in this way eventually constituting the dynamic skeleton of the body of the universe. This ladder of numbers, lines, polyhedrons and so on, conjugates and links the microcosm with the macrocosm, causing numerology and geometry to become the symbolic language *par excellence* of the creative imagination and the intellect, because it expresses the true essence and represents the most secret lexicon at the same time. In the *De monad* (Bruno and Fiorentino, 1962), it should be noted that numbers of this kind are those principles that allow the greatest sages of ancient times, such as Pythagoras, Aglaophamus, Zoroaster and Hermes, to cooperate with the "operating nature", and that "Plato placed figures of this kind beyond the sensitive things".

Here, we are interested in how Bruno's graphic production represents nothing but the synthetic, practical actualization of his speculative and magical thought. As shown by the commentary on the *Explicatio triginta Sigillorum* (Bruno, 1583), Bruno believes in natural magic: in those sympathetic links that bind and "link" the entire universe (Bruno, 2000, p. 414) from the superior angelic (Bruno, 2000, p. 223) and astral realities to the human being and the mineral, vegetable and animal's kingdoms (Albertus, 1968), according to a holographic vision that is suitable to its times.

However, while retracing magical-theurgic motifs already present in *De radiis* and *Picatrix*, in Ficino (1576) and Agrippa (1992), Bruno constructs his *sigillum* (seal) (Bruno, 2000, p. 196) in a very particular way, because through the graphic seals he brings together the imaginative picture and the mathematical

ratio (Bruno, 2000, p.168), and above all, he builds them with his own hands.

In the *De imaginum compositione, signorum, et idearum compositione* Bruno mentions that, as regards the “place” (*Quod ad locum attinet*), experience shows that “the images are better inserted inside and retained in the corners and in the hollow receptacles” (Bruno, 1591, p. 124). The passage indicates why the groove of the engraving, with its specific depth and cavity, is important to make the seal or talisman become more receptive, namely by becoming a “pot” of celestial influences: an effective condition refers to both a concrete artistic practice and an interior activity (Bruno, 2000, p. 162).

In the light of the Hermetic, Neoplatonic and kabbalistic themes already developed in previous Renaissance culture, it has become a common norm of magical practice to engrave precious stones and metals with certain symbols or characters, as the magicians want. In a famous passage by Bruno, the enchantress Circe exalts her power by showing the gods sacred letters engraved on foil and tracing magical characters in the air (Bruno, 1582, pp. 192–93). What makes Bruno’s iconic-magical practice unique is the way in which he actualizes it. In fact, considering certain data—namely, that Bruno did not use preparatory drawings for his xylographs but engraved directly on the wood, and he practiced profound meditation techniques such as those connected to the “contraction”—and taking into account that the magical-sympathetic efficacy of certain seals and characters or figures depends on the power of the mind and the intensity of the soul, there is no doubt that Bruno realized his wood- engravings in a peculiar psychological state. By placing himself in a condition of “heroic fury” of intellectual “enthusiasm”, Bruno now reaches a stage of extreme concentration and interior participation in his graphic “work”.

Conclusion

The power of Bruno’s imagination cannot only be understood as a faculty of the human mind, but also as a vital power of nature widespread throughout the cosmos. However, all of Bruno’s iconic praxis, the interior image and imagination play a more important role in the mnemotechnical system and natural magic, rather than in physical cosmology. According to Bruno, each psychology of a person must produce its own “phantasm”, since memory is sensitive only to those objects that intimately “touch” our affectivity. In fact, further definitions or written rules would end up limiting and imprisoning this creativity, preventing it from freely feeding on individual experience, an essential component for learning certain mnemonic- psychological and speculative practices.

In this special adhesion and participation of iconic praxis to philosophical theory lies the excellent elements (concerning the art of memory, philosophy, kabbalah, cryptography or astronomical and cosmological themes) of Bruno’s figurations. It does not appear that Ficino, Cusa or Agrippa had ever personally illustrated their own volumes. We can also assume that Bruno’s iconic works are an exemplary and excellent method: they are in fact the result of the experience of Bruno himself, who is esteemed as the supreme master in the art of creating images, and who not by chance realizes most of his illustrations. It will therefore be the practice of those who put them into action again to confer the meaning of those mute figures. In other words, the intelligence of Bruno’s images does not depend on their relationship with the accompanying text, but on the experience of those who practice them.

All these technical and conceptual peculiarities, which are the basis of the compositional process of Bruno’s epistemological engravings, inevitably make them extreme personal products of

his creativity, and justify the formal and iconographic originality that characterizes them, even if they are often confused with the already known geometry or cosmographies of the Renaissance. In fact, the xylographs with the characteristics of the “seals” or “diagrams” that we find, for example in the *De umbris idearum*, the *De innumerabilibus, immenso et infigurabili*, the *De triplici minimo et mensura*, the *Explicatio triginta Sigillorum* and the *Cena de le ceneri*, are graphic works with an intensity and vivacity that make Bruno unique in the historical panorama of Western philosophy, and make him a character of rare consistency in his very original way of exploring himself and the Divine.

Data availability

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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Ethical approval

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Informed consent

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Additional information

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