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DESCARTES

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René Descartes (1596–1650) has rarely been regarded as a major philosopher of imagination. One reason is that the writings in which imagination featured most centrally were published either just before his death or posthumously; they had little effect on how Descartes was interpreted. Other reasons have more to do with us than with him: it seems improbable to us that imagination can figure large in modern rationalism, and the now century-old tradition of antipsychologism in professional philosophy and psychology makes it seem unlikely we can learn much from old-fashioned philosophical psychology.

It is one thing to claim we should reassess Descartes’s conception of imagination; it is quite another to argue (as this essay does) that he transformed the theory and the function of imagination in Western culture. This transformation happened because of his practice of imagining in mathematics and science. Descartes’s imagination was revolutionary despite its being neglected *ad litteram*, because it was intrinsic to the physicomathematical theorizing he initiated and that following centuries emulated with passion. Descartes thus stands, with figures like Aristotle and Kant, as one of a handful of Western thinkers who have philosophized about imagination in a way that profoundly shaped the future, and very nearly unique in combining such philosophizing with a new imaginative practice.

The problematics of imagination before Descartes

At the Jesuit Collège Henri IV in La Flèche, France, which Descartes attended for eight and a half years (probably 1607–15), he was schooled in the Aristotelian tradition of late medieval Latin scholasticism.1 This tradition – in psychology drawing above all from Aristotle’s *On the Soul (De Anima)* and associated philosophical and medical developments in late ancient and medieval Islamic and Jewish thought – regarded the human soul as an embodied activity of interacting powers (see also Deborah K.W. Modrak, “Aristotle on *Phantasia*,” Chapter 1 of this volume). There were (1) intellectual powers plus (2) internal senses possessed by at least some animals (memory, imagination/phantasy, and common sense), and (3) external senses possessed by most or all animals (touch, taste, smell, hearing, and vision). Soul, in the first instance, was understood as form to the matter of the living body (whether the life was vegetal, animal, or animal-human); more particularly, soul and its powers were the *activity of the organized body potentiated with life.* 2
External sensation was an activity in the sense organ. Sensible qualities, say an apple’s being red, were conceived as an activity in the thing giving rise to a motion. The motion was physically conveyed through a medium from object to organ, and in the latter it set off new activity. The activity in the sense organ was said to be the same as in the object, though without the original matter. Furthermore, Aristotle understood differences of sense quality (e.g., between red and blue) as differences in the ratios of the qualitative activity in the sense organ. Differences in sensation thus corresponded to mathematically proportional differences in both object and organ.

Internal sensation commenced when and where the five external senses came together in the body so as to produce a common field of sense experience. This was called common sense. The forms of the experience of the individual senses and of common sense – forms called species or phantasms, eventually known as ideas and images – could be physiologically preserved, for future psychological reactivation, by being passed to other parts of the body. Memory and imagination, along with common sense, were the universally acknowledged internal senses, though further refinements and subdivisions were common in medieval authors. Often added was another internal sense, called estimativa in animals and cogitativa in human animals, which attached valuations (like instinctive liking or fear) to the phantasms. In human beings, it further served to attach concepts to phantasms: this thing before me thus can be called “apple” and “red.” All these internal sense activities were regarded as localized in the hollows between the two brain hemispheres known as ventricles.

Aristotle defined sensation in general as a motion (kinēsis) and imagination as a follow-on motion originating in the activity of sensation (On the Soul III.3). When the activity of sensation starts its follow-on motion, that motion goes elsewhere in the body; when it reaches its destination it completes itself by reactivating the phantasm-appearance presented originally in the sense organ’s activity. From there other new motions can follow: for example, a common sensation can be moved to a memory location and preserved there for future reactivation. In human beings, the goal of the imagination-motion is to reactivate phantasm-appearances so that intellect can discover, grasp, and thus think the forms of intelligibility implicit in them. This principle was formalized in the Aristotelian dictum that there is no thinking without phantasms. For strict Aristotelians, there can be no such thing as purely intellectual thinking. All thinking – all theoretical, practical, artistic-technical, probabilistic, and scientific reasoning – requires phantasms or images, thus imagination or other internal senses.

Platonism more easily accepted the possibility of pure thinking, one without the assistance of images. Nevertheless, a close reading of Platonist traditions shows that they had more than a little difficulty in suppressing images. One reason was the ancient neo-Platonic attempt to reconcile Aristotle and Plato. In psychology, Aristotle was usually considered the greater master. Another was Plato’s dialogues, in which the ascent to the Platonic forms always commences with images in and of the material world; moreover, the forms always retain the unfortunate penchant (from the perspective of pure rationalism) for producing material forms and images. The tradition of Platonism through Proclus even gave rise to a conviction that the realm of mathematics required the existence of an intelligible matter in which mathematical entities were realized. This implied that there was another kind of imagination besides sensory imagination: a higher, more rational kind that allowed human beings to think and produce mathematical things (Nikulin 2002).

With this Aristotelian and Platonic background it is easier to see the significance of Descartes’s own distinctive and revolutionary conception of imagination.
Descartes, thinking through the tradition

The earliest extant writings of Descartes, from 1618 to the early 1620s (but published posthumously), contain relatively little theory of imagining, but they provide abundant evidence of how he used it and of how thoroughly it pervaded his thought-practices. The small amount of theory is nevertheless pregnant with consequences.

In the short, early treatise Compendium of Music (1618) Descartes used abundant figures and images to represent musical relations. (There was, of course, already a long tradition of using figures in discussions of musical theory.) The basic premises, stipulated at the outset as postulates, reflect a quasi-Aristotelian psychological understanding of music based on the physical and physiological embodiment of mathematical proportions in sound. The one passage in which the term “imagination” is used presents it as a dynamic power of grasping, projecting, and synthesizing the proportional relations in musical rhythm.

When we hear the first two parts [or notes, in a musical phrase], we conceive them as one; when [we hear] the third part, we now conjoin that with the first ones, so that the proportion is triple; thereafter, when we hear the fourth, we join that with the third so that we conceive [them] as one; thereupon we again conjoin the two first with the latter two so that we conceive these four simultaneously as one. And thus our imagination [imaginatio] proceeds all the way to the end, where finally it conceives the entire song as one thing fused out of many equal parts.

\((AT\ 10: 94)\)

This process is conjectural and self-correcting; a song’s meter is fully determined only after hearing several beats, but it continues, both retrospectively and projectively, until the entire piece has been heard. This first Cartesian presentation of the imaginative power is all the more remarkable in that it anticipates the complex dynamism and psychophysiological interactivity that imagination displayed in his later scientific and philosophical thought.

Notebooks that Descartes was keeping around this time show a very early interest in topics that feature in later work: (1) the psychological power called ingenium, (2) the roles of imagination and memory in cognition, and (3) active mathematical and scientific imagining as such.

(1) Ingenium is a common term in early modern thought, especially in rhetoric. It indicates wit, spirit, and inventiveness; more generally, personal character (a person’s native spirit). The French term corresponding to both is esprit. Descartes’s notes consider many examples of how differences in ingenium lead to different kinds of responsiveness to situations and stimuli.

(2) Rhetorical manuals taught the art of memory, which contrived images both for the sake of recalling speeches and for retaining acquired knowledge. One of the typical practices of this memory art involved, first, committing to memory a familiar place, like the interior of a basilica, and then populating its various parts with vivid images devised for representing the successive topics, sections, and even individual sentences of a speech. They could then be recovered by taking an imaginary walk through the place. Each image was designed to be maximally memorable, and even if there were certain conventions and rules of thumb, the important thing was that it was memorable for the speaker-rememberer, not for anyone else.

In a note from the early 1620s Descartes criticizes a fairly typical version of memory art, then proposes an alternative as the “true art of memory” (AT 10: 230). Although the details are somewhat obscure, Descartes uses images of projectiles hurled up and down a staircase to express ratios existing between different elements or components of a problem. His rationale makes abundantly clear the aim: a way of proceeding that allows each new image to evolve
in a regulated way from the images that precede. That is, Descartes’s suggested technique abandons arbitrary single images in favor of multiple images interconnected by proportions. The proportional, thus mathematically expressible, relations could be actively generated from one another according to a rule-governed physical model. The proportions, or ratios, provide a governing principle of *rationality*.

Other more “poetic” notes also have programmatic significance. One concludes with a reflection that poets manage to express more “weighty judgments” than philosophers because they work “through enthusiasm and the force of imagination.” Philosophers try to extract, as though from flintstone, “seeds of knowledge” with reason, whereas “by poets they are driven out through imagination and shine out all the more.” The preceding paragraph remarks that “as imagination uses figures to conceive bodies, so intellect uses certain sensible bodies to figure spiritual things, like wind and light: from which, philosophizing, we can by cognition raise the mind higher into the sublime” (AT 10: 217). On the one hand, this sounds more like Renaissance musings than early modern rationalism. Understanding occurs by analogy (recalling that *analogia* for the Greeks meant extended proportion: $a$ is to $b$ as $c$ is to $d$, or, more arithmetically, $a/b = c/d$). On the other hand, it suggests the biplanar, or multiplanar, projective character of Descartes’s later imagination. In the realm, or plane, of sensation one experiences bodies, projects them by geometrical figuration into a mathematically imaginative plane, and then by arithmetic formulation into a more abstractly imaginative plane. One can also start with bodies and project them analogically to figure the spiritual realm.

(3) From these origins emerged the first flowering of Descartes’s imagination in many mathematical and scientific notes. He situates points, lines, or two-dimensional figures in space, then sets them moving, sliding, and rotating with respect to one another. Imagined points get subjected to multiple straight-line impulses compelling them to move in straight or curved lines. Lines and figures rotate in two or three dimensions, with other points and lines providing the frame of reference (the first anticipation of coordinates). The lines and figures are made proportionate to problem elements, so that the relations that evolve through the motions, rotations, and translations express new proportions and generate new figures with lengths and areas that solve the original problem. Thus Descartes was taking very seriously what he had proposed as an improvement to the memory art: to use simple images representing the elements of a problem and then to generate from them new images according to exacting rules and principles of proportioned relations. This was his way of thinking through phantasmatic. He adapted these speculations to propose new types of calculating instruments (called “compasses”) based on such carefully regulated and interrelated (in fact, interlocking) motions.

These early practices led almost seamlessly to the work that many scholars consider to be the first philosophically serious, though unfinished, work of Descartes, *Regulae ad directionem ingenii* (*Rules for the Direction of the Spirit*). It was planned in three parts of twelve rules each. The use of geometric and other kinds of representative figures for solving problems is mentioned at the end of the first part (in Rule 12) and partially developed in the next (Descartes stopped in the middle of this part). Rule 14 argues that the technique can and should be applied to arrive at knowledge about everything capable of being imagined. Moreover, an underlying principle of the *Regulae* is that anything that can in some respect be ordered or measured is capable of being represented to the imagination. For example, although the relation of father to children is not accessible to the senses or directly picturable, it can be represented/imaged in a genealogy chart (a simple example of which Descartes gives in Rule 14).

The *Regulae* as a whole is Descartes’s execution of the “noblest example” of problems, as he calls it in Rule 8 (AT 10: 395). The problem requires determining how intellect arrives at
knowledge by cooperating with its adjutant’s sensation, memory, and imagination. Rule 12 explains the underlying rationale. The sense organs receive from things in the world an impression, essentially a two-dimensional pattern, on their receptive parts. This image-impression is transmitted by the nerves to the organ of common sense, and from there the image-impression travels on to the phantasia-organ (the organ of imagination), which can send the result to be preserved in memory locations in the brain (and receive them back when needed) or can convey them to the knowing power (vis cognoscens). The knowing power in turn can form new images in the phantasia, and it can extend its operation into other parts of the body, always by means of the phantasia: to common sense and the individual senses, to the places of memory, or to the nerves and the motor functions of the body. This is Descartes’s modernized version of Aristotelian physiological psychology.

In a crucial passage of Rule 12, Descartes discusses the knowing power as “purely spiritual.” He says that it is “one and the same power” in all its operations:

if it applies itself with imagination to the common sense it is called seeing, touching, etc.; if to the imagination alone, insofar as that is outfitted with diverse figures, it is called remembering; if to the same [imagination] as shaping new ones, it is called imagining or conceiving; if finally it acts alone, it is called understanding … . And also for that reason this same power joined to these diverse functions is called either pure intellect, or imagination, or memory, or sense; it is properly declared ingenium when it sometimes forms new ideas in the phantasia-organ, sometimes bears down on those already made.

(AT 10: 415–416)

In this passage Descartes says four important things for our purposes. He declares that every perceptive or cognitive act is an act of the spiritual knowing power; that except when the knowing power acts on its own it acts in or through the imagination; that imagining and conceiving are the same action; and that ingenium in its most proper sense is the power of forming and attending to images in the organ of imagination. If the knowing power or intellect is king of the cognitive life of human beings, imagination is viceroy, and nothing that has to do with the world or the body bypasses it. The second part of the Regulae then goes on to explore how one can use images to address any problem involving order and measure.

Imagination makes two remarkable cameo appearances earlier in the first part. The first occurs in Rule 3, in the definition of the most basic cognitive act of the mind, intuitus/intuition. Descartes begins to define it negatively, as not “the fluctuating confidence of the senses, nor the fallacious judgment of a badly composing imagination” (AT 10: 368). That is not an indictment of imagination; it is a criticism of its bad use. The Regulae intends to forestall bad usage by teaching the right use of ingenium, the power of forming and attending to images. When imagination is used properly it can take indubitable, “easy and distinct concepts of a pure and attentive mind” — the positive definition of what results from intuitus — and combine them in acts of step-by-step deduction. In Rule 7 he accordingly refers to “a continuous and in no way interrupted motion of thought.” A few lines later comes the second cameo appearance: this motion of thought is a “continuous motion of imagination” (AT 10: 387–388).6

In any case, “the whole secret of the art” of the Regulae, as Descartes calls it in Rule 6, takes all things we encounter and promptly orders and measures them for their proportional participation in different natures, the most fundamental of which are called simple natures.
What can count as a nature is extraordinarily flexible. The leading example of Rule 6 takes the number 3 as a nature which is participated in differently by 12 and 48 (namely, the former contains the nature four times, the latter sixteen times). It is these proportionized measures of participation that form the evidentiary basis for the geometric and algebraic representation that is taught in the second part of the book, the use of which enables the mind to continuously and uninterruptedly move from problem to solution by means of imagination. It is too simplistic and too rationalistic to call this a “mathematization of thought,” even if Descartes refers to mathêsis universalis as the inspiration for the Regulae. That universal mathêsis is grounded by the participation of things in proportionally representable order and measure. This type of “mathematization” is a byproduct of imagination’s regulated use. Descartes does not mathematize thought so much as make it rigorously imaginative.

The transition to the canonical works

As Jean-Luc Marion has argued, the Regulae develops an imperfect, chiefly implicit ontology of simple natures (call it quasi-Platonist) that is at odds with the dualistic division of everything into thinking thing and extended thing Descartes arrived at soon thereafter (Marion 2015). The dualism – which Descartes, always very careful with terms, called the “real distinction between thinking and extension” – appears at latest by the time of The World, which Descartes composed in the period 1630–33 but did not publish after Galileo was convicted of heresy for teaching heliocentrism (which The World supported).

If the earlier philosophy used imagination both strictly and analogously, the later uses it in a more rigorous way. Descartes effectively announces this in a letter of April 15, 1630, where he introduces the notion of the mathematical truths, which his correspondent insisted on calling “(created) eternal truths” (AT 1: 144–145). This notion was a consequence of the metaphysical thinking he undertook during a nine-month stay in Holland (1628–29), the central focus of which, he says, was to know God and himself – perhaps an extension of the noblest problem of Rule 8 – but which also led him to discover the foundations of physics, laid out in the opening chapters of The World. The basic reasoning behind the mathematical truths is simple: God could have created the world in any way that pleased him. He chose to create it in a way that observed simple mathematical regularities, in particular the tendency to straight-line motion. God also endowed human beings with the ability to grasp these regularities and to represent and conceive the universe accordingly in imagination. Imagination can be random and willful – it can imagine, for instance, that the natural tendency of all things is circular, or erratically swerving – but when it is directed by the intellect’s apprehension of simple principles, it can produce a virtually perfect model of the actual universe. The universe conceived in the imagination under the direction of intellect is an image of the actual universe as a whole. In such a world and for such a mind, the imagination no longer works by conceptual analogy – the proportional interparticipation of natures – but literally. It produces an imaginary realm that is three-dimensionally spatial, divisible, and mobile in perfect proportion to real space.

In this light, there is no unbridgeable gap between the imagination of Descartes’s early philosophizing and the mature mathematical and physical works. The figurate representation of the early phase is retained, as is the guidance of the imaginative ingenium/spirit by the highest knowing power. Imagination has, as always, a physical location and a specific psychical character. It continues to be biplanar: it has presented to it forms of things that it then reconfigures into more abstracted forms (like geometric figures) and yet again into the symbolic yet still at least minimally concrete and materially referential sign-images of algebra. This abstractive imagining can be reversed, in the direction of concretion, with the possibility of
making it so concrete that it becomes a direct image of a real-world problem. This method does not aim to settle issues of the natures of things but of their interrelationships. The new version of imagining, however, stipulates a single, real simple nature underlying all these possibilities: extension, the extension of space-matter. This means, for example, that there is no longer need to talk of colors in things or colors impressed on the retina (which the *Regulae* does; AT 10: 412–413): one can deal only and entirely in terms of extension, its motions, and its tendencies to motion. Only in consciousness does one need to change to the language of colors. Thus the new imagining gains a coherence, consistency, and exactitude that makes it sovereign in understanding by producing and reproducing the motions exhibited in the created world. A question left unresolved in Rule 12 – whether the way of understanding according to natures corresponds to the way things are (AT 10: 418) – is answered positively by reducing all corporeal natures to extension.

*The World* and the 1637 *Geometry* (the third of three scientific essays, to which the *Discourse on the Method* was preface) thus carry out more perfectly and completely the project of the 1620s by virtue of the real distinction between thinking and extension established through Descartes’s metaphysical philosophizing in Holland. It is no accident that in *The World* Descartes begins constructing an exact model of the real universe by resorting to “imaginary spaces” (AT 11: 31). The *Geometry* then executes a thoroughgoing and comprehensive isomorphism between the things and motions in space, the geometric representation of the lines and figures these trace, and the formulaic symbolization in algebra of the parts and the proportions exhibited by the geometrical entities – in two words, the analytic geometry that Descartes invented. These mental gymnastics are the rigorous work of the biplanar projective imagination that Descartes had begun conceiving in his earliest writings. That is not to minimize the originality of the *Geometry* but rather to understand it as bringing rigorous imagining to completion. To those who think there is a substantial difference between the early and the later method, it should be sufficient to point out what Leslie Beck demonstrated half a century ago: the paragraphs immediately following the enunciation of the four rules of method in part 2 of the *Discourse* unmistakably describe Descartes’s continuing commitment to the imaginative processes he had begun formally articulating in the rules of the *Regulae* (Beck 1952).

Thus Descartes established a way of imagination that became the field of play for future science and mathematics. Even as researchers opened further realms of rigorous imagining untouched by Descartes, they followed the same strategy of intellectually guided, biplanar imaginative projection that he had presented as the most basic way to human knowledge – a way predicated on the right use of intellect and all its adjutants. Frequently enough, however, those who cultivated it conceived it as nonimaginative, as the work of pure intellect. And that leads us to the problem of imagination in Descartes’s later canonical works.

**Imagination after the Discourse**

Descartes’s revolutionary theory of imagination appears to go into eclipse in the *Meditations*. Although imagination is a kind of thinking, it may not belong to the essence of a thinking thing taken precisely as such (AT 7: 28). The phantasms/ideas of sensation often conflict. Hallucinations and dreams are deceptive. The greatest genius in geometry cannot clearly and distinctly imagine a thousand-sided figure, whereas the intellect has no problem conceiving it. Imagination appears as a minor, negligible, and defective power.

Yet imagination keeps slipping back in even after being dismissed. In Meditation 1, after discussing madmen and dreamers, the meditator turns to mathematics, which, as we have
seen, is a preeminently imaginative activity for Descartes. Only the doubtful notion that God created us to err about even the simplest mathematical things casts any doubt on mathematical truth. At this point the meditator, growing fatigued and finding old prejudices rooted in memory returning, resolves to treat everything that appears to him as “false and imaginary.” He reinforces the decision by supposing there is a “malign genius, supremely powerful and cunning” (AT 7: 22), who devotes all his efforts to deceiving the meditator. The genius is a willed device of rigorous (though not mathematical) imagining. In Meditation 2, having proved his existence strictly as a thinking thing, the meditator exercises imagination to try to conceive all possible appearances of a piece of wax. They are limitless, so he concludes that it is thinking proper, not imagination, that conceives the wax as a single substance. To prove the existence of God in Meditation 3, the meditator first rehearses once again all imaginable things that appear to consciousness (as he does also at the very beginning of Meditation 2 in recapitulating Meditation 1), now with the emphasis on their classification and on what causes them all. Just as at the end of Meditation 2, in Meditation 3 he discovers that a new limitlessness – real, positive infinity – escapes imagination’s power, but not that of intellectual perception.

The strategy of the Meditations is, put very generally, to exercise the lower powers of the meditator – most of all and most properly the power of imagination – until the meditator reaches a point where they have to be, and are, transcended. Nevertheless, there are very few things we know through this transcending power of intellect acting alone (self’s existence in Meditation 2, God’s existence in Meditation 3). The return to the realm of extension and embodied powers (starting at the very end of Meditation 5 and proceeding through Meditation 6) finally shows that imagination and the other lower powers exist less for the sake of science than for the sake of survival, of maintaining the union between soul and body. These powers are not of the meditator’s most precise essence as thinking thing, but they are part of his whole being or nature (which is called “the intercombination [complexionem] of all those things bestowed on me by God,” AT 7: 80).

In the Regulae Descartes had invoked a medieval method (remotio) in his careful differentiation of how we must use images to understand the truth of similar statements such as “extension occupies place,” “the extended occupies place,” “body has extension,” and “extension is not body” (see AT 10: 443–446). Of these four, the first three, to be true, require forming and holding certain appropriate images in mind, although even they severally require different kinds of “taking-in” of the image. However, understanding the fourth, a negation, does not intrinsically involve viewing an image. Instead, it works by conceiving the universalized meaning of “extension” and recognizing that any viewed image of body falls short of the totalizing universality of that subject term. This is remotion, a moving away from imagination to intellection. First one imagines, then one moves away from imagining as inadequate for the intended purpose. The method of the Meditations is, similarly, to imagine as extensively and rigorously as possible – though not necessarily in mathematical form – and then for a few brief moments of essential insight to stop imagining, because any image is misleading. Then one immediately resumes imagining.

When we take the Meditations as the endpoint and goal of Cartesian philosophy, we implicitly make the same mistake as the Princess Elisabeth of the Palatinate (1618–80; also called Elisabeth of Bohemia). In the first letter she ever sent to Descartes (May 6, 1643, AT 3: 660) she asked him to expand the account of how matter and soul interact in his metaphysical system, the soul “being only a thinking substance.” Descartes makes a subtle correction in his response. Her question appears to him most reasonable in light of his published writings, he says, “because, there being two things in the human soul on which depends all the
knowledge we can have of its nature, one is that it thinks, the other is that, being united to the body, it can act and suffer with it.” In those writings, he says, there is almost nothing about the second point, since his main aim was “to prove the distinction between soul and body” (May 21, 1643, AT 3: 664–665). Thus begins Descartes’s genuine treatment of how the soul acts and suffers with the body, much of it in the continuing correspondence with Elisabeth. It culminated in his last canonical work, published just five months before his death, The Passions of the Soul (1649). Many interpret the Passions according to a superficial impression they find reinforced by Descartes’s claim that he wrote it en physicien: as an application of Cartesian mechanical science to human physiology. But in Descartes’s day the meaning of en physicien was less “as physicist” than “as physician,” in the sense of a medical doctor who can address soul as well as body, with the goal of helping the patient live well.

The Passions presents the doctrine of passions as not foundationally a matter of rhetoric or ethics, as it had been traditionally presented, but as a question of psychophysiology. In particular, the body and the mind interact in noncognitive consciousness as much as in cognitive ways. The key to working out the problem follows the lead of Descartes’s physiological physics and psychology. In earlier writings he had presented the “operating” system of the body as the network of nerves and brain filled with animal spirits, with the organ of imagination the key point of relay between body and intellect. The physiological system, it turns out in the Passions, has a character that leads not just to sensation, images, and thought but also to affect and feeling.

Book 1 of the Passions presents the basic phenomena of the psychophysiology his earlier work had established; then books 2 and 3 develop in detail the role passions and affects play therein. Nerves convey to the brain the impulses impinging on nerve endings in the sense organs. In the brain the impulses reach the other end of the nerves, which open into the central hollows that are filled with animal spirits and in which the pineal gland is suspended. The motions that the nerve impulses transfer to the animal spirits affect/move the surface of the gland and trace image pressure-patterns there. Associated with these, by God’s fundamental institution of the soul–body connection as modified by experience, are conscious mind-events. In animals and in automatic human behavior a counteraction can commence at this point, without any higher mental activity, because the gland can impress a new motion, radiating outward through the spirits back toward the periphery of the brain chamber. Sometimes this radiating motion activates places in the brain where images are stored, sometimes it leads to outwardly directed nerve impulses that produce muscle contractions, etc.

There is also in human beings the power not just to attend to images produced by pineal-gland motions but also to vary and change those images and to form new ones. In the Regulae this was the function of ingenti. What guides this power, according to the Passions, is will. The images actively formed by imagination are the product of voluntates, of acts of will.

The Passions argues that, like everything else that changes, the thinking thing can be looked at under a passive aspect and an active aspect. The passive aspect of thinking is perception, whether intellectual or sensitive. Most readers of Descartes wrongly take this aspect as the most noble and proper in the thinking thing. But even perceived intellectual ideas, like positive infinity, God, or the self as thinking, are passivities. What is active and at work in these events is will. And what is most surprising for the philosopher of imagination is that active imagination is will’s direct action in the body. If intellection is understood as the perception of truth, and imagination as an activity of will, then imagination is more characteristic and representative of the active nature of the thinking thing than is intellect!

That is a deliberately provocative way of putting a basic Cartesian truth. From the time of the Regulae Descartes’s cognitive questioning was not just about a search for truth and its
criterion (what made an intuition true) but also the question of where the mind should go and what it should do at every single step in its search for truth (a practical and ethical question of method and order). The will to truth is at least as basic to the thinking thing as is the recognition of truth; truths are sought not for their own sake but because they help guide human action, whether that is cognitive action or intelligent bodily action. In this sense imagination is a more appropriate medium for conceiving human things and actions than pure intellection. There would be no productive imagination of this type if there were no intellectual perception, it is true, but even the highest intellectual perception is the passive side of an act of will. The descent of human being from the highest “rationalist” moments (of God and self as thinking thing) back into the imaginative mathematical and personal world is always swift and foreordained by human finitude and human nature.

There is one last lesson to be learned from the Passions’ psychophysiology. In the pineal-gland chamber the image-impressions move through the animal spirits from nerve ends to gland (and perception) and from (will and) gland to memory locations and muscles. This human physiology sustains the worldly effectiveness of will, intellect, and imagination. Animal spirits, as a fluid in the nerves and the pineal-gland chamber, are subject to roilings, eddies, and turbulence. This is where passions enter into the system. Because of the way the body’s organs work, there are many essential but also incidental stimuli of animal spirit motions that can produce as byproduct conscious but not directly cognitive effects – feelings, affects, and passions. The second and third parts of the Passions are devoted to these phenomena, and they provide not only a detailed accounting of mind–body interaction far beyond anything Descartes had written before but also give substance to an understanding of precisely what Descartes meant when he justified sensation in Meditation 6 as oriented to the maintenance of the mind-body union, thus not primarily to truth. What the system of passions does is provide a preferential orientation of the body-mind union through physiology and attendant feeling to certain types of objects and certain typical responses to them. These can also be shaped by will and its regulated imagination into virtues (or vices), although the will cannot in fact directly affect the passions (one cannot stop being afraid by simply willing not to be, for example); it can do this only through reasoning implemented by imagining. Thus the Passions is a kind of prolegomenon to an unwritten Cartesian ethics of the willing-understanding-imagining being that is Homo sapiens. It establishes not merely ways to manage and control the passions but also to exercise them for the benefit of the human being as a whole. In the last analysis, in the words of the last paragraph of the Passions, those whom the passions “can move the most are capable of tasting the greatest sweetness in this life” (AT 11: 488) and able to benefit from accompanying evils.11 Imagination, for Descartes the principal way thought – never as pure intellect – works in and through body, turns out to be the principal instrument of living well.

Legacy

Many of Descartes’s contemporaries and immediate followers recognized how essential imagination was to his conception of mathematics and science, but some were wary of its broader use. For example, Blaise Pascal, in the Pensées, showed a typical ambivalence about imagination. On the one hand, like Descartes he sees it as necessary for understanding the physics of the world and for representing the best knowledge human beings have of it, in mathematical form. On the other hand, it degrades human beings by immersing them in trivialities and vanities that subject them to the blandishments of the corporeal and
social worlds and thus distract them from the spiritual path to God. A more historically effective seventeenth-century expression of a similarly ambivalent Christian view is found in Malebranche, whose intellectual career was transformed by his early discovery of Descartes’s posthumously published treatise *On Man*. In his classic *Search for Truth* he elaborated the Cartesian psychophysiology of imagination in light of human fallenness in order to demonstrate its corporeal and social pathologies – a strong-willed personality, for example, can exert malign influence on weaker souls through the physical effects of his powerful imagination. Malebranche nevertheless still acknowledged and affirmed, as Pascal and others had, the importantly and essentially imaginative character of mathematics and the sciences.

Nevertheless, because the reception of Descartes’s philosophy as rationalist and mechanist had hardened by the mid-1640s and because nothing of the early notes and speculations entered the public domain until decades, even centuries, later, scarcely anyone noticed the larger significance and tonality of the *Passions*’ account. A faulty assumption – that the metaphysics of Cartesian consciousness implies the priority of intellect over imagination and will – led most readers to the conclusion that, for Descartes, the imagination was inessential and even unimportant.

In the course of the later seventeenth and the early eighteenth centuries there was an increasing tendency in European thought to take mathematics, especially in its algebraic and analytic forms, as essentially an exercise of pure intellect. Descartes’s insights into its fundamentally imaginative character were lost from view. Imagination came to be ever more closely associated with mere aesthetics, arbitrariness, and deception. A living sense for the relation between imagination and intellect that in Aristotle had been expressed as intellect’s power to think the intelligibilities in images and in Descartes as biplanar, projective imagination – not to mention in imagination’s ethical significance – disappeared from Western experience. The split between rationality and imagination that eventually produced the Romantic rebellion was thus prefigured by the failure to recognize how deeply reason is rooted in the anthropology and psychology of imagination.

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**Notes**

1 For biographical matters see Rodis-Lewis 1998. Descartes’s works will be cited by volume and page in the great eleven-volume French and Latin edition edited by Charles Adam and Paul Tannery (universally referred to as “AT”). Readers of Descartes in English should be forewarned that translations of psychological terms are often misleading or inconsistent. For example, the currently most-cited translation of the *Regulae ad directionem ingenii* renders *ingenium* in four different ways. All translations in this essay are my own; they are usually very literal.

2 For a brief account of the history of imagination before Descartes, see Harvey 1975 and Hatfield 1998.

3 Aristotle himself had preferred locating them near the heart. The pineal gland of Cartesian fame is located in these hollows. See Smith et al. 2012.

4 In Descartes’s French writings it is typical to find *esprit* where the Latin has, or would be expected to have, *ingenium*.

5 I shall refer to the work as a whole as *Regulae*; individual rules will be identified in the format “Rule n.” In the 1960s some scholars started to contend that Descartes began the *Regulae* as early as 1619, but the older notion that it dates entirely from the mid- to late 1620s seems more probable again in light of
the discovery of a copy of an early manuscript version at the University of Cambridge library by Richard Serjeantson. Although Descartes himself apparently did not give any title to the work, ingenium is central to the argument and one of the most frequently occurring terms. In English it has long been customary to translate it as “mind,” but recent work has suggested better alternatives, like “native intelligence.”

6 This latter phrase is sometimes emended, replacing imaginatio with cogitatio, but that contradicts both the published Latin version, known as “A,” and the copy, likely commissioned by Leibniz and called “H,” of another manuscript version.

7 Color (whiteness), sharpness (of tone), and anything at all that can be measured according to the more and the less are treated as natures in Rule 14 (AT 10: 441).

8 See Nolan 2005. The last sentence of Meditation 5 says that certainty about God’s existence allows the meditator to know plainly and certainly countless matters, “both about God and other intellectual things, and also about that whole corporeal nature that is the object of pure Mathesis” (AT 7: 71). The term mathesis, encountered in the Regulae, marks a continuity with his earliest writings, which understood it as the most basic discipline of rigorous mathematical imagining.

9 “All these and similar propositions are to be removed [removendae, the verb from which remotio is derived] entirely from imagination to be true” (AT 10: 445). The propositions mentioned are “figure is not body; number is not the thing numbered; a surface is the boundary of a body, a line of a surface, a point of a line; unity is not a quantity, etc.” In all these cases, to understand the proposition one must conceive the terms by imagination, then recognize that the truth is about a negation or delimitation of the terms and images that cannot be directly shown by them but only grasped by mind. See Sepper 2000 for more about the sophisticated use of imagination in techniques of meditation, including the spiritual exercises that Descartes practiced at the Jesuit college of La Flèche.

10 For a fuller explanation of how this direction of intellectual perception by will works, see Sepper 2013, ch. 7.2.

11 I do not discount the importance of §147’s development of “the interior emotions of the soul” (AT 11: 440–441), but because they are truly emotions and often joined with human psychophysiology they are hardly support for restoring “Cartesian rationalism.”

12 See Sepper 2013 for an account and critique of these developments.

Further reading


References


Descartes

