Raymond Ruyer (1902–1987) French Philosopher

Raymond Ruyer was a 20th century French philosopher of science. Though explicitly metaphysical in orientation, his thinking was informed by the most advanced research in the sciences of his time, from quantum physics to geology and embryology to cybernetics. Despite Ruyer's fluency in the sciences and a wide-ranging record of publications, he remained a mostly obscure figure throughout his lifetime.[1] That is finally beginning to change, as anglophone and francophone philosophers rediscover and re-examine his work for its contemporary relevance.[2] Ruyer is becoming known for his sophisticated critique of mechanism and reductionism in the life sciences, as well as his fervent arguments for the centrality of a finalist or teleological perspective on reality. This so-called "neo-finalism" is sometimes considered part of the tradition of panpsychism in philosophy.

Life and Career

Raymond Ruyer was born on January 13, 1902 in Plainfaing, a small commune at the foot of the Vosges mountain range in north-eastern France. He spent his early life in books, learning both Greek and Latin by the age of fifteen, and keeping up even as a young teenager with the scientific research of the time. In 1924, after three years at the Ecole Normale Supérieure, Ruyer landed his first teaching position at a high school in Saint-Brieuc. Ten years later, he took up a

[1] The one exception came in 1974, with Ruyer's exposé of the ideas of a group of gnostic American scientists (see Colonna 2007b: 13–28). The conceit of the book, *The Gnosis of Princeton: Scientists in Search of a Religion*, was, however, a ploy. Ruyer invented the scientists as a guise for his own philosophy, with the hope of reaching a wider audience. Though the book was an immediate best-seller, Ruyer was subsequently forgotten—and quite seriously as well. By the turn of the century, all of his works were out of print. "The fact is," writes Fabrice Colonna, "that Ruyer has been purely and simply effaced from the field of theoretical references" (2007a: 1).

[2] One of Ruyer's most important texts, *Néo-finalisme*, was reissued by Presses Universitaires de France in 2012. By 2014 it had made its way onto the French *agrégation* exam in philosophy. Special issues dedicated to Ruyer's work have appeared in *Les Études philosophiques* (2007 and 2013), *Philosophical Review of France and Abroad* (2013), *Critique* (2014), and *Philosophia Scientiae* (2017). In 2016, *Néo-finalisme* was translated into English by Alyosha Edlebi and published by University of Minnesota Press. A special issue of *Deleuze Studies* was dedicated to Ruyer in 2017. Shortly after came the wide release of Elizabeth Grosz's *The Incorporeal* through Columbia University Press, a chapter of which is dedicated to Ruyer, no doubt introducing him to an even larger audience. Most recently, an English translation of Ruyer's *La Genèse des formes vivantes* by Jon Roffe and Nicholas B. de Weydenthal appeared in press in 2020. Roffe is also in the process of editing, with Elie During and Anne Sauvagnargues, a critical collection of essays on Ruyer's thought with Edinburgh University Press, the first of its kind to be published in English.

post at the Université Nancy 2, just outside of his hometown. With one dramatic exception, he lived the rest of his life in the relative rural isolation of the landscape of his childhood.

One year after being mobilized for the World War in 1939, Ruyer was taken prisoner in Offizierslager XVII-A, a German prison camp for officers in north-eastern Austria. He spent four years in the camp. While imprisoned, Ruyer managed to create a university, alongside the experimental biologist Étienne Wolff, the mathematician Jean Leray, and the geologist François Ellenberger, with whom he would form a strong, lifelong friendship. It was during this time that Ruyer developed the psychobiological perspective that would define his work. He published *Elements of Psychobiology* in 1946.

After returning to France, Ruyer taught at Nancy 2 until his retirement in 1972. He died in Nancy at the age of 85 in 1987. His final monograph, *Embryogenesis of the World and the Silent God*, was deposited as an unpublished manuscript at the Université until 2013, when it was released through Klincksieck. It has not yet been translated into English.

Thought

Ruyer's primary mode of argumentation is the *reductio ad absurdum*.[3] The primary object of his *reductio* is the contention that any real being can be adequately understood as a set of discrete parts organized in accordance with a fixed structure that could be given in advance. This is still more or less the view of the mechanistic sciences. Call it actualism. Ruyer's approach is to press actualism to its limits to show how that it both fails to account for basic phenomena and that it ends up pointing to a non-actual remainder it cannot explain. The rest of his philosophy attempts to conceptualize what grounds, organizes, and exceeds actuality.

It is in biology that Ruyer finds the most compelling cases for this approach. Central among them is the embryo, or more properly, embryogenesis. Ruyer argues that the development of the embryo cannot be explained in terms of an ongoing accretion of parts relative to a structure. At every moment of its development, the being in question is qualitatively transformed. There is no structure that can adequately account for this transformation process, which is capable of dealing with a wide range of invasive experimental interventions before being derailed onto a different developmental trajectory.

Ruyer draws two conclusions. First, as the embryo demonstrates, the unity of a living being cannot be characterized by invoking a fixed *structure*. There must instead be a kind of implicit, vague, immanent *form* in play, something akin to a musical theme and most like a latent memory, in relation to which the embryo improvises itself. Second, the embryo, like all living beings, is not composed of neutral, mutually indifferent building blocks, like the atoms of nineteenth-century physics. An embryo is a dynamic, integral multiplicity.

[3] For more on this characterization, see Posteraro and Roffe 2019: 126-127.

The Embryo

"A fertilized egg," Ruyer writes, "is not a mosaic of territories that are irrevocably destined to engender this or that organ" (2016: 49). Early embryologists—Driesch and Spemann—found that if they grafted cells from one place to another on the embryo at an early enough stage of its development those cells would take on functions appropriate to their new locations. But grafted at later stages the cells developed as if they were still in their original positions. They found that the developmental process moves through three main stages: presumption, determination, and differentiation (2016: 50). Before it is "determined" as such, a given zone of the young embryo can only be "presumed" to become some determinate structure. It can still become otherwise. Presumption is speculative. Determination indexes the fact that prior to the actualization of some particular organ, the zone that will become it cannot become otherwise, even if grafted elsewhere. That means that there occurs between equipotentiality and differentiation a phase during which each zone of the developing embryo is specified in terms of what it will become. Only after that determination does it begin to manifest the differentiated characteristics of a particular organic structure. What is most important, for Ruyer, is that during the "presumptive" stage of development, the embryo is equipotential, its cells can be rearranged and their functions modified (2016: 57). Development is the process through which equipotentiality is progressively minimized in a cascade of increasingly specific determinations: from the almost completely indeterminate, to some abstract theme (say, foot), to the particularization of that theme (left foot), to a spatiotemporally specific, fully differentiated organic structure (*this* left foot). Actualism correctly designates only the final result of the process.

Spatiotemporal determination is characteristic only of what is fully formed because actualization takes place progressively, over time. "The equipotential territory is," in Ruyer's words, "*not yet* what it will become" (2016: 56). To account for progressive actualization Ruyer posits what he calls the "mnemic theme." Every process or activity that has a sense or end is, for Ruyer, necessarily "thematic" (2016: 49). Themes are like melodies. They are not given entirely at any one point in time. For this reason, Ruyer calls them "transspatial." There is a theme, for instance, behind the individual words and sentences of this paragraph. That theme—the sense of the whole—traverses, envelops, or "surveys" [*survoler*] each of its parts (2016: 11). Each word in each sentence manifests this theme without fully realizing it. The theme makes sense not only of these words, but of the actions that generate them as well—right down to the coordination of muscle movements in the hands of the writer.

Finalism

Ruyer ascribes sense to the domain of organic function as well. He favours cooking as an example. Cooking is an intelligent, goal-directed activity that makes use of tools in order to predigest food, and is continued in the gastrointestinal tract after the cooked food is ingested. This second phase makes use of internal bodily processes in order to complete the act begun by cooking. Tool use, on Ruyer's account, continues organic function, and organic function is itself a late phase in a longer process of organogenesis.

What is true for instinctive behavior must be true too for the intelligent variety, as instinct is so often the germ for its elaboration in an intelligent variation (2016: 19). Internal organic activities produce fats and sugars, the instinctive act of collecting provisions (the way a squirrel does with nuts) externalizes and extends those activities, and the intelligent act of canning preserves or refrigerating meats merely adds one more phase to that same stream (2016: 20). Ruyer holds that the brain affords the organism the ability to complicate, refine, expand, and externalize the purposive activities that are present already within—and as the condition for the formation of—its body. The brain is not therefore "*the instrument of finalist action in general*," but rather only of the transposition of that action from inside to outside of the organism (2016: 36). As a result, the ontogenetic processes that construct the brain have to be considered meaningful—or purposive—as well. And the conditions for the genesis of the brain are obviously not themselves reliant on a brain for their sense (2016: 38).

Here we can begin to see the profound relation Ruyer establishes between the brain and the embryo. If the brain is intelligent in affording the organism the ability to mobilize its organs for the purposes of writing and cooking, then there must just as well be an intelligence operative through the embryo's ability to construct those same organs for itself (1988: 45). The brain, then, is like the embryo for the adult organism (2016: 69). It is characterized by a similar kind of equipotentiality. The cortical surface does not resemble a spatiotemporal field with geometric properties, simple locations, and determinable points. Brain functions are nonlocalizable (2016: 49). The brain is plastic, always re-differentiable, never a fully final or finished organ. It is always available to new transformations when put into circuit with different themes. This is how it affords the organism the ability to externalize its internal thematic activity. The brain is a prolongation of the embryo, not a different thing entirely. Even memory is to be located internal to the developing embryo. "Embryogenesis," as Ruyer has it, "is mnemic" (1988: 32). The embryo is in circuit with a kind of "organic memory" or "mnemic potential of the species" that consists of the themes for the development of the adult organism (1988: 32).

Primary Consciousness

There is a close connection between the organic memory that guides and directs the development of the embryo and the ability of the brain to remember how to perform some intelligent act, a memory that in its own way guides and directs the performance of that activity. The borders between the organic and the psychological are fluid: "what is a tool in certain cases (the product of psychological consciousness) is an organ in other cases (the product of organic consciousness)" (2016: 69). The embryo is conscious to the extent that it forms organs for itself; it is conscious of the themes for the development of those organs and nothing besides (1988: 27). If it "seems unconscious," that is only "because it is conscious of what it does and of nothing else" (1988: 27). Ruyer compares this kind of "primary" consciousness to the consciousness of a craftsperson fully absorbed in her work, conscious of nothing outside of what she is doing just as she is doing it (1988: 25). Absorbing work is what Ruyer calls an "absolute surface," that is, a whole that is present to consciousness all at once, not in a series of "isolated parts functioning

together progressively" (1988: 25).[4] The craftsperson actualizes the absolute surface of her work project step by step, in determinate parts. But the theme of the work itself is indivisible. The same goes for embryogenesis. Developmental themes—like "lung"—are present to the embryo in this same "absolute" and indivisible sense. They are only articulated in separable spatiotemporal determinations or structures as the embryo works to realize them.

Ruyer calls the developmental theme "mnemic" because it is of memory, of the past, and brought into the actual present only progressively, over time, through the medium of an equipotential zone, whether embryonic or cortical. This privilege of equipotentiality resides in the fact that it eludes causal explanation (2016: 68). Causes operate determinatively; they are actual, localizable in space and time. Equipotentiality is not itself a property, but the state of being able to realize a multiplicity of different properties. Embryogenesis, the process through which some set of those properties is realized, cannot be exhaustively determined through physicochemical causality (2016: 55). The presence or absence of what embryologists call "chemical organizers … can be construed as triggers or, rather, as invokers of formative psychomnemic themes, which are summoned by them to pass into the plane of space-time" (2016: 56). But they cannot be considered causes; invocation is something else entirely. It operates vertically, drawing into the actual—"the plane of space-time"—relevant themes from the mnemic, the transspatial. Triggers, or "invokers"—pressure, temperature differential, chemical gradient—act like smells that recall memories; "they put the embryo in circuit with mnemic themes that, once 'invoked' (determination), pass into the actual (differentiation)" (2016: 56).

Actual and Potential

The modal status of the mnemic is that of preindividual potentiality. The world of space, time, and fully formed individuals—the actual world—is, for Ruyer, a kind of limit to this larger ontological field, which is shot through with themes for the formation of the individuals whose parts populate the actual (2016: 124). The actual world does not contain these themes in the state of possibility; it does not contain them at all (2016: 57). They are invoked, put into play, drawn into realization from elsewhere. The actual world is the terminal state of processes that are not themselves actual (Ruyer 2016: 133). Those processes are preindividual, that is, they are the conditions for individuation without themselves being individuated.

The living being is indissociable from the virtual or mnemic conditions for its individuation (2016: 132). Equipotentiality is minimized over the course of development, but retained, sometimes even intensified—as in creatures of imagination—in the brain. And even brainless organisms can react to stimuli in a number of ways and therefore instantiate some minimal degree of freedom from causal determination by drawing from the mnemic potential of their species. Life is always in touch with its mnemic potential, always "surveying" themes for action,

[4] Ruyer's favorite example of an absolute surface is the visual field. This is because the subject does not have to traverse its details one at a time; they are present all at once, in a unity. "'I am," in Ruyer's words, "simultaneously in all the locations of my visual field" (2016: 94). It is in that sense that the craftsperson's work is present to her, and it is in that same sense that the embryo does not have to catalogue each detail of its developmental themes.

improvising on learned instincts, manifesting inherited abilities, growing, changing, and evading in one way or another for as long as it is alive a reduction to purely physical function— that is, to actuality. The living being, then, "is never 'fully assembled'; it can never confine itself to functioning, it incessantly 'forms itself'" (2016: 147). There is always something of the virtual in the vital, both because the organism comes to be thematically and because its ongoing activity "always derives, in the last resort, from the placing of the individual *x* in circuit with the transspatial" (2016: 151). Pure spatiotemporal determination is death, the condition of a body that is capable of nothing other than its current state.

Though it might seem difficult to accept many if not most of these conclusions, at least from the perspective of the philosophical canon, it can be argued that the science that motivated them has in many ways continued to advance in the directions that Ruyer forecasted. This is especially true in the quantum-physical and embryological domains. This might help explain why Ruyer's name has begun to attract renewed philosophical attention. It remains to be seen whether and to what end we are in store for something of a Ruyer renaissance as a result.

Philosophy and Science

Throughout his own lifetime, Ruyer's work remained more or less unknown, as his thought developed more or less independently from the major trends of French philosophy in the twentieth century. He saw little of philosophical value in either existentialism or phenomenology and did not engage in any real detail with any of his contemporaries.[5] This is largely because the guiding touchstone for Ruyer's work was not really philosophy at all, or at least not the philosophy of his precursors or contemporaries, but rather scientific research. While almost all of his major works include critical attacks on the way that scientists view the meaning of their work, Ruyer believed that scientific results themselves constituted a body of knowledge that philosophy was obligated to take seriously.

The task of the philosopher is not to place science in the broader context of a philosophy capable of incorporating it, nor is it to clarify the results of scientific research for the scientists ostensibly unable to engage in philosophical reflection for themselves. Philosophy should not merely employ scientific research for its own purposes, but neither should it simply subordinate itself to the picture of reality uncovered by the sciences of its time. "No authentic philosopher has ever composed a simple 'scientific philosophy', or a simple 'philosophy of science'. They have wanted to guide or correct this current, but by working with science and without attempting to establish a para-scientific knowledge" (Ruyer 2007: 9). Ruyer's ambition was to elaborate a comprehensive metaphysics adequate to the most robust science of the day. That metaphysics might look quite different from the view of the sciences, and, indeed, Ruyer was led to a position that often reads like an extremely audacious speculative adventure in metaphysical idealism. But if that position is to be criticized, developed, endorsed, or refuted, then it should be so by the most advanced scientific research available, not by recourse to other philosophies or philosophers, past or present. That, at least, was what Ruyer believed.

[5] See Ruyer 1962: 218 and 2007: 3.

Influence

Though Ruyer's work is only just beginning to find a wider audience, his thinking did manage to exert a significant—if somewhat subterranean—influence on a cohort of better-known French philosophers. Chief among these are Maurice Merleau-Ponty, Georges Canguilhem, Gilles Deleuze, Félix Guattari, and Gilbert Simondon. The subject of Ruyer's influence on these thinkers has only just begun to receive the scholarly attention that it deserves as well.[6]

What they found in Ruyer was a fresh alternative to a number of the scientifically untenable metaphysical mainstays of the philosophical tradition. Merleau-Ponty borrowed the idea of transspatiality from Ruyer and used it to work out some of the details of his conception of organic development. Canguilhem's endeavour to produce a non-reductive philosophy of biology in dialogue with the life sciences and their history was carried out within a philosophical context that Ruyer helped produce. In his path-breaking work on information and cybernetics, Simondon engaged with Ruyer's own neglected philosophy of information at considerable length. Ruyer's contribution to cybernetics is due out in English for the first time in 2022. Deleuze and Deleuze and Guattari are probably the most significant of Ruyer's inheritors. Deleuze's philosophy of the virtual, for instance, is difficult to grasp independently of Ruyer, as is his philosophy of nature (and perhaps even his basic ontology) more generally. Recently, Elizabeth Grosz has enlisted Ruyer in her work on the idea of incorporeality in the history of philosophy and its relevance to contemporary materialisms.

As the influence of thinkers like Deleuze and Simondon continues to bear itself out across contemporary thought, we should take care to keep in mind the influence that Ruyer had on them in turn. As English translations of Ruyer's key texts are made available for the first time, we should also expect to see the circle of his influence widen out across the philosophical humanities in its own right. Daniel W. Smith has argued that Ruyer's *Neofinalism*, a text from 1952, "retains an extraordinary topicality and immediacy that makes it, even now, an essential contribution to the concerns of contemporary philosophy" (2017: 126). I think the same could be said for Ruyer's corpus in general.

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2021

[6] For Ruyer's influence on Deleuze, see Bogue 2005, 2017 and Roffe 2019; for Deleuze and Guattari, see Grosz 2012 and Roffe 2017; for Merleau-Ponty, see Zaietta 2019; for Canguilhem, see Gabel 2018; and for Simondon, see Gagnon 2017.

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Author Citation Information

Posteraro, Tano, "Raymond Ruyer", *ODIP: The Online Dictionary of Intercultural Philosophy* (2020), Thorsten Botz-Bornstein (ed.), URL = <www.odiphilosophy.com/Ruyer>.