
Creator of Value, Establisher of Vital Norms: Georges Canguilhem's Philosophy of the Life Sciences

Pei-yun Chen

ABSTRACT

This paper begins with an examination of a genealogy of philosophical reflections on health and illness from Friedrich Nietzsche to Georges Canguilhem and Gilles Deleuze. While Nietzsche's inspiration to Deleuze has been widely acknowledged, little attention has been paid to how Canguilhem's philosophy of the life sciences follows Nietzsche and later affects Deleuze. Canguilhem claims that health is one's feeling of confidence in life; health is when a living being feels it creates values and establishes its own vital norms. The notion of individuality plays a significant role in Canguilhem's philosophy of the life sciences. Individuality is not only constituted by a living being who determines how to react; for Canguilhem, individuality refers to a living being as well as its relation to the milieu. An individual is not pre-given; instead, in selecting and responding to its milieu, it is individuated. Understood in a biological sense, the individual, when creating a norm, makes a judgment based on feeling. While a norm is created, the assessment is where values are posited. For Canguilhem, to live is to evaluate, to seek the sense of the organism's choice. Hence the notion of individuality is considered as an axiological rather than an ontological one. This paper is composed of three parts: the living and its milieu, individuality and valuation, and Canguilhem and contemporary medical issues. I intend to examine why and how Canguilhem's notion of individuality is tied to value judgements, what influence Nietzsche has on Canguilhem, and how Canguilhem's thoughtful ideas of individuality can help us critically reflect on contemporary debates about personalized medicine.

KEYWORDS Georges Canguilhem, individuality, normativity, valuation, the normal and the pathological, milieu

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Pei-yun CHEN, Professor, Department of English, Tamkang University, Taiwan

What is life? Such a big question has urged innumerable thinkers to explore inexhaustible answers. The approaches they take may be various, but what literary writers, artists, and philosophers have in common, as Gilles Deleuze claims, is their fragile health. They possess delicate health not due to neuroses, psychoses, or any form of illness; rather, they bear “the quiet mark of death” because they “have seen something in life that is too much for anyone” (WP 172).¹ This “something,” paradoxically, “supports them through the illness of the lived (what Friedrich Nietzsche called health)” (WP 172-73). Suffering from fragile health, writers are however not patients. For Deleuze, they are physicians; more precisely, they are symptomatologists. “The world is the set of symptoms whose illness merges with man” (CC 3). The modes of existence isolated in literary texts, artworks, and philosophical reflections are the symptoms of man and the world. Deleuze asks: “What health would be sufficient to liberate life wherever it is imprisoned by and within man, by and within organisms and genera?” (CC 3). He would probably answer with a quote from Nietzsche: “perhaps one day we will know that there wasn’t any art but only medicine” (WP 173).

Deleuze’s reflections on illness and health are parallel to his interpretation of Nietzsche, but it is noteworthy that Deleuze does not tackle the notion of life in *Nietzsche and Philosophy* (1962). He, instead, devotes a chapter to Nietzsche in *Pure Immanence: Essays on a Life*, in which Deleuze demonstrates how Nietzsche connects illness with a transvaluation of values. What Nietzsche calls *great health*, Deleuze argues, signifies mobility that allows the movement from illness to health and vice versa. In other words, superior health does not refer to physical strength or the capacity to defeat illness because the relationship between health and illness is not bluntly hierarchical: health is not necessarily superior to illness. Deleuze contends that Nietzsche “saw in illness a *point of view* on health, and in health, a *point of view* on illness. . . . Illness as an evaluation of health, health as an evaluation of illness: such is the ‘reversal,’ the ‘*shift in perspective*’” (PI 58). Deleuze’s statement brings health to the fore, but he stops at this point. Although Deleuze’s discussions of health and illness seem relatively short, his understanding of Nietzsche’s “great health” suggests two points that call for more attention. First, great health signifies “being more than normal”; secondly, the mobility between illness and health involves “values,” which means that the concepts of health and illness are not simply judged according to certain norms, but, more importantly, are axiological. The term “normal,” as Georges Canguilhem explains, is “used by the nineteenth

¹ Gilles Deleuze and Félix Guattari’s *What Is Philosophy?* is hereafter abbreviated as WP; Gilles Deleuze’s *Essays Critical and Clinical*, CC; and *Pure Immanence*, PI.

century to designate the scholastic prototype and the state of organic health" (*NP* 237).² Accordingly, a norm, similar to a rule, is "what can be used to right, to square, to straighten. To set a norm, to normalize, is to impose a requirement on an existence" (*NP* 239). "Being more than normal" is therefore not simply to subject oneself to a norm; being more than normal signifies an individual's capacity to shift perspectives and an individual's mobility between health and illness.

What do health and illness have to do with values? What does it mean by "being more than normal"? Canguilhem's philosophy of the life sciences paves a way for better approaching these questions. I suggest that Canguilhem, as a key figure of postwar French philosophy, be the pivot between Nietzsche and Deleuze. Canguilhem considers health "a way of tackling existence as one feels that one is . . . creator of value, establisher of vital norms" (*NP* 201). In this statement, one observes ideas that he shares with Nietzsche. Canguilhem elaborates notions such as individuality and normativity, which accentuate health as the flexibility of the living, and this path of thought sheds light on Deleuze's reading of Nietzsche. Canguilhem's concerns about life are so ambitious and elaborate as to take into consideration scientifically objective and philosophically subjective aspects.

Despite his enormous impact on influential thinkers such as Deleuze and Foucault, Canguilhem's philosophy did not receive enough attention until the development of biomedicine evoked ethical controversy and urged us to confront the challenge that has been brought to the fore. Despite the rapid advance of molecular biology and its clinical applications, the invention of personalized medicine escalates the thorny issue of individuality in biology. Should the norms that regulate the distinction of the normal and the pathological operate on a collective or individual level? Is it proper to apply the same biological norms to every individual in a given society? Is the same biological norm appropriate for designating a common clinical level of care that meets everyone's needs? The challenge, involving the issue of whether a common vital norm can be equally applied on every individual, has been intensified after P4 medicine (standing for preventive, predictive, participatory, and personalized medicine) started to play a central role in medical treatment. We then can see the current trend of medical treatment tends to develop on an individual basis. As Élodie Giroux observes, medical projects categorized as personalized medicine today "share the common trait of centering attention on the individual" (367), which leads the treatment and caring to target individual characteristics and individual needs.

² Canguilhem's frequently cited works in this paper are abbreviated as follows: *NP* for *The Normal and the Pathological*, *KL* for *Knowledge of Life*, and *WM* for *Writings on Medicine*.

P4 medicine expects to turn a new page on medicine and well-being. As Leroy Hood and Stephen H. Friend claim, “[t]he term ‘P4 medicine’ [is] to . . . denote an ongoing revolution in medicine—moving it from a reactive to a proactive discipline—where ultimately the objective is to maximize wellness for each individual rather than simply to treat disease” (184). By focusing more exhaustively and more precisely on individual patients, medical treatment and healthcare have become more particular and effective than ever. This systems approach to medicine then disrupts the existing classifications of disease, which are based on statistical averages instead of individual conditions. Disease, understood in light of personalized medicine, is not divorced from an individual in the pathological state. One cannot diagnose a disease by simply examining and identifying its characteristics without considering the patient who is experiencing it. A disease is not classified according to descriptive symptoms shared by the collective individuals who suffer. Instead, the individual relativity of the biological norm is vital to the distinction between the normal and the pathological. There is no disease without an individual in the pathological state, as there is no supra-individual norm to define ill persons.

The individual relativity of biological norms constitutes Canguilhem’s philosophical concerns on health and illness. In his most celebrated monograph *The Normal and the Pathological*, Canguilhem follows Kurt Goldstein, maintaining that the normal refers to “the flexibility of a norm which is transformed in its relation to individual conditions” (182). The flexibility of a norm far outweighs quantitative variations obtained from statistical averages for the individual. “In order to be normative in given conditions, what is normal can become pathological in another situation if it continues identical to itself” (NP 182). To keep in the normative condition, an individual has to be agile and adaptive to cope with the challenge in the milieu. In other words, an organism needs to change itself to confront the changing environment in order to—paradoxically as it may sound—remain stable and normative. This corresponds to the contemporary medical term “allostasis,” which means “achieving stability through change,” a process “that supports homeostasis, i.e., those physiological parameters essential for life . . . as environments and/or life history stages change” (McEwen and Wingfield 3).

The flexibility of the norm in the individual provides a convincing explanation to what Nietzschean great health means—not only overcoming and/or adapting to external change but also calibrating the balance of the organism and establishing new norms. Canguilhem contends: “Man feels in good health—which is health itself—only when he feels more than normal—that is, adapted to the environment and its demands—but normative, capable of following new norms of life” (NP 200). The notion of individuality is somewhat disturbing for biology and experimental

medicine due to two features: “its *totality* and its *singularity* or *specificity*” (Germain and Testa 412). “Individual” in its literal sense signifies indivisible, whole, and a totality. The specificity of an individual, simply put, is that any given individual is a center. Canguilhem quotes Edouard Claparède to explain that an individual is “a system with internal regulation, whose reactions are determined by an internal cause: momentary need” (KL 118).

As already mentioned, the notion of health is involved with life in both philosophical and medical terms. Moreover, the trend of personalized medicine, which focuses on individual needs, attests that Canguilhem’s insistence on how the biological study of the living must put the individual’s experiences, interests, and perceptions at the center can be related to contemporary debates concerning medicine. Canguilhem makes it clear in *The Normal and the Pathological* that his effort is to “integrate some of the methods and attainments of medicine into philosophical speculation” (34). For Canguilhem, medicine matters because it occupies the crossroads of many sciences and, therefore, involves more than one form of knowledge. He, however, criticizes positivist medicine, for it “eras[es] individual reactions to disease,” considering them merely “as aberrations from normality . . . [effacing] the experience of suffering and even of health itself” (WM 3). Integrating medicine into philosophical thoughts is not Canguilhem’s only task; he also accentuates the importance of biological knowledge. What distinguishes biology from other sciences such as physics and chemistry? Goldstein pinpoints its distinct trait: “Biology . . . has to do with individuals that exist and tend to exist, that is to say, seek to realize their capacities as best they can in a given environment” (qtd. in KL xix).³ In order to grasp biological knowledge better, it is not sufficient to focus entirely on facts and rely on analytical methods because, Canguilhem argues, “the thought of the living must take from the living the idea of the living” (KL xx). The biological knowledge of the living cannot separate the knowing subject from the object of knowledge, from the living experience.

At this point, we come to recognize that, for Canguilhem, the object of biological knowledge is the living rather than life in general. The living is different from life due to the fact that the living experiences itself in a specific milieu and takes its relation to the milieu as a problem to solve, as an exigency that obliges the living to act. The following sections examine Canguilhem’s arguments on the relationship between the living and its milieu, which explains why the notion of individuality paves the way for Canguilhem to propose the concept of normativity in order

³ Canguilhem quotes Goldstein from “Remarque sur le problème épistémologique de la biology.” The pagination reference is from Canguilhem’s “Introduction: Thought and the Living” in *Knowledge of Life*.

for him to further argue that to live is to evaluate, to discriminate; to live is to seek the sense of the organism's choice within the organism itself. This path of thought leads to a better understanding of why Canguilhem regards "individuality as an axiological rather than as an ontological notion" (Gayon 308).

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The Living and Its Milieu

In his essay "The Living and Its Milieu,"⁴ Canguilhem tackles the notion of "milieu" by going through the history of scientific study of the milieu and its relation to the organism. Scientific methods indeed inspire the knowledge of life; nevertheless, living beings as the object of such knowledge cannot be simplified and reduced to any given physical objects, which tend to be static and inert, precisely because the object of knowledge in the life sciences involves not only an individual being but also its milieu. Milieu, as an exterior circumstance for individual living beings, assembles individuals and conditions the characteristics and functions of living beings. The notion of milieu in analytic scientific thought, however, "becomes a universal instrument for the dissolution of individualized organic syntheses into the anonymity of universal elements and movements" (KL 103). Everything, organic or non-organic, is attached to a fixed center of reference, and all movement and formation follow universal principles of physics. Jakob von Uexküll and Kurt Goldstein reverse this relationship between organism and milieu, taking it not as a physical principle but as a biological and philosophical problem. Both Uexküll and Goldstein had an enormous impact on Canguilhem.

Uexküll proposes the key term *Umwelt* to refer to the proper milieu for an individual living being. *Umwelt* is not equal to the world that is the ensemble of all beings with physical excitations acting upon them. Physical excitations occur, but an organism does not always respond to all of them. This selective behavior, that is, a living being's selective responses to excitements and its own movements, designates a milieu proper to an individual, in which the subject's interest (a human being's as well as animals') is fundamental. Canguilhem explains this as follows: "insofar as the excitation acts on the living being, it presupposes the orientation of the living being's interest. The excitation comes not from the object but from the living. In order for the excitation to be effective, it must be anticipated by an attitude of the subject" (KL 111). *Umwelt* assumes that the order of time and space is not universal. *Umwelt* is "individuation" in a biological sense. Individuation here designates the process in which an individual's "life rhythm orders the time of this

⁴ The essay "The Living and Its Milieu" is collected in *Knowledge of Life*.

Umwelt, just as it orders space” according to its favorable circumstances and orientation (KL 112).

Goldstein, on the other hand, criticizes the scientific experimental methods that set the living in the laboratory to obtain knowledge of the organism. The situation in the laboratory is catastrophic for the living beings, given that the milieu is not chosen according to their vital norms. With their own vital norms, the living beings’ actions are their privileged behavior. Goldstein considers the vital norm an outcome from a living being and its relation to the milieu. The distinction between a healthy and a pathological state is made by the vital norm of the living. The pathological state illustrates that the living and the milieu are in a struggling relation in which the living cannot dominate the milieu or accommodate itself in the milieu. “A life that affirms itself against the milieu is a life already threatened. . . . A healthy life, a life confident in its existence, in its values, is a life of flexion, suppleness, almost softness” (KL 113). Goldstein holds a similar opinion on the relation between the living and its milieu with Uexküll, both of whom point out that the living has its own privileged behavior and favorable circumstances; with these orientations the living establishes its vital norm. But Canguilhem reminds us that Goldstein further contends that the living is a “significant being . . . within the order of values”; he quotes Goldstein’s own statement: “in the organism, ‘meaning’ and ‘being’ are the same” (qtd. in KL 113). The connection of the vital norm, as an indicator of the relation between the living and its milieu, and the meaning and value of an individual being therefore comes to the fore. In what sense is meaning the same as being? An individual being is what it means. What an individual being means is comprised by the circumstances it chooses, how it responds to the excitations, what value it establishes, and how it feels. The pathological states are attached to the feeling of an individual being, that is, its pathos: “Pathological implies *pathos*, the direct and concrete feeling of suffering and impotence, the feeling of life gone wrong” (NP 137).

In the essay “Vitalism as Pathos,” Thomas Osborne interprets Canguilhem’s vitalism in light of Nietzsche, with the emphasis on the pathic aspects of life: pathology, illness, and error. The pathic aspects of life are relevant to pathos. Osborne states: “For Nietzsche *pathos* is opposed to *ethos*, where *ethos* denotes the continuity of life, whether as being or becoming, and *pathos* denotes the occasions and challenges through which any life passes through” (202). In this sense, pathos demonstrates the state in which the living struggles with its relation to the milieu. If pathos illustrates the tension with which a living being feels that the circumstance signals a threat and the living being confronts the exigency forcing it to respond, “to live” in this sense signifies to take the challenge from the milieu as a

problem that one cannot help but solve. The pathological life, derived from pathos, exposes its incapacity to meet the challenges of the milieu, suffers the constraints imposed by the milieu, and senses itself being limited. Goldstein explains the norms of pathological life as “those that oblige the organism to henceforth live in a ‘shrunken’ milieu” (qtd. in *KL* 132). An organism in the pathological state is not only constrained under the limiting circumstances. In addition, its capacity to change and flexibility are also reduced. However, Canguilhem argues that “the content of the pathological state cannot be deduced . . . from the content of health; disease is not a variation on the dimension of health; it is a new dimension of life” (*NP* 186). This statement displays a Nietzschean overtone—disease is a new dimension of life just as the pathic aspects of life reflect an overcoming and striving. The different stance that Canguilhem takes from Nietzsche, though, is that he accentuates the pathological in a biological sense whereas Nietzsche asserts that the affirmation of life, with its indispensable pathic aspects, is involved with will-*ingness*.

Osborne argues: “What is affirmed when Nietzsche affirms life is life as *pathos*, as overcoming, struggle and experience. Hence a Nietzschean outlook is one that is capable of living up to *pathos*, of being equal to it such even that one *wills* it” (198). Confronting unfavorable circumstances, an individual being copes with the challenge by way of creating a new norm by its flexibility. If there is indeed a connection between Nietzsche and Canguilhem regarding pathos and will, if the affirmation of life means willing the life as pathos, willing should be understood not as accepting and tolerating the difficulty inflicted upon an individual, but as creating new norms, as modifying an individual structure. An individual’s reactions are different in the pathological state from the normal state, but the signification of this difference does not subsume the pathological to the normal. A pathological individual’s behavior “never turn[s] up in the normal subject in the same form and in the same conditions” (*NP* 184). This is due to the fact that, in the pathological state, the relation of the living being with its milieu has been changed, and hence a norm different from the previous one has to be created. Taking into account Canguilhem’s notion of the pathological, it makes sense for him to take individuality as a key concept. Canguilhem quotes Goldstein on disease: “Disease is shock and danger for existence. Thus a definition of disease requires *a conception of the individual nature as a starting point*” (*NP* 185). The pathological phenomenon is a unique trait of biological individuals. Unlike machines, which can never be pathological, a biological being must bear a relation to its milieu and feel that relation. This concept of biological individuality seems to involve experience, perceptions, and—arguably—consciousness.

Individuality and Valuation

An individual keeps its stability through variation in order to meet the needs of a changing environment. Consequently, the relationship between the normal and the pathological is relative. “It is the individual who is the judge of this transformation [from the normal to the pathological] because it is he who suffers from it from the very moment he feels inferior to the tasks which the new situation imposes on him” (NP 182). Only the individual can differentiate disease from health, as it is also true that “[i]t is life itself, through its differentiation between its propulsive and repulsive behavior, which introduces the categories of health and disease into human consciousness” (NP 222). Propulsive and repulsive behavior are two polarized modes of life that correspond, respectively, to the normal and the pathological states. As Johnathan Sholl explains, “[a]n organism’s norms have propulsive value . . . as the organism is capable . . . of establishing a new norm, of adapting to changing demands” (410). When an organism’s norms have repulsive value, opposite to the propulsive value, an organism “maintain[s] an achieved stability against any perturbation with an increasingly narrow range of functionality” (Sholl 410). Although disease decreases an individual’s flexibility, it is for Canguilhem “a positive, innovative experience in the living being” (NP 186). Disease leads an individual to create a new norm with a negative repulsive value. Indeed, understood as “irritation, suffering, discomfort,” disease is a concept of negativity, as Anders Kruse Ljungdahl argues, but “negativity is not negation” (344-45). Since disease is regarded as a concept of negativity, which means it is a positive experience with negative value instead of a negative experience negating suffering and unfavorable conditions, disease reveals something of which we are unaware. After all, when an organism functions smoothly without feeling any discomfort, our functioning organs do not draw our attention: “health is life lived in the silence of the organs” (NP 91).

Health and disease are not inherently positive or negative. This fact demonstrates how “positive” and “negative” are not attributes of health or disease, rather values imposed on them. The connections between health, diseases, and values reveal Nietzsche’s influence on Canguilhem. The pathological state lays bare an individual’s physical suffering and pain. Nietzsche bluntly declares that “pain does not indicate what is momentarily damaged but what *value* the damage has with regard to the individual as a whole” (137).⁵ The term “value” may sound provocative when it is involved with the ways in which we judge how we feel, but, for

⁵ Nietzsche’s Notebook 7[48], end of 1886-spring 1887.

Nietzsche, it is important to remember that linking pathos, such as suffering and pain, with disease obscures what health means. What does “value” mean for Nietzsche? “There is no doubt that all sensory perceptions are entirely suffused with *value judgements* (useful or harmful—consequently pleasant or unpleasant)” (78).⁶ From the biological view, value judgement is instinctive, and it is usually generated from an organism’s interaction with the milieu. Senses are faculties of feeling, understanding, and evaluating; to evaluate is to give value to something and to determine whether it is useful for the preservation of life. Nietzsche interprets senses in terms of value to argue that the pathological state is not disease in itself but the pathos of an individual. The feeling of discomfort and impotence bears negative value, but the value judgement attached to the feeling depends on the perspective. Nietzsche’s perspectivism renders accessible Canguilhem’s key concept, that is, individuality. By connecting perspectivism and individuality, we acknowledge individuality as an axiological notion.

In an excerpt from his late notebooks, Nietzsche writes:

Our “knowing” restricts itself to ascertaining quantities, . . . but we can’t stop ourselves experiencing these quantitative distinctions as qualities. *Quality* is *perspectival* truth for us; not an “in-itself.”

Our senses have a particular quantum as a medium span within which they function, i.e., we experience large and small in relation to the conditions of our existence. If we sharpened or blunted our senses tenfold, we would perish. (110-11)⁷

How do we determine large or small? The difference between large and small is a difference in degree; it is a quantitative relativity—large is never in itself definite, and neither is small. And yet, our senses are not unlimited. Nietzsche’s claim in which the function of senses is bound to a particular span corresponds to what Canguilhem means by “vital norms”—in vital norms, man senses, feels, and knows the world. An organism cannot survive if its senses are overwhelmed or excessively numbed, and yet, each individual responds to the milieu with different experiences and senses. What constitutes individuality is not only a living individual who determines how to react; what constitutes individuality is a living being and its relation to the milieu. We experience quantitative distinctions as qualities, Nietzsche argues, so qualities are felt, not measured, and therefore are changeable and

⁶ Nietzsche’s Notebook 2[95], autumn 1885-autumn 1886.

⁷ Nietzsche’s Notebook 5[36], summer 1886-autumn 1887.

relative. For example, blood pressure can be checked and measured as a number (quantity), but it is a living individual who feels stress (quality). Stress can be caused by demanding circumstances and hence the feeling of stress is how an individual responds to its milieu. There is indeed a limit of blood pressure that any given individual can stand, but to what extent an individual can suffer stress depends on its vital norms. This is what Canguilhem calls “normativity,” a notion pertaining to individuality.

Canguilhem distinguishes normality from normativity. Common sense dictates that what can be determined as normal is prevalent and non-discriminatory. “It seems that in the concept of *average* the physiologist finds an objective and scientifically valid equivalent of the concept of normal or norm” (NP 151). Being normative, however, indicates a different ability. Normativity means that an individual is “capable of following new norms of life” (NP 200). In Jean Gayon’s words, “[w]hereas ‘normality’ is a statistical concept that refers to the commonest adaptation to ordinary conditions of life, ‘normativity’ . . . means an organism’s ability to adopt new norms of life” (313). Hence being normative entails one’s feeling more than normal, transcending the norm obtained by statistically average, tolerating the inconstancies of the milieu to the extent that one can afford to fall sick and recover. Recovery is not a return to the previous state; recovery is being healthy in a new norm. “Normal man is normative man, the being capable of establishing new, even organic norms” (NP 139). The biological normativity of an individual is thus irreversible, Canguilhem argues. Since biological norms are involved with feeling, the understanding of biological norms should be based on individuals. Canguilhem makes it clear that an individual would convert physical conditions into feelings, especially in the pathological state. He thus explains: “A single norm in life is felt privately, not positively. A man who cannot run feels injured, that is, he converts his injury into frustration” (NP 139-40). Different physical capacities in the invalid and other beings are consonant with what Nietzsche calls quantitative distinctions. The real feeling of the invalid is frustration instead of the physical wound itself or the degree of incapacity. This explains why Nietzsche affirms that man experiences “quantitative distinctions as qualities” (110).

Biological normativity is the pivotal concept of Canguilhem’s philosophy of the life sciences. Normativity does not emphasize scientific objectivity but centers on individuality. “Normativity is the key to the judgement of norms for it appears to be the highest value” (Gane 305). Canguilhem’s philosophy of the life sciences “imports norms and thus values into the assessment itself and so lies beyond science” (Gane 305). The point here is that, when individuals create a norm, they make a judgement based on how they feel—all of these illustrate an activity of

valuation. The assessment itself is where values are posited. The act of judging implicates preferences. Preferences can be inconsistent in various states and relevant to present circumstances. As Anton Vydra puts it, “choosing something as valuable and refusing another as unvalued means to discriminate. However, such a discrimination is ‘the emergence of norms,’ ‘the institution of norms’” (125).

Canguilhem and Contemporary Medical Issues

Preferences exhibited in the act of selecting are to be manifest in experience. Understood in this fashion, individuality may be easily equated with subjectivity, or individual consciousness. Xavier Roth argues that “Canguilhem’s notion of subjectivity refers to something much more radical than human consciousness, that is, to life” (118). Although Canguilhem bears in mind the concept of life in his philosophical discourses, I think that Canguilhem spares no effort to explicate the innermost connections of individuality, normativity, and value exactly because the concept of individuality is unique, not simply referred to any given living being. In his introduction to *Pure Immanence*, John Rajchman interprets Deleuze’s notion of a life in this way: a life is “impersonal individuation rather than personal individualization” (8). This comment optimally illustrates Canguilhem’s individuality, and it also proves that Deleuze follows Canguilhem when conceptualizing life. The concept of individuality in Canguilhem is bound to its biological sense. It can be articulated more accurately as “impersonal individuation,” not the individualization of a subject. An individual is not pre-given, always already there and making decisions by its own will; instead, in selecting and responding to its milieu, it is individuated. An individual is both active in its actions and constrained by the limits of its capacities, whereas not a single individual lives alone without being related to the collective. Individuation demonstrates how an individual is both specific and indivisible, and yet, individuation also implies an individual bears a relation to the collective.

Contemporary discussions on the philosophy of medicine have benefited by, as well as challenged, Canguilhem’s insights, especially in fields such as biomedical sciences and personalized medicine. One may consider that Canguilhem overemphasizes biological individuality, especially since his philosophical reflections are placed in the context of personalized medicine. In the essay “Reconciling *Art* and *Science* in the Era of Personalised Medicine: The Legacy of Georges Canguilhem,” Gianmarco Contino argues that the seeming conflict between medicine-in-general and medicine-in-particular can be settled when medicine is understood as an art, that is, a *techne*. The idea of *techne*, as Contino contends, is “characterized by being

confined to a specific subject, targeted to a precise end and carrying a useful result” (3). Medicine, then, is first of all a *techne* of individual health meant to address a suffering individual’s specific physical conditions. Knowing more about the medicine-*techne* will better help suffering individuals. This is what Contino calls medical epistemology. Thanks to the knowledge of *techne*, man can “navigate the complex nature of information and the consequences on individual health and disease” (5). Here the idea of *techne* is a “powerful tool that allows the qualitative transition from medicine-in-general to medicine-in-particular” (5). Contino’s insight sheds light on the relationship between the collective and the individual in medicine.

The revelation of the human genome and recent advances in molecular biology complicate the knowledge of disease and abnormality. In result, the notion of vital norms provokes more debates. Nicolas Rose contends that, in this biomedical age, we are unlikely to separate the biological from the social norm. Even though health data may be collected from an individual, personal data are gathered to build “larger and larger databases to provide the statistical power to discover genetic markers of small effect associated with disease risk” (Rose 68). Rose makes manifest the inextricable bounds of individuals and collectives. Personalized medicine is made for personal need and yet it is dependent on collective databases. Pierre-Luc Germain and Giuseppe Testa’s arguments examine the limitations of Canguilhem’s idea of individuals. While it may be true that “individuals (of any kind) are necessary access points to the normativity of their biology,” this claim “conflicts with the imperatives of science—in particular its need for controlled experiments” (Germain and Testa 432-33). Canguilhem refutes the knowledge of life obtained in lab experiments, for the lab is not a normal milieu for living beings; yet practitioners of biomedicine cannot discard scientific methods. Biomedicine “must progress in a tension, and through an oscillation between the individual and its constituents, between the lab and the clinic” (Germain and Testa 433). Is this not questioning how philosophical reflection is pushed to its limit when confronting actual clinical practice?

Consider yet another example. Annemarie Mol mentions that, in real clinical practices, patients adopt different attitudes toward the use of measurement devices, and therefore show different ways of feeling what happens to their bodies. Some patients “live in a laboratory mode . . . [T]hey ‘don’t trust their feelings’ and act upon what they find when they *measure* themselves,” while other patients do not use the devices so they rely on their own feelings; these patients “live their bodies in a predominantly clinical way” (Mol 278, 277). When the clinical scene is set in real life, an individual’s feeling capacity, which is the basis of biological normativity in Canguilhem, may be called into question.

One may also find Bernard Stiegler's reading of Canguilhem insightful, as it pays attention to such contemporary issues as "the appearance of artificial organs within the vital process," "the perfecting of organs," and how technicity "brings about a new 'infidelity' of the milieu" (28-29). Even if inspired by Canguilhem's *The Normal and the Pathological*, Stiegler argues that contemporary life has been technically changed and, therefore, the experience of the pathological and the idea of normativity have been extended accordingly. Canguilhem maintains that health refers to man's capacity to tolerate the infidelities (inconstancies) of the milieu, and Stiegler furthers the notion of the infidelities of the milieu by bringing up Bertrand Gil's argument that there exists "disadjustment" between "the constantly accelerating evolution of the technical system . . . and that of the other human systems—social systems and psychic systems" (Stiegler 29). Technicity creates a new logic that demands a reconsideration of the experience of the pathological. While these challenges invite serious debates, we must remember that Canguilhem insists that his approach is epistemological instead of ontological. His philosophy of the life sciences is not to reveal the truth of life once and for all, but what we know and how we know it along with the development of science and society.

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