CHAPTER FOURTEEN

The Normal and the Pathological

Introduction to the Problem

[126] To act, it is necessary at least to localize. For example, how do we take action against an earthquake or hurricane? The impetus behind every ontological theory of disease undoubtedly derives from therapeutic need. When we see in every sick man someone whose being has been augmented or diminished, we are somewhat reassured, for what a man has lost can be restored to him, and what has entered him can also leave. We can hope to conquer disease even if doing so is the result of a spell, or magic, or possession; we have only to remember that disease happens to man in order not to lose all hope. Magic brings to drugs and incantation rites innumerable resources stemming from a profoundly intense desire for cure. Henry Ernst Sigerist has noted that Egyptian medicine probably universalized the Eastern experience of parasitic diseases by combining it with the idea of disease-possession: throwing up worms means being restored to health.[1] Disease enters and leaves man as through a door.

A vulgar hierarchy of diseases still exists today, based on the extent to which symptoms can – or cannot – be readily localized, hence Parkinson's disease is more of a disease than thoracic shingles, which is, in turn, more so than boils. Without wishing to detract from the grandeur of Louis Pasteur's tenets, we can say

without hesitation that the germ theory of contagious disease has certainly owed much of its success to the fact that it embodies an ontological representation of sickness. After all, a germ can be seen, even if this requires the complicated mediation of a microscope, stains and cultures, while we would never be able to see a miasma or an influence. To see an entity is already to foresee an action. No one will object to the optimistic character of the theories of infection insofar as their therapeutic application is concerned. But the discovery of toxins and the recognition of the specific and individual pathogenic role of *terrains* have destroyed the beautiful simplicity of a doctrine whose scientific veneer for a long time hid the persistence of a reaction to disease as old as man himself.

If we feel the need to reassure ourselves, it is because one anguish constantly haunts our thoughts; if we delegate the task of restoring the diseased organism to the desired norm to technical means, either magical or matter of fact [*positive*], it is because we expect nothing good from nature itself.

By contrast, Greek medicine, in the Hippocratic writings and practices, offers a conception of disease which is no longer ontological, but dynamic, no longer localizationist, but totalizing. Nature (*physis*), within man as well as without, is harmony and equilibrium. The disturbance of this harmony, of this equilibrium, is called "disease." In this case, disease is not somewhere in man, it is everywhere in him; it is the whole man. External circumstances are the occasion but not the causes. Man's equilibrium consists of four humors, whose fluidity is perfectly suited to sustain variations and oscillations and whose qualities are paired by opposites (hot/cold, wet/dry); the disturbance of these humors causes disease. But disease is not simply disequilibrium or discordance; it is, perhaps most important, an effort on the part of nature to effect a new equilibrium in man. Disease is a general-

ized reaction designed to bring about a cure; the organism develops a disease in order to get well. Therapy must first tolerate and, if necessary, reinforce these hedonic and spontaneously therapeutic reactions. Medical technique imitates natural medicinal action (*vis medicatrix naturae*). To imitate is not merely to copy an appearance but, also, to mimic a tendency and to extend an intimate movement. Of course, such a conception is also optimistic, but here the optimism concerns the way of nature and not the effect of human technique.

Medical thought has never stopped alternating between these two representations of disease, between these two kinds of optimism, always finding some good reason for one or the other attitude in a newly explained pathogenesis. Deficiency diseases and all infectious or parasitic diseases favor the ontological theory, while endocrine disturbances and all diseases beginning with *dys-* support the dynamic or functional theory. However, these two conceptions do have one point in common: in disease, or better, in the experience of being sick, both envision a polemical situation – either a battle between the organism and a foreign substance, or an internal struggle between opposing forces. Disease differs from a state of health, the pathological from the normal, as one quality differs from another, either by the presence or absence of a definite principle, or by an alteration of the total organism. This heterogeneity of normal and pathological states persists today in the naturalist conception, which expects little from human efforts to restore the norm, and in which nature will find the ways toward cure. But it proved difficult to maintain the qualitative modification separating the normal from the pathological in a conception that allows, indeed expects, man to be able to compel nature and bend it to his normative desires. Wasn't it said repeatedly after Bacon's time that one governs nature only by obeying it? To govern disease means to become acquainted

with its relations with the normal state, which the living man – loving life – wants to regain. Hence, the theoretical need, delayed by an absence of technology, to establish a scientific pathology by linking it to physiology. Thomas Sydenham (1624–1689) thought that in order to help a sick man, his sickness had to be delimited and determined. There are disease species just as there are animal or plant species. According to Sydenham, there is an order among diseases similar to the regularity Isidore Geoffroy Saint-Hilaire found among anomalies. Philippe Pinel justified all these attempts at classification of disease (nosology) by perfecting the genre in his *Nosographie philosophique* (1797), which Charles Victor Daremberg described as more the work of a naturalist than a clinician.

Meanwhile, Giovanni Battista Morgagni's (1682–1771) creation of a system of pathological anatomy made it possible to link the lesions of certain organs to groups of stable symptoms, such that nosographical classification found a substratum in anatomical analysis. But just as the followers of William Harvey and Albrecht von Haller "breathed life" into anatomy by turning it into physiology, so pathology became a natural extension of physiology. (Sigerist provides a masterful summary of this evolution of medical ideas.[13]) The end result of this evolutionary process is the formation of a theory of the relations between the normal and the pathological, according to which the pathological phenomena found in living organisms are nothing more than quantitative variations, greater or lesser according to corresponding physiological phenomena. Semantically, the pathological is designated as departing from the normal not so much by *a-* or *dys-* as by *hyper-* or *hypo-*. While retaining the ontological theory's soothing confidence in the possibility of technical conquest of disease, this approach is far from considering health and sickness as qualitatively opposed, or as forces joined in battle. The need to re-establish continuity in order to gain more knowledge for more

effective action is such that the concept of disease would finally vanish. The conviction that one can scientifically restore the norm is such that, in the end, it annuls the pathological. Disease is no longer the object of anguish for the healthy man; it has become instead the object of study for the theorist of health. It is in pathology, writ large, that we can unravel the teachings of health, rather as Plato sought in the institutions of the State the larger and more easily readable equivalent of the virtues and vices of the individual soul. [*The Normal and the Pathological* (*NP*), pp. 11–13]

Auguste Comte and the "Broussais Principle"

[127] It was in 1828 that Auguste Comte took notice of François-Joseph Victor Broussais's treatise *De l'Irritation et de la folie* and adopted the principle for his own use. Comte credits Broussais, rather than Xavier Bichat, and before him, Philippe Pinel, with having declared that all diseases acknowledged as such are only symptoms and that disturbances of vital functions could not take place without lesions in organs, or rather, tissues. But above all, adds Comte, "never before had anyone conceived the fundamental relation between pathology and physiology in so direct and satisfying a manner." Broussais described all diseases as consisting essentially "in the excess or lack of excitation in the various tissues above or below the degree established as the norm." Thus, diseases are merely the effects of simple changes in intensity in the action of the stimulants which are indispensable for maintaining health. [*NP*, pp. 47–48]

[128] The fortieth lecture of the *Cours de philosophie positive* – philosophical reflections on the whole of biology – contains Comte's most complete text on the problem now before us. It is concerned with showing the difficulties inherent in the simple extension of experimental methods, which have proved their

usefulness in the physicochemical sphere, to the particular characteristics of the living:

> Any experiment whatever is always designed to uncover the laws by which each determining or modifying influence of a phenomenon affects its performance, and it generally consists in introducing a clear-cut change into each designated condition in order to measure directly the corresponding variation of the phenomenon itself.[24]

Now, in biology the variation imposed on one or several of a phenomenon's conditions of existence cannot be random but must be contained within certain limits compatible with the phenomenon's existence. Furthermore, the fact of functional *consensus* proper to the organism precludes monitoring the relation, which links a determined disturbance to its supposedly exclusive effects, with sufficient analytical precision. But, thinks Comte, if we readily admit that the essence of experimentation lies not in the researcher's artificial intervention in the system of a phenomenon which he intentionally tends to disturb, but rather in the comparison between a control phenomenon and one altered with respect to any one of its conditions of existence, it follows that diseases must be able to function for the scientists as spontaneous experiments which allow a comparison to be made between an organism's various abnormal states and its normal state.

> According to the eminently philosophical principle which will serve from now on as a direct, general basis for positive pathology and whose definitive establishment we owe to the bold and persevering genius of our famous fellow citizen, Broussais, the pathological state is not at all radically different from the physiological state, with regard to which – no matter how one looks at it – it can only constitute a simple extension going more or less beyond the higher or

> lower limits of variation proper to each phenomenon of the normal organism, without ever being able to produce really new phenomena which would have to a certain degree any purely physiological analogues.[25]

Consequently every conception of pathology must be based on prior knowledge of the corresponding normal state, but conversely the scientific study of pathological cases becomes an indispensable phase in the overall search for the laws of the normal state. The observation of pathological cases offers numerous, genuine advantages for actual experimental investigation. The transition from the normal to the abnormal is slower and more natural in the case of illness, and the return to normal, when it takes place, spontaneously furnishes a verifying counterproof. In addition, as far as man is concerned, pathological investigation is more fruitful than the necessarily limited experimental exploration. The scientific study of morbid states is essentially valid for all organisms, even plant life, and is particularly suited to the most complex and therefore the most delicate and fragile phenomena which direct experimentation, being too brusque a disturbance, would tend to distort. Here Comte was thinking of vital phenomena related to the higher animals and man, of the nervous and psychic functions. Finally, the study of anomalies and monstrosities conceived as both older and less curable illnesses than the functional disturbances of various plant or neuromotor apparatuses completes the study of diseases: the "teratological approach" (the study of monsters) is added to the "pathological approach" in biological investigation.[26]

It is appropriate to note, first, the particularly abstract quality of this thesis and the absence throughout of any precise example of a medical nature to suitably illustrate his literal exposition. Since we cannot relate these general propositions to any example,

we do not know from what vantage point Comte states that the pathological phenomenon always has its analogue in a physiological phenomenon, and that it is nothing radically new. How is a sclerotic artery analogous to a normal one, or an asystolic heart identical to that of an athlete at the height of his powers? Undoubtedly, we are meant to understand that the laws of vital phenomena are the same for both disease and health. But then why not say so and give examples? And even then, does this not imply that analogous effects are determined in health and disease by analogous mechanisms? We should think about this example given by Sigerist: "During digestion the number of white blood cells increases. The same is true at the onset of infection. Consequently this phenomenon is sometimes physiological, sometimes pathological, depending on what causes it."[27]

Second, it should be pointed out that despite the reciprocal nature of the clarification achieved through the comparison of the normal with the pathological and the assimilation of the pathological and the normal, Comte insists repeatedly on the necessity of determining the normal and its true limits of variation first, before methodically investigating pathological cases. Strictly speaking, knowledge of normal phenomena, based solely on observation, is both possible and necessary without knowledge of disease, particularly based on experimentation. But we are presented with a serious gap in that Comte provides no criterion which would allow us to know what a normal phenomenon is. We are left to conclude that on this point he is referring to the usual corresponding concept, given the fact that he uses the notions of normal state, physiological state and natural state interchangeably.[28] Better still, when it comes to defining the limits of pathological or experimental disturbances compatible with the existence of organisms, Comte identifies these limits with those of a "harmony of distinct influences, those exterior

as well as interior"[29] – with the result that the concept of the normal or physiological, finally clarified by this concept of *harmony*, amounts to a qualitative and polyvalent concept, still more aesthetic and moral than scientific.

As far as the assertion of identity of the normal phenomenon and the corresponding pathological phenomenon is concerned, it is equally clear that Comte's intention is to deny the qualitative difference between these two admitted by the vitalists. Logically to deny a qualitative difference must lead to asserting a homogeneity capable of expression in quantitative terms. Comte is undoubtedly heading toward this when he defines pathology as a "simple extension going more or less beyond the higher or lower limits of variation proper to each phenomenon of the normal organism." But in the end it must be recognized that the terms used here, although only vaguely and loosely quantitative, still have a qualitative ring to them. [*NP*, pp. 19–21]

Claude Bernard and Experimental Pathology

[129] In Bernard's work, the real identity – should one say in mechanisms or symptoms or both? – and continuity of pathological phenomena and the corresponding physiological phenomena are more a monotonous repetition than a theme. This assertion is to be found in the *Leçons de physiologie expérimentale appliquée à la médecine* (1855), especially in the second and twenty-second lectures of Volume Two, and in the *Leçons sur la chaleur animale* (1876). We prefer to choose the *Leçons sur le diabète et la glycogenèse animale* (1877) as the basic text, which, of all Bernard's works, can be considered the one especially devoted to illustrating the theory, the one where clinical and experimental facts are presented at least as much for the "moral" of a methodological and philosophical order which can be drawn from it as for their intrinsic physiological meaning.

Bernard considered medicine as the science of diseases, physiology as the science of life. In the sciences it is theory which illuminates and dominates practice. Rational therapeutics can be sustained only by a scientific pathology, and a scientific pathology must be based on physiological science. Diabetes is one disease which poses problems whose solution proves the preceding thesis. "Common sense shows that if we are thoroughly acquainted with a physiological phenomenon, we should be in a position to account for all the disturbances to which it is susceptible in the pathological state: physiology and pathology are intermingled and are essentially one and the same thing."[30] Diabetes is a disease that consists solely and entirely in the disorder of a normal function. "Every disease has a corresponding normal function of which it is only the disturbed, exaggerated, diminished or obliterated expression. If we are unable to explain all manifestations of disease today, it is because physiology is not yet sufficiently advanced and there are still many normal functions unknown to us."[31] In this, Bernard was opposed to many physiologists of his day, according to whom disease was an extraphysiological entity, superimposed on the organism. The study of diabetes no longer allowed such an opinion.

> In effect, diabetes is characterized by the following symptoms: polyuria, polydipsia, polyphagia, autophagia and glycosuria. Strictly speaking, none of these symptoms represents a new phenomenon, unknown to the normal state, nor is any a spontaneous production of nature. On the contrary, all of them preexist, save for their intensity, which varies in the normal state and in the diseased state.[32]

Briefly, we know that Bernard's genius lies in the fact that he showed that the sugar found in an animal organism is a product of this same organism and not just something introduced from the

plant world through its feeding; that blood normally contains sugar, and that urinary sugar is a product generally eliminated by the kidneys when the rate of glycemia reaches a certain threshold. In other words, glycemia is a constant phenomenon independent of food intake to such an extent that it is the absence of blood sugar that is abnormal, and glycosuria is the consequence of glycemia which has risen above a certain quantity, serving as a threshold. In a diabetic, glycemia is not in itself a pathological phenomenon – it is so only in terms of its quantity; in itself, glycemia is a "normal and constant phenomenon in a healthy organism."[33]

> There is only one glycemia, it is constant, permanent, both during diabetes and outside that morbid state. Only it has degrees: glycemia below 3 to 4 percent does not lead to glycosuria; but above that level glycosuria results.... It is impossible to perceive the transition from the normal to the pathological state, and no problem shows better than diabetes the intimate fusion of physiology and pathology.[34]

[*NP*, pp. 30–32]

[130] Claude Bernard, unlike Broussais and Comte, supported his general principle of pathology with verifiable arguments, protocols of experiments and, above all, methods for quantifying physiological concepts. Glycogenesis, glycemia, glycosuria, combustion of food, heat from vasodilatation are not qualitative concepts but the summaries of results obtained in terms of measurement. From here on we know exactly what is meant when it is claimed that disease is the exaggerated or diminished expression of a normal function. Or at least we have the means to know it, for in spite of Bernard's undeniable progress in logical precision, his thought is not entirely free from ambiguity.

First of all, with Bernard as with Bichat, Broussais and Comte, there is a deceptive mingling of quantitative and qualitative con-

cepts in the given definition of pathological phenomena. Sometimes the pathological state is "the disturbance of a normal mechanism consisting in a quantitative variation, an exaggeration or attenuation of normal phenomena,"[35] sometimes the diseased state is made up of "the exaggeration, disproportion, discordance of normal phenomena."[36] Who doesn't see that the term "exaggeration" has a distinctly quantitative sense in the first definition and a rather qualitative one in the second. Did Bernard believe that he was eradicating the qualitative value of the term "pathological" by substituting for it the terms disturbance, disproportion, discordance?

This ambiguity is certainly instructive in that it reveals that the problem itself persists at the heart of the solution presumably given to it. And the problem is the following: Is the concept of disease a concept of an objective reality accessible to quantitative scientific knowledge? Is the difference in value, which the living being establishes between his normal life and his pathological life, an illusory appearance that the scientist has the legitimate obligation to deny? If this annulling of a qualitative contrast is theoretically possible, it is clear that it is legitimate; if it is not possible, the question of its legitimacy is superfluous. [*NP*, pp. 35–36]

[131] By way of summary, in the medical domain, Claude Bernard, with the authority of every innovator who proves movement by marching, formulated the profound need of an era that believed in the omnipotence of a technology founded on science, and which felt comfortable in life in spite, or perhaps because of, romantic lamentations. An art of living – as medicine is in the full sense of the word – implies a science of life. Efficient therapeutics assumes experimental pathology, which in turn cannot be separated from physiology. "Physiology and pathology are identical, one and the same thing." But must it be deduced from this, with brutal simplicity, that life is the same in health and disease,

that it learns nothing in disease and through it? The science of opposites is one, said Aristotle. Must it be concluded from this that opposites are not opposites? That the science of life should take so-called normal and so-called pathological phenomena as objects of the same theoretical importance, susceptible of reciprocal clarification in order to make itself fit to meet the totality of the vicissitudes of life in all its aspects, is more urgent than legitimate. This does not mean that pathology is nothing other than physiology, and still less that disease, as it relates to the normal state, represents only an increase or a reduction. It is understood that medicine needs an objective pathology, but research which causes its object to vanish is not objective. One can deny that disease is a kind of violation of the organism and consider it as an event that the organism creates through some trick of its permanent functions, without denying that the trick is new. An organism's behavior can be in continuity with previous behaviors and still be another behavior. The progressiveness of an advent does not exclude the originality of an event. The fact that a pathological symptom, considered by itself, expresses the hyperactivity of a function whose product is exactly identical with the product of the same function in so-called normal conditions, does not mean that an organic disturbance, conceived as another aspect of the whole of functional totality and not as a summary of symptoms, is not a new mode of behavior for the organism relative to its environment.

In the final analysis, would it not be appropriate to say that the pathological can be distinguished as such, that is, as an alteration of the normal state, only at the level of organic totality, and when it concerns man, at the level of conscious individual totality, where disease becomes a kind of evil? To be sick means that a man really lives another life, even in the biological sense of the word. [*NP*, pp. 86–88]

Life as a Normative Activity

[132] First of all there emerges from this theory the conviction of rationalist optimism that evil has no reality. What distinguishes nineteenth-century medicine (particularly before the era of Louis Pasteur) in relation to the medicine of earlier centuries is its resolutely monist character. Eighteenth-century medicine, despite the efforts of the iatromechanists and iatrochemists, and under the influence of the animists and vitalists, remained a dualist medicine, a medical Manichaeanism. Health and Disease fought over Man the way Good and Evil fought over the World. It is with a great deal of intellectual satisfaction that we take up the following passage in a history of medicine:

> Paracelsus was a visionary, [Jean Baptiste] van Helmont, a mystic, [Georg Ernst] Stahl, a pietist. All three were innovative geniuses but were influenced by their environment and by inherited traditions. What makes appreciation of the reform doctrines of these three great men very hard is the extreme difficulty one experiences in trying to separate their scientific from their religious beliefs.... It is not at all certain that Paracelsus did not believe that he had found the elixir of life; it is certain that van Helmont identified health with

> salvation and sickness with sin; and in his account of *Theoria medica vera* Stahl himself, despite his intellectual vigor, availed himself more than he needed to of the belief in original sin and the fall of man.[37]

More than he needed to! says the author, quite the admirer of Broussais, sworn enemy at the dawn of the nineteenth century of all medical ontology. The denial of an ontological conception of disease, a negative corollary of the assertion of a quantitative identity between the normal and the pathological, is first, perhaps, the deeper refusal to confirm evil. It certainly cannot be denied that a scientific therapeutics is superior to a magical or mystical one. It is certain that knowledge is better than ignorance when action is required, and in this sense the value of the philosophy of the Enlightenment and of positivism, even scientistic, is indisputable. It would not be a question of exempting doctors from the study of physiology and pharmacology. It is very important not to identify disease with either sin or the devil. But it does not follow from the fact that evil is not a being that it is a concept devoid of meaning; it does not follow that there are no negative values, even among vital values; it does not follow that the pathological state is essentially nothing other than the normal state. [*NP*, pp. 103–104]

[133] It is true that in medicine the normal state of the human body is the state one wants to reestablish. But is it because therapeutics aims at this state as a good goal to obtain that it is called normal, or is it because the interested party, that is, the sick man, considers it normal that therapeutics aims at it? We hold the second statement to be true. We think that medicine exists as the art of life because the living human being himself calls certain dreaded states or behaviors pathological (hence requiring avoidance or correction) relative to the dynamic polarity of life, in the form of a negative value. We think that in doing this the living

human being, in a more or less lucid way, extends a spontaneous effort, peculiar to life, to struggle against that which obstructs its preservation and development taken as norms. The entry in the *Vocabulaire philosophique* seems to assume that value can be attributed to a biological fact only by "him who speaks," obviously a man. We, on the other hand, think that the fact that a living man reacts to a lesion, infection, functional anarchy by means of a disease expresses the fundamental fact that life is not indifferent to the conditions in which it is possible, that life is polarity and thereby even an unconscious position of value; in short, life is in fact a normative activity. *Normative*, in philosophy, means every judgment which evaluates or qualifies a fact in relation to a norm, but this mode of judgment is essentially subordinate to that which establishes norms. Normative, in the fullest sense of the word, is that which establishes norms. And it is in this sense that we plan to talk about biological normativity. We think that we are as careful as anyone as far as the tendency to fall into anthropomorphism is concerned. We do not ascribe a human content to vital norms but we do ask ourselves how normativity essential to human consciousness would be explained if it did not in some way exist in embryo in life. We ask ourselves how a human need for therapeutics would have engendered a medicine which is increasingly clairvoyant with regard to the conditions of disease if life's struggle against the innumerable dangers threatening it were not a permanent and essential vital need. From the sociological point of view, it can be shown that therapeutics was first a religious, magical activity, but this does not negate the fact that therapeutic need is a vital need, which, even in lower living organisms (with respect to vertebrate structure) arouses reactions of hedonic value or self-healing or self-restoring behaviors. [*NP*, pp. 126–27]

Pathology as the Basis of Physiology

[134] Conversely, the theory in question conveys the humanist conviction that man's action on his environment and on himself can and must become completely one with his knowledge of the environment and man; it must be normally only the application of a previously instituted science. Looking at the *Leçons sur le diabète* it is obvious that if one asserts the real homogeneity and continuity of the normal and the pathological it is in order to establish a physiological science that would govern therapeutic activity by means of the intermediary of pathology. Here the fact that human consciousness experiences occasions of new growth and theoretical progress in its domain of nontheoretical, pragmatic and technical activity is not appreciated. To deny technology a value all its own outside of the knowledge it succeeds in incorporating is to render unintelligible the irregular way of the progress of knowledge and to miss that overtaking of science by the power that the positivists have so often stated while they deplored it. If technology's rashness, unmindful of the obstacles to be encountered, did not constantly anticipate the prudence of codified knowledge, the number of scientific problems to resolve, which are surprises after having been setbacks, would be far fewer. Here is the truth that remains in empiricism, the philosophy of intellectual adventure, which an experimental method, rather too tempted (by reaction) to rationalize itself, failed to recognize. [...]

Here again, we owe to the chance of bibliographical research the intellectual pleasure of stating once more that the most apparently paradoxical theses also have their tradition which undoubtedly expresses their permanent logical necessity. Just when Broussais was lending his authority to the theory which established physiological medicine, this same theory was provoking the objections of an obscure physician, one Dr. Victor Prus, who was

rewarded by the Société de Médecine du Gard in 1821 for a report entered in a competition whose object was the precise definition of the terms "phlegmasia" and "irritation" and their importance for practical medicine. After having challenged the idea that physiology by itself forms the natural foundation of medicine; that it alone can ever establish the knowledge of symptoms, their relationships and their value; that pathological anatomy can ever be deduced from the knowledge of normal phenomena; that the prognosis of diseases derives from the knowledge of physiological laws, the author adds:

> *If* we want to exhaust the question dealt with in this article we would have to show that *physiology, far from being the foundation of pathology, could only arise in opposition to it.* It is through the changes which the disease of an organ and sometimes the complete suspension of its activity transmit to its functions that we learn the organ's use and importance.... Hence an exostosis, by compressing and paralyzing the optic nerve, the brachial nerves, and the spinal cord, shows us their usual destination. Broussonnet lost his memory of substantive words; at his death an abcess was found in the anterior part of his brain and one was led to believe that that is the center for the memory of names.... Thus pathology, aided by pathological anatomy, has created physiology; every day pathology clears up physiology's former errors and aids its progress.[38]

[*NP*, pp. 104–107]

[135] There are some thinkers whose horror of finalism leads them to reject even the Darwinian idea of selection by the environment and struggle for existence because of both the term "selection," obviously of human and technological import, and the idea of advantage, which comes into the explanation of the mechanism of natural selection. They point out that most living

beings are killed by the environment long before the inequalities they can produce even have a chance to be of use to them because it kills above all sprouts, embryos or the young. But as Georges Teissier has observed, the fact that many organisms die before their inequalities serve them does not mean that the presentation of inequalities is biologically indifferent.[39] This is precisely the one fact we ask to be granted. There is no biological indifference, and consequently we can speak of biological normativity. There are healthy biological norms and there are pathological norms, and the second are not the same as the first.

We did not refer to the theory of natural selection unintentionally. We want to draw attention to the fact that what is true of the expression "natural selection" is also true of the old expression *vis medicatrix naturae*. Selection and medicine are biological techniques practiced deliberately and more or less rationally by man. When we speak of natural selection or natural medicinal activity we are victims of what Henri Bergson calls the "illusion of retroactivity" if we imagine that vital prehuman activity pursues goals and utilizes means comparable to those of men. But it is one thing to think that natural selection would utilize anything that resembles *pedigrees*, and *vis medicatrix*, cupping glasses and another to think that human technique extends vital impulses, at whose service it tries to place systematic knowledge which would deliver them from much of life's costly trial and error.

The expressions "natural selection" and "natural medicinal activity" have one drawback in that they seem to set vital techniques within the framework of human techniques when it is the opposite that seems true. All human technique, including that of life, is set within life, that is, within an activity of information and assimilation of material. It is not because human technique is normative that vital technique is judged such by comparison.

Because life is activity of information and assimilation, it is the root of all technical activity. In short, we speak of natural medicine in quite a retroactive and, in one sense, mistaken way, but even if we were to assume that we have no right to speak of it, we are still free to think that no living being would have ever developed medical technique if the life within him – as within every living thing – were indifferent to the conditions it met with, if life were not a form of reactivity polarized to the variations of the environment in which it develops. This was seen very well by Emile Guyénot:

> It is a fact that the organism has an aggregate of properties which belong to it alone, thanks to which it withstands multiple destructive forces. Without these defensive reactions, life would be rapidly extinguished.... The living being is able to find instantaneously the reaction which is useful vis-à-vis substances with which neither it nor its kind has ever had contact. The organism is an incomparable chemist. It is the first among physicians. The fluctuations of the environment are almost always a menace to its existence. [...] The living being could not survive if it did not possess certain essential properties. Every injury would be fatal if tissues were incapable of forming scars and blood incapable of clotting.[40]

By way of summary, we think it very instructive to consider the meaning that the word "normal" assumes in medicine, and the fact that the concept's ambiguity, pointed out by André Lalande, is greatly clarified by this, with a quite general significance for the problem of the normal. It is life itself and not medical judgment that makes the biological normal a concept of value and not a concept of statistical reality. For the physician, life is not an object but, rather, a polarized activity whose spontaneous effort of defense and struggle against all that is of negative value is ex-

tended by medicine by bringing to bear the relative but indispensable light of human science. [*NP*, pp. 129–31]

Nature Is the End Point of a Teleological Process

[136] In writing the *Introduction à l'étude de la médecine expérimentale*, Claude Bernard set out to assert not only that efficacious action is the same as science, but also, and analogously, that science is identical with the discovery of the laws of phenomena. On this point his agreement with Comte is total. What Comte in his philosophical biology calls the doctrine of the conditions of existence, Bernard calls "determinism." He flatters himself with having been the first to introduce that term into scientific French. "I believe I am the first to have introduced this word to science, but it has been used by philosophers in another sense. It will be useful to determine the meaning of this word in a book which I plan to write: *Du déterminisme dans les sciences*. This will amount to a second edition of my *Introduction à la médecine expérimentale*."[41] It is faith in the universal validity of the determinist postulate which is asserted by the principle "physiology and pathology are one and the same thing." At the very time that pathology was saddled with prescientific concepts, there was a physical chemical physiology which met the demands of scientific knowledge, that is, a physiology of quantitative laws verified by experimentation. Understandably, early-nineteenth-century physicians, justifiably eager for an effective, rational pathology, saw in physiology the prospective model which came closest to their ideal. "Science rejects the *indeterminate*, and in medicine, when opinions are based on medical palpation, inspiration, or a more or less vague intuition about things, we are outside of science and are given the example of this medicine of fantasy, capable of presenting the gravest perils as it delivers the health and lives of sick men to the whims of an inspired ignoramus."[42] But just because,

of the two – physiology and pathology – only the first involved laws and postulated the determinism of its object, it was not necessary to conclude that, given the legitimate desire for a rational pathology, the laws and determinism of pathological facts are the same laws and determinism of physiological facts. We know the antecedents of this point of doctrine from Bernard himself. In the lecture devoted to the life and works of François Magendie at the beginning of the *Leçons sur les substances toxiques et médicamenteuses* (1857), Bernard tells us that the teacher whose chair he occupies and whose teaching he continues "drew the feeling of real science" from the illustrious Pierre-Simon Laplace. We know that Laplace had been Antoine-Laurent Lavoisier's collaborator in the research on animal respiration and animal heat, the first brilliant success in research on the laws of biological phenomena following the experimental and measuring methods endorsed by physics and chemistry. As a result of this work, Laplace had retained a distinct taste for physiology and he supported Magendie. If Laplace never used the term "determinism," he is one of its spiritual fathers and, at least in France, an authoritative and authorized father of the doctrine designated by the term. For Laplace, determinism is not a methodological requirement, a normative research postulate sufficiently flexible to prejudice in any way the form of the results to which it leads: it is reality itself, complete, cast *ne varietur* in the framework of Newtonian and Laplacian mechanics. Determinism can be conceived as being *open* to incessant corrections of the formulae of laws and the concepts they link together, or as being *closed* on its own assumed definitive content. Laplace constructed the theory of closed determinism. Claude Bernard did not conceive of it in any other way, and this is undoubtedly why he did not believe that the collaboration of pathology and physiology could lead to a progressive rectification of physiological concepts. It is appropriate here to recall Alfred

North Whitehead's dictum: "Every special science has to assume results from other sciences. For example, biology presupposes physics. It will usually be the case that these loans really belong to the state of science thirty or forty years earlier. The presuppositions of the physics of my boyhood are today powerful influences in the mentality of physiologists.[43] [*NP*, pp. 107–109]

[137] The dynamic polarity of life and the normativity it expresses account for an epistemological fact of whose important significance Xavier Bichat was fully aware. Biological pathology exists but there is no physical or chemical or mechanical pathology:

> There are two things in the phenomena of life: (1) the state of health; (2) the state of disease, and from these two distinct sciences derive: physiology, which concerns itself with the phenomena of the first state, pathology, with those of the second. The history of phenomena in which vital forces have their natural form leads us, consequently, to the history of phenomena where these forces are changed. Now, in the physical sciences only the first history exists, never the second. Physiology is to the movement of living bodies what astronomy, dynamics, hydraulics, hydrostatics and so forth are to inert ones: these last have no science at all that corresponds to them as pathology corresponds to the first. For the same reason, the whole idea of medication is distasteful to the physical sciences. Any medication aims at restoring certain properties to their natural type: as physical properties never lose this type, they do not need to be restored to it. Nothing in the physical sciences corresponds to what is therapeutics in the physiological sciences.[44]

It is clear from this text that natural type must be taken in the sense of normal type. For Bichat, the natural is not the effect of a determinism, but the term of a finality. And we know well everything that can be found wrong in such a text from the view-

point of a mechanist or materialist biology. One might say that long ago Aristotle believed in a pathological mechanics, since he admitted two kinds of movements: natural movements, through which a body regains its proper place where it thrives at rest, as a stone goes down to the ground, and fire, up to the sky; and violent movements, by which a body is pushed from its proper place, as when a stone is thrown in the air. It can be said that, with Galileo and Descartes, progress in knowledge of the physical world consisted in considering all movements as natural, that is, as conforming to the laws of nature, and that likewise progress in biological knowledge consisted in unifying the laws of natural life and pathological life. It is precisely this unification that Auguste Comte dreamed of and Claude Bernard flattered himself with having accomplished, as was seen above. To the reservations that I felt obliged to set forth at that time, let me add this. In establishing the science of movement on the principle of inertia, modern mechanics in effect made the distinction between natural and violent movements absurd, as inertia is precisely an indifference with respect to directions and variations in movement. Life is far removed from such an indifference to the conditions which are made for it; life is polarity. The simplest biological nutritive system of assimilation and excretion expresses a polarity. When the wastes of digestion are no longer excreted by the organism and congest or poison the internal environment, this is all indeed according to law (physical, chemical and so on), but none of this follows the norm, which is the activity of the organism itself. This is the simple fact that I want to point out when we speak of biological normativity. [*NP*, pp. 127–28]

The Normal and the Pathological as Qualitative Contrast

[138] Finally, as a result of the determinist postulate, it is the reduction of quality to quantity which is implied by the essential

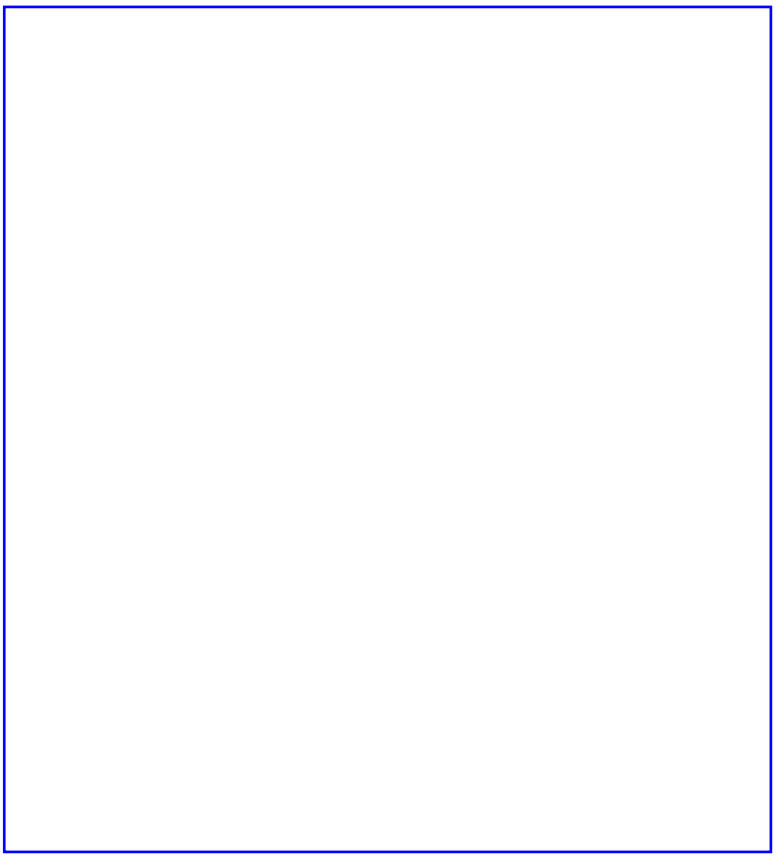
identity of physiology and pathology. To reduce the difference between a healthy man and a diabetic to a quantitative difference of the amount of glucose within the body, to delegate the task of distinguishing one who is diabetic from one who is not to a renal threshold conceived simply as a quantitative difference of level, means obeying the spirit of the physical sciences which, in buttressing phenomena with laws, can explain them only in terms of their reduction to a common measure. In order to introduce terms into the relationships of composition and dependence, the homogeneity of these terms should be obtained first. As Emile Meyerson has shown, the human spirit attained knowledge by identifying reality and quantity. But it should be remembered that, though scientific knowledge invalidates qualities, which it makes appear illusory, for all that, it does not annul them. Quantity is quality denied, but not quality suppressed. The qualitative variety of simple lights, perceived as colors by the human eye, is reduced by science to the quantitative difference of wavelengths, but the qualitative variety still persists in the form of quantitative differences in the calculation of wavelengths. Hegel maintains that by its growth or diminution, quantity changes into quality. This would be perfectly inconceivable if a relation to quality did not still persist in the negated quality which is called quantity.[45]

From this point of view, it is completely illegitimate to maintain that the pathological state is really and simply a greater or lesser variation of the physiological state. Either this physiological state is conceived as having one quality and value for the living man, and so it is absurd to extend that value, identical to itself in its variations, to a state called pathological whose value and quantity are to be differentiated from and essentially contrasted with the first. Or what is understood as the physiological state is a simple summary of quantities, without biological value, a simple fact or system of physical and chemical facts, but as this state

has no vital quality, it cannot be called healthy or normal or physiological. Normal and pathological have no meaning on a scale where the biological object is reduced to colloidal equilibria and ionized solutions. In studying a state that he describes as physiological, the physiologist qualifies it as such, even unconsciously; he considers this state as positively qualified by and for the living being. Now this qualified physiological state is not, as such, what is extended, identically to itself, to another state capable of assuming, inexplicably, the quality of morbidity.

Of course, this is not to say that an analysis of the conditions or products of pathological functions will not give the chemist or physiologist numerical results comparable to those obtained in a way consistent with the terms of the same analyses concerning the corresponding, so-called physiological functions. But it is arguable whether the terms "more" and "less," once they enter the definition of the pathological as a quantitative variation of the normal, have a purely quantitative meaning. Also arguable is the logical coherence of Bernard's principle: "The disturbance of a normal mechanism, consisting in a quantitative variation, an exaggeration, or an attenuation, constitutes the pathological state." As has been pointed out in connection with François-Joseph Victor Broussais's ideas, in the order of physiological functions and needs, one speaks of more and less in relation to a norm. For example, the hydration of tissues is a fact that can be expressed in terms of more and less; so is the percentage of calcium in blood. These quantitatively different results would have no quality, no value in a laboratory, if the laboratory had no relationship with a hospital or clinic where the results take on the value or not of uremia, the value or not of tetanus. Because physiology stands at the crossroads of the laboratory and the clinic, two points of view about biological phenomena are adopted there, but this does not mean that they can be interchanged. The substitu-

tion of quantitative progression for qualitative contrast in no way annuls this opposition. It always remains at the back of the mind of those who have chosen to adopt the theoretical and metric point of view. When we say that health and disease are linked by all the intermediaries, and when this continuity is converted into homogeneity, we forget that the difference continues to manifest itself at the extreme, without which the intermediaries could in no way play their mediating role; no doubt unconsciously, but wrongly, we confuse the abstract calculation of identities and the concrete appreciation of differences. [*NP*, pp. 110–12]



On the Normative Character of Philosophical Thought

[154] Philosophy is the love of Wisdom. One sees immediately that wisdom is for philosophy an Ideal, since love is desire for something that it is possible to possess. Thus, at the origin of the philosophical quest is the confession of a lack, the recognition of a gap between an existence and a need.

Wisdom is more than science in the strict and contemporary sense of the word, for science is a contemplative possession of reality through exclusion of all illusion, error and ignorance,

whereas Wisdom is the use of principles of appreciation provided by science for the purpose of bringing human life into a state of practical and affective perfection, or happiness.

Wisdom is therefore the realization of a state of human fulfillment and excellence, a realization immediately derived from knowledge of an order of perfection. Wisdom is thus clearly a practical form of consciousness.

Now let us compare the etymological definition and ancient conception of philosophy with our commonsense image. In common parlance, philosophy is a certain disposition to accept events deemed necessary and inevitable, to subject prejudices and phantoms of the imagination to cold scrutiny and criticism, and to regulate one's conduct in accordance with firm personal principles of judgment and evaluation. It seems probable, moreover, that insofar as those principles are remote from everyday life, people are inclined to think of philosophy as utopian and idle speculation of no immediate use and therefore of no value. Common sense, then, seems to lead to two contradictory judgments concerning philosophy. On the one hand, it sees philosophy as a rare and therefore prestigious discipline and, if it lives up to its promises, as an important spiritual exercise. On the other hand, it deduces from the variety of competing philosophical doctrines that philosophy is inconsistent and fickle, hence a mere intellectual game. Yet this judgment, which tends to discredit philosophical speculation, is contradicted by the fact that philosophers throughout history have been the object of hostility and even persecution, sometimes by political leaders and sometimes by the masses themselves. If the teachings and examples of the philosophers are so widely feared, then the activity must not be entirely futile.

Now let us bring these scattered observations together. To deny that philosophy has any "utility" is to recognize that it reflects a

concern with the ultimate meaning of life rather than with immediate expedients, with life's ends rather than its means. Just as we cannot focus simultaneously on objects close to us and objects far away, we also cannot interest ourselves simultaneously in ends and means. Now, it is usual – not to say normal – for people to interest themselves primarily in means, or what they take to be means, without noticing that means exist only in relation to ends and that, in accepting certain means, they unconsciously accept the ends that make them so. *In other words, they accept whatever philosophy happens to be embodied in the values and institutions of a particular civilization.* To accept, for example, that saving is a means to a better life is implicitly to accept a bourgeois system of values, a value system totally different from that of feudal times. This perversion of our attention is what caused Blaise Pascal to say, "It is a deplorable thing to see men deliberating always on means and never on ends," and further, "Man's sensitivity to small things and insensitivity to large ones [are] signs of a peculiar inversion of values." Philosophy is a corrective to this inversion, and if the commonsense criticism that philosophy is not useful, which is strictly accurate, is intended to suggest that it is therefore absolutely valueless, it errs only in its identification of value with utility. It is true that philosophy is justified only if it has value or is a value, but it is not true that utility is the only value: utility is valuable only in something that is a means to an end.

Insofar as philosophy is the search for a meaning of life (a justification of life that is neither pure living nor even the will to live but *savoir-vivre*, knowledge of what it is to live), it enters into competition and occasionally into conflict with political and religious institutions, which are collective systems for organizing human interests. Every social institution embodies a human interest; an institution is the codification of a value, the embodiment of value as a set of rules. The military, for example, is a social insti-

tution that fulfills a collective need for security or aggression.

Philosophy is an individual quest, however. In the *History of Philosophy* Hegel says, "Philosophy begins only where the individual knows itself as individual, for itself, as universal, as essential, as having infinite value qua individual." The individual can participate directly in the Idea (or, as we would say, in value) without the mediation of any institution. Philosophy is an asocial activity. There are no philosophical institutions. Schools are associations, not societies.

Philosophical judgment therefore cannot avoid casting itself as a competitor of both political judgment and religious judgment, which in any case are closely related. It is not unusual, moreover, for competition to turn into rivalry. Either philosophy reinforces communal beliefs, in which case it is pointless, or else it is at odds with those beliefs, in which case it is dangerous. "Philosophy," Aristotle said, "must not take orders, it must give them."

The upshot of this discussion is that the essence of philosophical speculation is to apply a normative corrective to human experience – but that is not all. Any technique is basically normative, because it sets forth or applies rules in the form of formulas, procedures, models and so on. But this normative character of technique is secondary and abstract: secondary because it has to do with means, and abstract because it is limited to searching for one kind of satisfaction. The multiplicity of techniques assumes a plurality of distinct needs. If philosophy is a normative discipline, moreover, it is primordially and concretely so. The best-known definitions of philosophy tend to stress one of these aspects over the other: either normative or concrete. Nevertheless, both adjectives figure in all the definitions. The Stoics emphasize the normative: in defining philosophy as *spiritual medicine*, they assume that passion and disease are one and the same.

Novalis says something slightly different when he calls philosophy a "higher pathology."[...]

Although it is true that ancient philosophy postulates the unity of value, it does so, I think, in an ontological sense, for the Ancients also held that the value of action is inferior to that of knowledge. Ancient philosophy was intellectualist. Knowledge of the universal order is enough to establish it. Virgil's line "*Felix qui potuit rerum cognoscere causas*" (Happy is the man who knows the causes of things) might serve as an epigraph to all ancient philosophies. No anti-intellectualist has been as clear on this point as Nietzsche: "A metamorphosis of being by knowledge: therein lies the common error of rationalists, Socrates foremost among them."[60] In *The Birth of Tragedy*, he calls Socrates the "father of theoretical optimism" and holds him responsible for the illusory belief that "thought, following the Ariadne's thread of causality, can penetrate the deepest abysses of being, that it has the power not only to know but to reform existence."[61] (Note, in passing, that Pascal and Schopenhauer showed Nietzsche the way to the path of theoretical pessimism.)

Given that modern philosophy cannot use ancient wisdom as a *model*, can it perhaps better serve the *intention* that animated the ancient lovers of wisdom? The connection between ancient and modern philosophy is deeper than a shared ideal; it is a shared need. The need that gave rise to ancient philosophy was for a mental organizing structure, a structure at once normative and concrete and thus capable of defining what the "normal" form of consciousness was. This need manifested itself in the troubling, unstable, painful and therefore abnormal character of ordinary experience.[...]

The ancient mind nevertheless lacked the notion of a *spiritual subject*, that is, an infinitely generous and creative power. Ancient philosophy treated the soul as subordinate to the idea

and creation as subordinate to contemplation. It comprised a physics, a logic, an ethics, but no aesthetics. Ancient thought was spontaneously naturalistic. It had no notion of values that might not exist or that ought not to exist. It sought value in being, virtue in strength, soul in breath. Modern philosophy is conscious of the powers of mind. Even the knowledge of impotence has, since Kant, often been interpreted as a power of mind. Hence, there is no obstacle to modern philosophy's being a search for a concrete unity of values. Summarizing the foregoing analysis, then, I offer this definition: modern philosophy is primordial, concrete, normative judgment.

What is true of norms in general is therefore true of philosophy. The abnormal, being the a-normal, logically follows the definition of the normal. It is a logical negation. But it is the priority of the abnormal that attracts the attention of the normative, that calls forth a normative decision and provides an opportunity to establish normality through the application of a norm. A norm that has nothing to regulate is nothing because it regulates nothing. The essence of a norm is its role. Thus practically and functionally the normal is the operational negation of a state which thereby becomes the logical negation of that state; the abnormal, though logically posterior to the normal, is functionally first. Hence philosophy is inevitably a second stage or moment. It does not create values because it is called into being by differences among values. Historically, philosophy can be seen as an effort of mind to give value to human experience through critical examination and systematic appreciation of the values spontaneously embodied in civilizations and cultures. The sciences little by little create truth for humankind. Political and religious institutions little by little turn human actions into good works. The arts, by representing man's dreams, little by little reveal the extent of his ambitions. In the primitive mind these functions are intertwined,

so that myth imperiously defines what is real, what powers men have, and how they relate to one another, and that is why philosophy takes myth as its first object of reflection. In the past, philosophy grew out of conflict among myths; today it grows out of the conflict among the various functions of mind.

Philosophy can succeed in its intention – to recover the unity of effort behind disparate acts of spontaneous creation – only by relating the various elements of culture and civilization: science, ethics, religion, technology, fine arts. To establish such relations is to choose among values. Criticism and hierarchy are therefore essential. Philosophy cannot adopt anything but a critical attitude toward the various human functions that it proposes to judge. Its goal is to discover the meaning of those functions by determining how they fit together, by restoring the unity of consciousness. The business of philosophy is therefore not so much to solve problems as to create them. In Léon Brunschvicg's words, philosophy is the "science of solved problems," that is, the questioning of received solutions. Now we can understand why philosophy has attracted hostile reactions through the ages: philosophy is a questioning of life and therefore a threat to the idea that everything necessary to life is already in our possession. The goal of philosophy is to search for reasons to live by seeking the end for which life is supposed to be the means. But to pursue such a goal is also to discover reasons not to live. Nothing is more at odds with life than the idea that an end to life may be a value and not simply an accident. Therein lies one source of philosophy's unpopularity. [MS *Du Caractère normatif de la pensée philosophique*, f. 1r, 2r, 3r, 4r, 5r, 6r]