

History, Philosophy and Theory of the Life Sciences

Philippe Huneman  
G rard Lambert  
Marc Silberstein *Editors*

# Classification, Disease and Evidence

New Essays in the Philosophy of  
Medicine

 Springer

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# History, Philosophy and Theory of the Life Sciences

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## Volume 7

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New Essays in the Philosophy of Medicine

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# **Introduction: Surveying the Revival in the Philosophy of Medicine**

## **The Emergence of the Philosophy of Medicine as an Academic Discipline**

The Philosophy of medicine is currently experiencing a fascinating revival. Journals are publishing more and more papers about the field, and textbooks for the discipline have begun to appear in the last decade (Sadeg-Zadeh 2012; Gifford 2011). Granted, medicine has always been an object of concern for philosophers, either (to take examples from antique tradition) under the general heading of “embodiment” – the relationship between body and mind, the relative weights of vitalism and mechanism, etc. – or in the mode of a generalized use of the terms “health” and “disease” as a scheme for elaborating normative judgments. Nietzsche’s use of the terms health and disease to condemn or praise forms of life and civilization, as well as Marx’s or Freud’s diagnosis of diseases in modern civilization, instantiated this form of a constitutive relationship between philosophy and medicine, which is not at all a concern for what we currently call the philosophy of medicine.

More generally, it is easy to discern important episodes in the history of this proximity or kinship between the two disciplines: Descartes thought that medicine, as one of the highest branches of the tree of knowledge, could be a terminus ad quem of scientific investigation; and long before him, Socrates and other Greek philosophers sometimes viewed themselves as physicians of the soul. Recently, Wittgenstein and his epigones conceived of philosophy as a sort of therapy of meaning; and here again, the health/disease conceptual pair seems to play an even more radical or foundational role than the traditionally philosophical opposition between the true and the false.

But the recent philosophy of medicine can be seen as a specific and autonomous subfield of philosophy – which could perhaps be specified in a difference from the “medical philosophy” represented by the aforementioned tradition, exactly in the way one classically opposes “philosophy of biology” to “biological philosophy.” As such, the philosophy of medicine is structured by a set of recent questions whose importance and nature stem from both philosophy and medicine.



1. First, since the nineteenth century there has been a continued questioning of the meaning of health and the nature of disease. This was a debate within medicine itself, and the birth of clinical medicine, which has been so important for the paradigm of modern medicine, was accompanied by a debate on the very nature of disease and the relationship between physiological and pathological domains. Famously, Claude Bernard (1859) borrowed from Broussais the idea that the very difference between health and disease is quantitative – meaning that a pathological state is a variant of a physiological state. In one of the milestones of what could be called the “non-analytic philosophy of medicine”, *The Normal and The Pathological* (1959), the philosopher Georges Canguilhem discusses this position, arguing that normativity is a property of the living body as such (which implies that there is a qualitative difference between normal and abnormal) and that norms will always be seen somehow in context – as living activity is always likely to define and change its own norms. The nature of health and disease is therefore a longstanding issue for philosophers, and of course satisfies the philosopher’s taste for foundational issues: whereas medicine investigates diseases, philosophy examines what “to be a disease” means. Some of the most important contributions to this question (e.g. Boorse’s theory of health (Boorse 1975) or Jerome Wakefield’s idea of disease as harmful dysfunction (Wakefield 1992)) subscribed to such idea of a division of labor between the philosopher and the physician. Today, general thought on health and disease in the past century has been deeply shaped by three independent sources:

1. The idea of conceptual analysis (and thus the inclination towards capturing concepts in terms of necessary and sufficient conditions) – which came from the tradition of analytical philosophy, and which shaped the methods of Boorse, Wakefield and many others. Such a philosophical project was stimulated by two things:

(a) The radical critique of medicine and psychiatry which arose in the 1960s, and whose general target has been the social and cultural dimension of any value judgement or norm – a critique that can be found in many theoretical perspective, be it the “archaeology of knowledge” developed by Foucault, the antipsychiatry led by Cooper and Laing, or the radical critique of modern medicine developed by Ivan Illich and his followers in the 1970s.

This latter debate directed the question of the definition of disease towards the specific debate over the possibility of a purely biological, value-free, definition of health.

(b) The change in nature of the predominant diseases in Western countries, shifting from acute infectious diseases to chronic diseases (e.g. cardiovascular diseases, diabetes, cancer, etc.). Responding to this new situation, medicine became more and more preventive, treating diseases before the onset of symptoms, and blurring the boundary between disease and risk factors (e.g. is hypertension a disease?). In the Middle Ages, a diagnosis of leprosy was reason enough to banish the leper from society. In modern welfare states, a diagnosis may also result in one being locked up; but health is now deemed as a right, and illness can provide social advantages. The passionate reactions elicited by the editors of the *British Medical Journal* asking their readers to vote for the “top-10 non-diseases” (Smith 2002) are linked

to the social implications of disease and show that this question is not simply a philosophical one – even though philosophers are needed to correctly formulate the question.

2. Second, the advances in biology that, in a word, tied both the causes of diseases and the cure of diseases to the lower level of cellular, genetic and molecular processes raised philosophical issues concerning both the nature of medical knowledge and the ontological nature of its object. The emergence of bacteriology, biochemistry and parasitology in the beginning of the twentieth century was a first step in this process – with of course the discovery of the role of microbes in infectious diseases; then came genetics, the investigation of the patterns of heritable diseases, immunology, and finally molecular biology. After the discovery of DNA and all that followed, it became possible to both identify some diseases by a mutation in a DNA sequence (e.g. beta-thalassemia or sickle-cell anaemia, the first “molecular disease” as Linus Pauling termed it (Pauling et al. 1949)), and of course to design specific tests – more generally, to trace pathological conditions back to abnormal mechanisms (which of course leaves the question open about what “abnormal” means). This raised new questions – especially concerning the status of medical activity in relation to biology, pharmaceuticals, and hospitals.
3. Third, the salience of statistical schemes and methods in assessing etiologies and therapeutics. Much has been written about the statistical or “probabilistic revolution” (e.g. Krüger et al. 1987; Hacking 1975), which started in the eighteenth century and wholly transformed medicine in the twentieth century while also opening up new areas of philosophical investigation. For instance, the rise of epidemiology – due both to better access to population data, and to better statistical tools which make it possible to track the origin and diffusion patterns of diseases, and therefore to establish correlations – has created methodological and then philosophical questions concerning statistical inferences. A canonical example of causal Judgement in medicine, “smoking causes lung cancer,” is indeed based on a statistical consideration of a set of cases. Such judgments clearly raise basic problems with the relationship between causation and statistical correlation. (It is interesting to remember that one of the first studies to show a causal link between smoking and lung cancer (Doll and Hill 1954; Doll et al. 2004) was objected to by the founding father of modern statistics, Ronald Fisher (himself a heavy smoker), who speculated that it spuriously detected a causal link when there was only a common cause (e.g. common genetic predisposition) between two facts). More generally, given that there is variation between individuals, and as there is a multiplicity of factors involved in any pathological event, inferring judgments about the general validity of a cure or even the causes of a disease is hardly possible on the basis of a single case history, and therefore requires the collection and comparison of many cases. The usual methodology for clinical trials therefore always rests on statistical methods – even though there are hundreds of them, and their use and legitimacy raise methodological and epistemological issues that are indeed part of the philosophy of medicine. An important area of the philosophy of medicine is therefore oriented towards asking questions about evidence (for either causal ascription or therapeutics efficiency) within a statistical framework.

Numerous investigations into the methods of identifying and explaining diseases, as well as assessing cures, have been conducted in the last decade – some of them very formal (Lucas 2001; Nikovski 2000), using tools like Bayesian networks (Spirtes et al. 2000); others including a more descriptive component that sometimes touches upon the sociology of medicine and its history (e.g. Barrett 1995). Many of these studies have focused on randomized control trial (RTC), a very generalized tool for testing drugs in their many varieties. They have been stimulated by the emergence of so-called evidence-based medicine (Howick 2011; Guyatt et al. 1996), whose ambitions are to make medicine both more efficient and more rigorous, and which massively uses RTCs. Thus, a crucial question is to make sense of the kind of knowledge brought about by statistically established correlations – especially when no other data can be used to control them. As a result, some philosophers argue that no purely statistical knowledge can provide us with a full causal explanation of either a disease or the efficiency of a drug if it is not backed up by experiment-based evidence of a potential mechanism that underpins the putative causal relations between a disease and an agent, or a drug and relief (Russo and Williamson 2007). However, other philosophers tend to defend the validity of RTCs and other statistical methods in providing causal knowledge of medical facts. Yet, since a physician cures an individual and not a population or an average person (as Aristotle famously noticed a long time ago), another question is how one can apply cohort statistics to a single person?

For all these reasons, the philosophy of medicine ended up including many more questions than the foundational problem of the nature of diseases. Research questioning the relationship between medicine and biology – as well as the role of distinct biological theories (molecular, genetic, evolutionary) in our understanding of disease – emerged within the field of the philosophy of science.

On the other hand, in the overall field of the philosophy of medicine, many studies which focus on the ambiguous status of psychiatry – which is a recent branch of medicine, since it emerged in the nineteenth century (Goldstein 1987; Scull 1975) and still struggles with theorists who challenge the idea that insanity is a genuine disease – have been interested in both the controversial notion of “mental illness” and the divide between the conflicting theories intended to address it (psychodynamic, systemic, genetic, molecular, cognitivist, neuroimaging, etc.). This is a very attractive topic for a philosopher, given that any step towards the formulation of a theory in psychiatry may of course raise deep philosophical questions (concerning normativity, values vs. nature, mental states, cognition, mind/body, free will, causality, reductionism, etc.). The DSM handbook – which was published in the 1950s and was a research tool rather than a clinical one in its early conception – became the most used and widespread book for help in the diagnosis of patients suffering from putative mental conditions. This, along with its ambition to be almost theory-neutral, has therefore attracted a lot of attention. Indeed, the public debates surrounding the preparation of DSM 5 (published in May 2013; Demazeux and Singy 2014) involved many of these deep philosophical issues, and were discussed by psychiatrists, biologists, and philosophers. And before that, the DSM 3 was largely influenced by philosophical views on health and disease – including Wakefield’s harmful dysfunction concept.

## Questions in the Philosophy of Medicine

Even though this is a burgeoning and growing field, the philosophy of medicine seems to be oriented towards four very general (interdependent) questions that somehow mirror the three conditions we sketched: (a) What is a disease and what is health? (b) How do we (causally) explain diseases? (c) How do we assess and choose cures/therapy? (d) And how do we distinguish diseases, i.e. define classes of diseases and recognize that an instance X of disease belongs to a given class of A?

### *Causation and Causal Explanation*

As such, the question of explanation (b) encompasses a huge set of problems: identifying causal factors, weighing them, specifying what is distinctly medical in an explanation, disentangling causation from spurious causation (correlation) in statistical data, etc. Many of these problems are very general problems of explanation within the sciences. But at least two things are proper to medicine here. First, the answers one gives are not independent from the position one takes regarding question (a) – that is, if a disease is a deviation from normal functioning, it will require a different kind of explanation than if it were a state of being heterogeneous to healthy physiology. Second, as Aristotle emphasized a long time ago, the physician cures an individual, not a type (of disease) or a class (of diseased individuals) – and therefore explanations, causation, and all related notions should be defined from this perspective. Especially since humans are biological, sociological, and psychological entities at once, all medical cases occur at the intersection of many regimes of causality (sociological, psychological, biological, chemical, etc.), and span many levels and scales (bacteriology, cells, etc.); thus the weight of the relative impact of causal processes concerning a particular individual disease requires careful methodological examination. Many questions regarding the status of medicine – its relation to biology, physiology, chemistry – and, within medicine, the relationships between clinical medicine, hospital care, and laboratory activity are concerned with this specific feature of medical activity at the crossroads of heterogeneous logics and heterogeneous causal processes.

In this regard, let us take the opportunity of this Introduction to put issues concerning medical explanation in the light of the history of medicine. A traditional medical perspective on causal explanation is the idea that diseases have, in principle, two heterogeneous types of causes: some of them are “predisposing” causes, meaning that they are traits proper to an individual or to her way of life that enter into the explanation of the disease but do not necessarily and directly cause it themselves; others are “triggering” causes, meaning that they cause the disease by acting on these specific “predisposing” causes. In his *Médecine Clinique* (1801) – which accompanied his work on nosology (*Nosographie philosophique*, 1800), and was a major treatise for all the leaders of the inchoative “clinical medicine” in early nineteenth century Paris – Philippe Pinel says that the physician must “look

for the predisposing and exciting causes” of a disease in all cases. These should be looked for: “(1) Within the job and the way of life of the patient; (2) In the accidents prior to the current illness, in the previous state of health; (3) Sometimes, among the diseases which relatives of the patient have suffered” (Pinel 1813, 5). This is a well established medical explanatory scheme: in the eighteenth century, François Boissier de Sauvages stated that the “efficient causes,” which “effectively produce the illness,” differ from the “conditions without which it couldn’t occur” (Sauvages (1772), I, §155, p.187). In the same period, Cullen asserted that although hypochondria is the result of moral causes, the “bodily temperament determines those causes to produce their effect sooner or later” (Cullen (1784), §1229). Regarding epilepsy, he juxtaposed the “collapsing causes” – hard bleeding (§1301), terror (§1302) – with the “predisposing causes” – such as “motility,” which displays the state of mind (§1307) and consists in “a more or less high degree of sensibility or irritability” (§1311). Also in this period, Whytt (1765) identified two kinds of causes: “predisposing causes” (ch.III), which are divided into the weakness of a particular organ and the excessive delicacy of the whole nervous system (§XXXI); and “occasional causes” (ch.IV), which can be either local or general (i.e. in blood (§LIII)). This divide was not always very determined: at the end of the century, Crichton (1798) included passions within the “exciting” causes, but nothing precluded them from being “predisposing” causes if they could act in a long-lasting way. The classical notions of “temperament” (or, earlier on, “constitution”), especially within the solidist medicine of previous centuries, were also a way of describing the sets of “predisposing” causes. To some extent, advances and changes in medical explanations can be seen as providing new ways of understanding these two regimes of causation and their expression: nowadays, genes are likely to define the “predisposing” causes, and microbes, infections, or life events (stress, for example) define the “exciting” causes; yet, in some cases, recurring conditions of life (e.g. recurring high degrees of stress, histories of early child abuse, etc.) provide the predisposing causes. This is somewhat reminiscent of Ernst Mayr’s distinction between proximate and ultimate causes in biology (Mayr 1961) – a dual system picked up by so-called Darwinian medicine (Williams and Nesse 1991; Methot 2011) where proximate causes are the exciting causes *sensu* traditional physicians and ultimate causes are evolutionary and almost entirely represented by genes, which explains why humans as a species are susceptible to certain diseases and not to others (Nesse 2001). The whole project of evolutionary medicine can of course be seen as a systematic development of such an evolutionary take on the traditional dual system of causes inherited from the medical tradition.

This illustrates the fact that many contemporary philosophical views about explanations in medicine could be used to make sense of this very general explanatory divide that physicians have traditionally used to understand their own practice of looking for etiologies. Recent notions, often of a probabilistic nature, such as “risk” (“risk group”, “predictor”, etc.), have a modern, post-“probabilistic-revolution” approach to this old idea of “predisposing causes.” Interestingly, medical disciplines such as epidemiology or medical genetics can be understood within the general structure of modern medicine, by specifying their contribution to the definition of each regime of causation in the double etiology scheme.

## *Nosology and Ontology*

Given that the first objective of a physician is to establish a diagnosis – namely, to determine under which concept of disease the case under consideration falls – medicine necessarily needs a classification of diseases. Classifications as such raise certain issues of principle: are classes objective concepts, or just ways of grouping various facts in a fashion that serves our practical (here: therapeutic) purposes? What are the crucial properties or facts that one should use in classification? Are classifications of various natures dependent on these criteria, and should they be used to assess other classifications (for example, are the recent medical classifications based on networks of disease genes (Barabasi et al. 2011) supposed to match up with traditional classifications?). Moreover, if one single criterion is unable to classify all diseases, there is no possible unity in any type of classification of diseases.

Classification in general is laden with metaphysical and philosophical issues. Indeed, in eighteenth century biology, naturalists such as Linnaeus, John Ray, or Buffon disputed about both the importance of the traits they would use to distinguish and assemble individuals, and the realism of the ensuing classificatory systems – namely, do they “carve nature at its joints”, and should they even try to do so? Positions then ranged from extreme nominalism – notably Buffon’s, who held that only individuals exist in nature, and that species, genera, or families are just names which are useful for us in grouping individuals according to our explanatory and pragmatic goals – to Linnaeus, who thought that even though the choice of his classification criteria had no consideration in regard to the biological importance of the organs themselves, his table of species would still match the repartition of species as they were originally created. Granted, classifying diseases shares in the problems of classification in general, and in this respect, it is interesting to notice that Sauvages, author of an important nosography (Sauvages 1772), also wrote a work about the classification of plants – the *Methodus foliorum, seu plantae florum monspeliensis, juxta foliorum ordinem, ad juvandam specierum cognitinem, digestae*. (A Method to know plants by their leaves). From Thomas Sydenham to Philippe Pinel, diseases were seen as natural entities difficult to recognize because they were in a sense ‘corrupted’ by their instantiation within a patient, and nosology was a quest for a natural and hierarchical order of fixed species. To some extent, the modern classification of disease within a multidimensional space (clinical, anatomical, biological, genetic, radiological, etc.) strengthens this ontological conception of the nature of disease.

However, medical classification underwent a dramatic shift. As historians of medicine (Gelfand 1980; Cunningham and Williams 1992; Hannaway and LaBerge 1998) generally say, modern medicine arose with the rise of clinical medicine in the late eighteenth century (even though there are many raging controversies regarding the relative importance of certain authors, geographic center’s periods: the mid-eighteenth century Edinburgh school of medicine, the nineteenth century Paris “Ecole clinique”, etc. – see e.g. Ackerknecht 1967; Foucault 1963; Keel 2001). The traditional historical view states that the main focus switched from diseases as

entities – as “species” or “essences” which were related to each other in a table or system that medical theory had to discover (the “nosological medicine” of early modernity) towards the diseased patient with a dysfunctional body (Jewson 1976), whose lesions or dysfunctions had to be traced back to specific symptoms. Whatever the historical value of this received view, it still implies that the importance of classification (nosography or taxonomy) decreased with the emergence of clinical medicine, anatomico-clinical medicine (namely, clinical medicine that tied the identification of diseases to the data of pathological anatomy), and then contemporary medicine, which starts with the laboratory (i.e. with biology) – as Claude Bernard accurately put it. It may be that writing a nosography was no longer the culmination of medical investigation, and that the emphasis moved towards the causal explanation of specific pathological traits and behaviors, as well as the correlated ways of curing them.

However, medical classification is still a prerequisite for any diagnosis: there is a logical priority with the question “what classes of disease exist?” to the medical clinical question “from which disease does this individual suffer?”; and nowadays, its importance is acknowledged again in many ways. As examples, first we can mention the emergence of projects on “Medical Ontology” (for example the project led by Barry Smith; see Scheuermann et al. (2009)) that intend to reformulate the extant knowledge in various fields of medicine in a simple way that would allow algorithm-aided diagnostic tools to accurately infer a diagnosis from symptoms. Second, since its inception, psychiatry has dealt in a very specific way with the problem of classifying diseases – since it has never been obvious that a specific mental suffering is a disease. And while the history of medicine can be seen as a reshaping of the boundaries within a given set of putative diseases (some diseases that were thought to be nervous have come to be seen as immunological diseases, etc.), the recent history of psychiatry at first sight presents us with a story of including and then withdrawing behaviors and mental states from the total set of mental conditions: homosexuality and fetishism left the world of psychiatry with the DSM 3; while, for example, the DSM 5 is ready to include the sexual inclination towards teenagers (hebephilia) among psychiatric diseases.

### ***Ethics and Philosophical Issues***

I mention these two examples just to stress that classifying diseases is not just a simple preliminary step to the genuinely difficult medical task of diagnosis; but is rather a crucial step in medical activity – laden with methodological difficulties, and always influenced by epistemological and philosophical ideas. Rethinking these underpinning reference points at the heart of medical thought – as well as their scientific, social, and political implications – explains why the revival of the philosophy of medicine has changed medical ethics. Even if medical ethics is not the core topic of the present book, it is hard to not point out the impact on bioethics of these new approaches in the philosophy of medicine.

Like theoretical philosophy and medicine, ethics and medicine are old companions. The Hippocratic Oath was not only about the well being of the patient, respect for private life, and the requirement of morality; it was also, and maybe mainly, about the transmission of medical knowledge and respect for the master. Whatever its purpose was, its adaptation since Antiquity into different philosophical traditions and religious contexts has preserved the Oath – with slight amendments – as a set of basic, practical, and consequences-oriented ethical guidelines. After World War II, the examination of human experimentations by Nazi physicians during the doctors’ trial led to the Nuremberg Code – a landmark document in medical and research ethics. But until the early 1970s, medical ethics focused on controversial cases and moral topics that were addressed by professional organizations and religious representatives. To meet the growing need for organ transplants, an interdisciplinary group gathered in Harvard and developed a brain-oriented definition of death. From that time, ethics committees started to change, including philosophers, historians, lawyers, social scientists, and civil representatives. Being concerned with topics including the epistemology of medicine, the concept of disease and health, causality in medicine or the positioning of psychiatry as a medical discipline (just to mention topics discussed in the present book), the evolution of the philosophy of medicine – along with the philosophy of science and biology – led to the re-evaluation of some of the basic concepts of scientifically-based medicine. That is why it is now necessary for the new philosophy of medicine to address the questions of so-called bioethics. Today, philosophical topics have direct ethical consequences,<sup>1</sup> and thus, medical ethics interrogations cannot be thoroughly analyzed without revisiting certain philosophical concepts.

## Presentation of the Book

The current volume presents an overview of studies in the recent philosophy of medicine. The following chapters will address a set of questions that fall under the very general cartography of the philosophy of medicine outlined above. The question of health and disease and their natures – which are traditionally of high interest to philosophy because they inquire more generally into the question of normativity in life – will be addressed in several essays that also touch upon conceptual questions about the definition of medicine and its status.

The question of classification is addressed in several articles as it is central among the philosophical problems raised by medicine, especially when it comes to the field of psychiatry. Indeed, since the publication of the DSM in the 1950s, the issues of carving mental diseases into classes and justifying the attribution of one disease to one individual have remained at the core of the philosophical

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<sup>1</sup>As exemplified by Singy’s chapter in the present volume.



questioning of psychiatry (and in this book, given that the philosophy of psychiatry became a quite important subfield within the philosophy of medicine (Murphy 2006), we have selected an important portion of chapters that deal with psychiatry).

Finally, as highlighted above, the specificities of medical explanation have recently come under a new light, especially because of the rise of statistical methods. We did not have the ambition of addressing the question of “medical explanation” as such. The set of papers that could be ranged under the heading of questions (b) and (c) above generally address the question of how we gather, use, and assess evidence for various medical theories. Therefore, what is to be found in this book includes a sample of contributions concerning the question of evidence in medicine.

For these reasons, the book will be divided into three group of chapters that match the title: disease, classification, and evidence.

The first group of chapters addresses the problems of the nature of disease and of the status of medicine. Two chapters ask this question at the highest level of abstraction, and then three chapters question the notion of disease within specific fields of medicine.

In the first chapter, “[Objectivity, Scientificity, and the Dualist Epistemology of Medicine](#)”, Thomas Cunningham tackles the long-lasting ambiguity of medicine as being both an art and a science: a science because it deals with general concepts and theories, and an art because everything rests on the contextualized singular interaction of a physician and his/her patient. For many years, the clinical sense has been understood as a kind of intuition, and good physicians are those who possess at the highest level such intuition – making medical perception the analogon of an aesthetic faculty, and medical activity a sort of art. However, Cunningham argues that this view is misleading and that there are no convincing arguments to say that medicine is an art but not a science.

In the second chapter, “[The Naturalization of the Concept of Disease](#)”, Maël Lemoine addresses the very concept of disease. He challenges the philosophical project of defining the concept of disease, as was famously undertaken by Boorse among others – who defended his biostatistical theory of health as a value-free understanding of health and disease. Lemoine argues that projects concerning the conceptual analysis of health and disease are problematic since they are somehow immune to the empirical knowledge about various diseases and their mechanisms. He advocates a perspective on the nature of disease that would be founded upon the actual understanding of the mechanisms of specific diseases – rather than a priori views on normality and abnormality together with an analysis of current language.

The two following chapters by Dominic Murphy and by Steeve Demazeux are concerned with particular ranges of diseases. To begin with, their chapters are about psychiatry.

In “[What Will Psychiatry Become?](#)”, Murphy questions what he calls the “medical model” in psychiatry – which means importing into the field both the knowledge of mental illness explanatory schemes (which are successful elsewhere and that operate by tracing back the psychopathological phenomena to the fundamental biological level) and our understanding of the mechanisms taking place therein. Murphy shows that such a picture does not do justice to the actual workings of

psychiatry. Moreover, he argues that there is an intrinsic link between psychiatric understanding, psychology, and cognitive sciences – also arguing that the cognitive science implied here may be very different from a mere translation of the vernacular concepts used to talk about psychology (beliefs, desires, etc.).

In his chapter, “[The Function Debate and the Concept of Mental Disorder](#)”, Demazeux touches upon a concept that has been crucial for the philosophy of medicine: the concept of function (since any account of disease entails an account of abnormality) and then of normality; Functional concepts indeed ipso facto normative concepts – since having a function implies the possibility of not being able to fulfill this function and therefore being abnormal. Evolutionary theory has been one of the main resources in this account of function where “functions” are not a subjective or epistemic property (i.e. functions are something that we ascribe to traits relative to our explanatory purposes and nothing more): the so-called etiological account of function, suggested by Larry Wright (1973) and then developed by Ruth Millikan and Karen Neander in the 1980s, used such a resource (Neander 1991). This indicates a way in which evolutionary theory – among all the other biological theories – provides the proper background for an investigation into the nature of disease.

Now, even if a systematic project of developing such a background has been developed under the label “Darwinian medicine” (e.g. Nesse and Williams 1996), the connections between Darwinism and medicine are scarce, and the role of Darwinian concepts, even when dealing with normativity, is not salient. However, the synthetic prospects provided by an evolutionary viewpoint could let one think that it gives us a firm standpoint to develop an understanding of what disease is – as well as its classes and types. That is why we start the next section, “Classification”, with a chapter that emphasizes the role of an evolutionary perspective both in the understanding of a specific disease, and the quest to identify and classify such disease.

In this chapter, “Emerging Disease and the Evolution of Virulence: The Case of the 1918–1919 Influenza Pandemic”, Pierre-Olivier Méthot and Samuel Alizon focus on a specific case – the “Spanish flu,” which claimed the highest amount of lives during World War I – as a case study for the evolutionary theories involving the diffusion of infectious disease (since, for a biologist, any infection means a process of evolution of virulence). Trying to determine what the Spanish flu and its germ actually were, and what its relations are to other kinds of flu – with, in the background, a question about whether a comparable epidemic needs to be expected – Méthot and Alizon sketch the history of the recent rediscovery and sequencing of the germ responsible for the Spanish flu, and the subsequent attempts to understand its dramatic virulence within an ecological framework.

In “[Power, Knowledge, and Laughter: Forensic Psychiatry and the Misuse of the DSM](#),” Patrick Singy questions the courtroom use of the most common classificatory tool for psychiatrists: the DSM IV. While the main question for courtrooms concerns the capacity or incapacity of someone to refrain from some action, the DSM discusses whether someone has, or does not have, a mental condition. These two things are not logically equivalent (as the DSM’s authors themselves acknowledged); some categories in the DSM such as paraphilia are forensic concepts (at least in their origin) though they seem to be medical categories. Hence, the forensic use of

the DSM should be very limited. Therefore, Singy advocates a revision of these nosological categories in the DSM.

Finally, the chapter by Catherine Dekeuwer, “[Defining Genetic Disease](#),” questions the relationship between the specification of a class of diseases and the notion of genes. Some diseases have been termed “genetic diseases” – although given the nature of a gene, all pathological processes involve genetic determinants. Dekeuwer questions the legitimacy of such a concept as “genetic disease,” extensively considering the case of beta-thalassemia and the policy of testing for mutated alleles and then preventing the birth of individuals who carry them. She focuses especially on the intertwining of this concept and the practice of predictive medicine.

The last section deals with issues concerning evidence in medicine. The first chapter, “[Causal and Probabilistic Inferences in Diagnostic Reasoning: Historical Insight into the Contemporary Debate](#)”, by Joël Coste, puts the current practice of drawing diagnostics from a comparison of sets of data into a historical perspective. Like many disciplines following a comparable trend, medicine faces a plethoric increase in data it has to process and interpret. The multiplication of measuring devices intended to measure various biological parameters are being integrated into probabilistic models of disease. Coste approaches this situation through a historical understanding of theories and diagnostic practices.

The last two chapters deal with two current issues regarding medical judgement and medical decisions.

The chapter by Élodie Giroux, entitled “[Risk Factor and Causality in Epidemiology](#)”, studies theories and concepts relative to the relationship between a pathology P and a given factor F, whether it be a determining factor or a risk factor. The central issue she addresses is: Is F the cause of P ? Or is F an element of a multifaceted cluster of factors whose members, the sub-factors, become – according to certain circumstances (ecological, social, immunological, etc.) – convergent or synergetic factors up to a point where they can be considered as genuine causes, or rather quasi-causes?

The last chapter, “[Herding QATs: Quality Assessment Tools for Evidence in Medicine](#)”, by Jacob Stegenga, considers the various methods that medical literature uses to assess sets of studies concerning the same phenomena (which include randomized control trials – a subject with an extensive literature), and wonders whether some rationale can be found in the attempt to order the results of these methods in an objective and explanation-independent ranking. The chapter has a rather skeptical conclusion, claiming that there is no uncontroversial and objective way to assess sets of different tests (e.g. statistical data) concerning, for example, the efficiency of a drug.

With this book, we of course had no intention to propose another textbook for the philosophy of medicine, or to cover all the current issues discussed by philosophers and physicians alike. However, we wanted to focus on three very general topics that have been both the object of a very active philosophical discussion, and the long time centre of attention which philosophers have paid to medicine. The chapters themselves are research papers rather than synthetic and/or pedagogical

presentations of an issue – or even review papers. Each one acting as a reminder of the most recent developments regarding an issue, they offer original and sometimes controversial positions. Our hope is that this sample of philosophical arguments concerning questions about health and disease, medical nosology, and medical evidence will stimulate further reflections, reading and – hopefully – contributions to the debates.<sup>2</sup>

Paris, France

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<sup>2</sup>The author thanks Adam Hocker for careful language checking. The chapters by Joel Coste, Catherine Dekeuwer, Steeves Demazeux, and Elodie Giroux have been initially published in French in *Mati re Premi re*, n  1/2010 (nouvelle s rie), “Epist mologie de la m decine et de la sant ”, Paris: Mat riologiques.

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# Objectivity, Scientificity, and the Dualist Epistemology of Medicine

Thomas V. Cunningham

**Abstract** This paper considers the view that medicine is both “science” and “art.” It is argued that on this view certain clinical knowledge – of patients’ histories, values, and preferences, and how to integrate them in decision-making – cannot be scientific knowledge. However, by drawing on recent work in philosophy of science it is argued that progress in gaining such knowledge has been achieved by the accumulation of what should be understood as “scientific” knowledge. I claim there are varying degrees of objectivity pertaining to various aspects of clinical medicine. Hence, what is often understood as constituting the “art” of medicine is amenable to objective methods of inquiry, and so, may be understood as “science”. As a result, I conclude that rather than endorse the popular philosophical distinction between the art and science of medicine, in the future a unified, multifaceted epistemology of medicine should be developed to replace it.

## Introduction

In philosophy, clinical medicine is commonly said to have a dualistic nature, to be both science and art.<sup>1</sup> How this assumption is interpreted is important because the extent to which we view medicine as science rather than art affects our epistemological expectations of medicine. For example, if we hold that medicine is a science, it has been argued we should thus only expect it to meet scientific standards of inquiry, namely, the acquisition of objective knowledge. On such reasoning, medicine need not meet additional moral standards of inquiry, such as being sensitive to

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patients' health care needs and how they are met (Munson 1981). But of course, medicine without moral sensitivity would be deeply flawed, as it would forsake a basic aim of benefitting the patient through restoration and healing. Hence, so this reasoning goes, we should be persuaded to adopt a *dualist epistemology of medicine*; we should recognize two equally fundamental ways of medical knowing: in terms of objective scientific knowledge of biology and physiology, and subjective personal knowledge of the craft of patient care.

While I accept that ethical medicine must be sensitive to patients' health care needs and how they are met, the claim that this belief provides a reason to adopt a dualist epistemology of medicine is not persuasive. Indeed, I contend this doctrine has pernicious affects on our understanding of integral aspects of clinical medicine, because accepting it implies that certain clinical knowledge – of patients' histories, values, and preferences, and how to integrate them in decision-making – cannot be scientific knowledge. Yet, decades of work in clinical decision science suggests this knowledge is already being attained and used, altering how clinicians provide care (e.g., Weinstein and Fineberg 1980; Ende et al. 1989; Deber et al. 1996; Stiggelbout and Kiebert 1997; Levinson et al. 2005). If we aim to accurately capture the epistemic structure of medicine, including types of knowledge commonly relegated to the undifferentiated heap of the “art” of medicine, then this aim motivates a reassessment and challenge of the dualist epistemology of medicine.

Moreover, recent work in history and philosophy of science suggests that the art/science distinction rests on deeply flawed and hackneyed assumptions about science, as value free inquiry (e.g., Longino 1990; Proctor 1991; Dupré 1993; Nelson and Nelson 1996; Lacey 1999; Douglas 2009). Thus, the arguments given here against a dualist epistemology of medicine also find a second motivation, of questioning a common thesis in philosophy of medicine in light of recent progress in philosophy of science.

The plan of the paper is as follows. It first reconsiders a classic debate over the scientificity of medicine, which shows that the vision of science assumed for juxtaposition with clinical medicine underpins conclusions about the scientificity of medicine. That is, whether we see medicine as a science rather than an art will depend chiefly on the extent to which we believe medicine is inherently “subjective” and “value-laden” versus “objective” and “value-free,” and the extent to which science is not. Drawing on recent work in history and philosophy of science on the conceptual complexity of objectivity and subjectivity (Douglas 2004, 2009), the paper next argues that a dualist epistemology of medicine assumes an antiquated dichotomy between pure objectivity and pure subjectivity, where science aims at (and achieves) the former and anything that does not is not science. If we reject this dichotomy, as it is argued we should, then what is important is no longer whether medicine is a science, but the extent to which aspects of clinical medicine may be said to be objective, and therefore, amenable to scientific methods of inquiry. As two brief case studies show, while there remains (and will always remain) a degree of subjectivity in clinical medicine, this does not entail that it cannot be a