

Bioethics, medicine and society – a philosophical inquiry

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This article is an attempt to see how technological innovations and social developments have led to enormous changes in health and medicine. With ethical complexities and challenges emerging in modern medicine, bioethics seeks ways in which people in societies can work together under the provision of medical care and research. The field is supposed to provide an insight into the issues of moral community, and into how society understands political authority and its appropriate exercise. As a social movement, bioethics developed in the mid-twentieth century as a critical discourse, a response to felt inhumanities in the system of health care and biomedical research. As a response to specific abuses, bioethics has remained practice-oriented; society expects bioethics to solve or at least ameliorate visible problems. Different responses to these different bioethical issues reflect differing views on the philosophy of medicine, which are influenced in turn by the cultural views of those involved.

Keywords: Bioethics, philosophy of medicine, society, technological innovations.

It is part of accepted wisdom that the technological innovations and social developments have led to enormous changes in the practice of health and medicine. They possess enormous cultural and commercial capital and are among the most visible and influential fields of the globalized world. Until the industrial revolution, the life expectancy at birth ranged consistently between 20 and 50 years. At the turn of the 20th century, life expectancy has exceeded 65 years in most parts of the world and 75 years in Western Europe, North America and Japan. The 20th century has witnessed unprecedented improvement in the aggregate health status of nations. For example, in India, the life expectancy at birth increased from 22 years at the start of the 20th century to 62 years at the turn of the century and infant mortality rates declined from 200 to about 62 (per 1000), in the same period. In the developed world, the ‘epidemiologic transition’, which reduced the infectious and communicable disease load of the population, was taking place with a sizable proportion of budgetary resources being allocated to the health sector. Thus, in England, the United States and other developed countries, diseases like malaria, tuberculosis, cholera, etc. became virtually extinct. Yet these gains have come at a cost, for many modern medical practices raise troubling ethical questions: Should life be sustained

mechanically when the brain’s functions have ceased? Should foetal stem cells be experimented upon in an effort to eventually palliate or cure debilitating diseases? As medicine turned to philosophers to help grapple with these types of questions, a new discipline – bioethics – emerged. Bioethics has its main task – the determination, so far as that is possible, of what is right and wrong, good or bad, about the scientific development and technological deployment of biomedicine. What are our duties and responsibilities in the face of those developments?

The word ‘bioethics’ is the intersection of ethical issues and life sciences. In tandem, the investigations of biology, scientific technology and ethical issues combine to form a new science called ‘bioethics’. For this multidisciplinary science, Van Rensselaer Potter in 1971 coined the term ‘bioethics’ stating that it is ‘biology combined with diverse humanistic knowledge forging a science that sets a system of medical and environmental priorities for acceptable survival’¹.

Potter’s definition establishes the premise that we operate through ‘humanistic knowledge’ – the rejection of superstition; where humankind is in control of its own destiny; that our actions are based on moral principles and ethical thinking². It provides a ‘system’ approach (scientific methodology) to medical and environmental priorities and also, an over-arching context of survival. But Potter points out that survival without qualification is meaningless. Influenced probably by humanist psychologist Maslow’s hierarchy of needs, Potter offers five categories of survival: mere survival, miserable survival, ideal survival, irresponsible survival and acceptable

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survival³. 'Acceptable survival' refers to a sustainable society within a healthy ecosystem.

Bioethics is considered useful in promoting critical thinking. It allows greater accessibility to the content through connectivity rather than stand-alone units. It engages the content and process of real-life situations (present and future) where decisions have real consequences, seldom with risk-free outcomes. Finally, it promotes a focusing framework that places the biology in a fully integrated form.

Faced with new ethical challenges emerging as a result of technological developments in modern medicine, bioethics seeks ways in which people in societies can work together under the provision of medical care and research. The field is supposed to provide an insight into the issues of moral community, and into how society understands political authority and its appropriate exercise. Bioethics also involves social philosophy because the basic concepts of health care (concepts like 'health' and 'disease') are socially constructed categories. Finally, bioethics connection to social philosophy is cemented by the fact that central questions in clinical medicine – questions concerning the allocation of resources, for instance – are those of social philosophy and ethics. Thomas Kuhn⁴ has tried to sketch a different, deeper and richer conception of bioethics that can emerge from a historical analysis. The moral world of medicine sketched here is one of continual debate, of reformers and reactionaries, of revolutions and reactions, of progress and regress. It is a world that philosophers have played a pivotal role in shaping, and that they can shape best if they understand the historical contexts in which their ideas have proven influential and successful.

Bioethics is a multidisciplinary field which emerged to address the normative ethical issues in medical practice, research and policy. However, it can be stipulated that bioethics is distinct from traditional 'medical ethics' which was primarily concerned with the conduct of physicians. The emergence of bioethics, as distinct from traditional medical ethics, was due in part to medical advances and the realization of the important roles of non-physicians in the ethical choices present in medicine. The ethics of the guild was no longer adequate to address the ethical questions involved in medical practice and research. For example, industrialized and developing countries which pursue globalization and privatization of their economies can view the contemporary questions concerning managed care as one instance of controversy about the authority of health care resources and patient care. However, these questions raise, in turn, more fundamental questions about how medicine and health are understood within a society.

Bioethics is a complex and potentially revealing subject for empirical investigation. Discussions of bioethics can sometimes make it seem as if there was no ethical reflection before the emergence of the field. As a social

movement, bioethics developed in the mid-twentieth century as a critical discourse, a response to felt inhumanities in the system of health care and biomedical research. As a response to specific abuses, bioethics has remained practice oriented; society expects bioethics to solve or at least ameliorate visible problems.

But Callahan⁵ asserts that bioethics is 'less wayward and more establishmentarian', and finds that four developments were important: the opening up of once-closed professions to public scrutiny, which happened strikingly with medicine; a fresh burst of liberal individualism, putting autonomy at the top of the moral mountain; the brilliant array of technological developments in biomedicine, ranging from the pill and safe abortions to control the beginning of life to dialysis and organ transplantation to hold off the end of life; and the renewed interest within philosophy and theology in normative ethics, pushing to one side the positivism and cultural relativism that seemed for a time in the 1940s and 1950s to have spelled the end of ethics as a useful venture.

Philosophy and medicine have been associated with each other since the time of Greek schools of medicine and much of this association has been regarding ethics. In the ancient world, there were several philosophical reflections about medicine of Hippocrates, Galen, Plato and Aristotle that are important⁶. Though these schools differed in many respects, they were all primarily concerned with the conduct of the physician.

Paradigm shift

In the era of enlightenment, Rene Descartes⁷ revolutionized the outlook of science and introduced a fundamentally new paradigm of embodiment. Attacking the Aristotelian and his magical views of nature that were popular in his day, he banished all animation and teleology from the natural realm, attributing such properties to the creator, God alone. The human body was, for him, identified with a passive nature. As such, it appeared as mere *res extensa*, manifesting no intelligence or power of self-movement. These activities were ascribed to the mind, *res cogitans*. The essence of the self and divine aspects of the human being was merely a machine driven by mechanical causality and susceptible to mathematical analysis, like any other component of *res extensa*.

Descartes intended his philosophy to bear medical fruit. In his *Discourse on Method*, he resolved to dedicate his life to the advancement of medicine⁸ and followed through in human physiology. Even in his *Philosophical Meditations* and *Principles of Philosophy*, he attempted to show the relevance of the metaphysics of mind-body interaction to such vexing medical problems as the 'phantom limb' phenomenon and the effects of peripheral nerve blockage (*ibid.*, p. 293). Though Descartes's theories of pineal gland transmission and his hydraulic model

of the human body were soon abandoned, it must be said that he did contribute to medical advancement. By purging the body of spontaneity, willfulness and occult desires, Cartesian dualism did away with all the properties that might impede a mathematical-causal analysis of physical functioning. Viewed as a mindless machine, the body could be tested experimentally and blueprinted in detailed anatomical study. His metaphysics of embodiment did more to permit the achievements of modern medicine than any particular scientific theory.

The first apparent scientific paradigm of medicine originated where physicians generally relied on three techniques to determine the nature of illness: what the patient said about symptoms; the physician's own behaviours of signs of illness and the patient's appearance and behaviour; and more rarely, a manual examination of the body⁹. Medicine was by no means scientific, and 'medical thought involved unverified doctrines and resulting controversies'¹⁰. The new science began, for the first time, to map out in detail the internal workings of the human body. The mechanistic view analysed living things as sets of mechanical parts such as cogs and pulleys driven by a heart-pump. The development of Newtonian physics had as much to contribute to this as it did to the development of social science disciplines in general, and to classical political economy in particular. Newton provided a unified theory of matter based on accurate experiments and elegantly rigorous mathematics. Careful observations and precise mathematical elaborations, together, led to an all-embracing generalization, extending from the smallest particle of matter to the largest corporeal aggregate. He presented a universe of particles in motion, acted upon by forces about which there might be some dispute, to be sure, but which are amenable to mathematical treatment. This universe comprised people who were considered machines and where a sick person was compared to an ill-made clock. Thinkers like Hobbes, Bacon and Descartes provided the philosophical and ideological groundwork for such a model of a human being.

Descartes argued not only that the human body worked like a machine, but also that the mind and body of a given individual could be separated into two substances – one 'corporeal' or material, and the other 'incorporeal' or immaterial⁷. With this conception, 'health' came to be seen as the perfect working order of the human organism, an automaton (a self-propelling machine), whose treatment required the repair of damaged parts and the restitution of the different functions¹¹. Moreover, the methodologies of pathology and diagnostics that developed from this view (and continue to dominate the practice of medicine today) considered the cause of illness to be both corporeal and incorporeal. Treatment, therefore, was pursued on an individual bio-chemo-surgical basis, relegating the recognition and implications of social causes of illness to secondary importance, though even

this secondary recognition must be viewed as an 'ad hoc modification'⁴.

The Aristotelian paradigm with its belief in the organic unity of living things had captivated medieval society. There were inexorable links between Aristotelian physics and the organization of feudal society, and therefore the downfall of feudal society was a *sine queue non* for the replacement of the Aristotelian view of the physical world by the Newtonian one. Aristotle's theory of the universe aimed to characterize and explain processes as they naturally occurred. It was a contemplative theory aiming to understand the world as it behaves when not interfered with. It did not aim to reorder the natural order of things. The core of Aristotle's physical theory was that the earth is stationary at the centre of a spherical finite universe, with the sun, planets and stars orbiting around it in a hierarchy of orbits. The physical universe of Aristotle is a hierarchical one. Everything is in its natural place or moves towards its natural place according to the natural order of things. And this, the generally accepted view of the universe in feudal societies of medieval Europe, was gradually replaced by the rising bourgeoisie order which needed to free it from the impediments that feudal society put in its way, and emancipate it through economic advancement. In other words, it was a geocentric worldview. The shift from geocentric to heliocentric worldview gave scientific support to the emerging bourgeoisie order in the sense that instead of 'nobility' it is the 'bourgeoisie' and instead of 'hierarchical inequality' it is 'equality' which is advanced as the natural order of things. The science of physics, founded by pioneers such as Galileo, Kepler and Newton provided the rational basis for the new system. 'Mechanistic medicine', which was part of this new system, made possible those aspects of medicine that have been genuinely successful either in prevention or cure of disease, or in providing symptomatic relief. The tragedy, of course, was that while Cartesian principles assumed that an account of knowledge and the methods appropriate for its acquisition could be deduced in a general way from the nature of individual humans, the same was also applied at the level of populations in the now dominant mode of public health.

The adoption of a mechanistic paradigm limits the nature and boundaries of what is conceived as the medical task. The basic presumption was that all diseases are caused by physiological disorder. Where there is truly no physiological problem, there is no disease; the ideal goal of reductionistic medicine would be diagnostics accomplished by a biochemical-biophysical survey of the patient's body. Ideally, psychological problems would be captured by this technique. It is part of the assumption of reductionistic medicine that, at the very least, mental states have clinically useful physical correlates (Zucker, cited in Foss¹²). Thus, scientific medicine ultimately became curative, individualistic and interventionist, objectifying patients and denying their status as social beings¹³. For

Jewson, scientific medicine has to pass through three specific modes (which he sees as corresponding to three successive modes of production of medical knowledge), viz. 'Bedside Medicine', 'Hospital Medicine' and 'Laboratory Medicine'¹⁴. As Doyal notes, 'these stages provide a useful means by which to understand both the development of medical thought and practice and also its relationship to broader social and economic changes'¹³.

'Bedside medicine', which dominated Western Europe from the Middle Ages until the late 18th century was 'polycentric' and 'polymorphous' (*ibid.*, p. 227). It was available to a minority of the population such as the wealthy and worked on a patronage system with patients choosing particular doctors whom they believed could help them the most¹⁵. Until then, the 'new science' (that is, science after the Renaissance) had little impact on medical practice, and the patient–doctor relationship was a very important determinant of the content of medical treatment. The patient's choice or, in Jewson's terminology, the 'sick man' was the centre of medical concern, the patient being treated as a whole.

By the beginning of the 19th century, with the combination of new mechanized technologies, coal power, geographical factors and market forces, the industrial revolution was a major socio-economic event in Britain. Industrial revolution replaced the feudal mode of production by the capitalist mode of production. Industrial revolution 'marks the most fundamental transformation of human life in the history of the world recorded in written documents'¹⁶.

It brought fundamental transformations in industrial production, other economic activities and the way people lived. In other words, industrialization meant a shift from overwhelmingly agrarian activities to industrial activities with the concomitant process of unorganized urbanization which had a deleterious effect on human health. Unplanned urbanization led to unhealthy cities and its consequence was the establishment of big hospitals for catering to the health needs of the working population. 'Hospital medicine' came into existence and dramatic changes occurred in medical practices. Client-centred therapy was losing its dominance, and doctors and even midwives were becoming more organized and professional¹³.

Patient's reporting of symptoms became increasingly less significant and the need to find an acceptable set of symptoms became increasingly important¹⁷. It was a loss of the self in a complex social system where professionalism and individualism were on the rise. 'Hospital medicine' shifted during this period to diagnosis and classification, and the Aristotelian flavour which had characterized the theoretical base of hierarchical, individual-centred therapy was sidelined.

The four great innovations of hospital medicine were structural nosology, localized pathology, physical examination and statistical analysis¹⁴. With these innovations,

the emphasis shifted away from a belief in the classical Greek model of health as a harmony among the body's processes, or the Galenian concept of disease as a disturbance of the total system, to what is called 'localized pathology'. This was the period of development of new instruments, and sophistication in descriptive anatomy and pathology accompanied by the use of statistical analyses. Socio-economic and environmental factors were obviously ignored in this mechanical approach. With the birth of the bacteriology pioneered by Louis Pasteur and Robert Koch in the late 19th century, demonstrating that specific diseases could be caused by the invasion of specific microorganisms, arose what Rene Dubos has named the 'doctrine of specific etiology'¹⁸. Thereafter, the emphasis in medical practice swung even more sharply towards the individual 'case'¹³. Germ theory's placement of blame for most sickness and disease on the individual served to exculpate society from responsibility. Discoveries came thick and fast, and scientists were soon announcing bacterial causal factors for non-bacterial diseases such as yellow fever, malaria and in veterinary medicine, hog cholera. The 'immediate' cause – the germ – became the sole factor of disease causation. More distal causes – of predisposition, physical and social – were ignored. It effectively diminished the role of social and economic factors in disease causation and has remained the hallmark of the dominant mode of epidemiological practice hitherto.

Laboratory medicine, observed as the final victory of the mechanistic worldview, established itself in the middle decades of 19th century after the discovery of germ theory. At the same time, doctors became more active interventionists in physiological processes, rather than being passive observers. Medicine was on the way to gaining full recognition as a science.

It has been observed that this version of the natural world was a victory of the industrial bourgeoisie, which established the positivist conception of science and of medicine¹⁹. Medicine was characterized by what Jewson calls a shift from a 'person-oriented' to an 'object-oriented' cosmology¹⁴. In this view of health, 'it is always individuals who become sick, rather than social, economic or environmental factors which cause them to be so'¹³.

There are serious problems with this approach, which still dominates contemporary medicine. The physician deals with an individual patient (already a socially determined being)²⁰. The patient is not an abstract being but of a certain age, sex, race and class, and has to pass through a specific historical process from childhood to adulthood^{21,22}. This medical view individuates the patient, whereas disease or injury from which the patient is suffering is collective experience in a particular historical conjuncture. And this is what the contradiction of this view is. These latter circumstances are as much a part of the cause and therefore should be taken into account during treatment. There is no gainsaying the fact that medi-

cal facts are also social, historical facts. Thus, the essence of scientific medicine's treatment of disease discourages a proper understanding of disease by excluding from consideration the patient's passage through a set of historical processes. As Wartofsky puts it, 'Human ontology cannot be reduced to asocial or a historical biology without doing violence to the very specificity of human biological structure and function itself' (Wartofsky, cited in ref. 23).

By abstracting diseases from its social framework and reducing it to the biological sphere, social conditions were ignored. Scientific medicine became consistent with and, indeed, legitimized capitalist development by integrating a model of healing, which gets reflected in the social structure. In doing so, scientific medicine obscured the relationship between disease and the nature and form of social development. Medicine transforms a large scale social problem into a problem in the motivation of individuals, for which marketable commodities, including therapy programmes, surgery and drugs are seen as the typical solutions²⁴. Today, heart disease, cancer and automobile accidents are posited as civilizational medical problems. They are conceived of as necessary consequences of economic growth and industrialism.

A major concern of scientific medicine, consequently, is to render the body more functional in its struggle to adapt to the potentially antagonistic forces of nature. In contrast is the World Health Organization's definition given in the preamble of its charter, health is a state of complete physical, social and mental well-being and not merely the absence of disease or infirmity. In the latter sense, health tends to be defined in unrealistic and static state of perfect well-being in functional terms, as the absence of disease. Defining health and illness in a functional way is an important example of how a capitalist value system defines people primarily as producers. It is concerned with their 'fitness' in an instrumental sense, rather than with their hopes, fears, anxieties, pain or suffering¹³. In the therapeutic relationship, the task of the patient is to understand the signs and symbols of the problems as the physician reads them, and thus to accept the medical definition of both the problem and the solution.

From the many factors that contribute to diseases – social, environmental, physical, psychological – modern medicine tends to isolate a single physical factor and label it the 'cause'. Dubos explains that Pasteur and Koch's conceptualization of germ theory created experimental conditions that were sufficient to bring the host and parasite together to produce disease, and thus minimized the influence of other factors¹⁸. The focus on the doctrine of specific etiology and germ theory facilitated the transformation of health into a commodity saleable in the market, which is the essence of capitalist mode of production, i.e. commodification. With this commodity fetishism, health problems become problems of the body, which require consumption of some form of technologi-

cal treatment, rather than a reflection of social relations. Navarro describes this 'need for consumption', as consumption that reflects a dependency of the individual as something that can be bought, either a pill, a drug, a prescription, a car, or the pre-packaged moon²⁵.

It is important to mention at this juncture that medicine and health care were becoming increasingly mechanized and commodified and bioethics as an independent discipline emerged with this in background.

Moral pluralism

While the emergence of medical knowledge and technology was essential for the development of bioethics, it does not by itself explain the emergence of the field. To understand other elements that contributed to the field's emergence, it is important to recall that traditional medical ethics had relied on two sources of moral guidance. One was the tradition of professional physician's ethics²⁶, the other was the teachings of the theological ethics. Furthermore, there have been extensive theological reflections on ethics and medicine in many religious traditions²⁷. In the past there has been no shortage of ethical reflections regarding medicine. This being the case, one might ask why there was a need to develop this new area of ethical reflection that has been named bioethics. Why not rely on the various traditions of medical ethics that already existed? The claim is that traditional medical ethics is really 'physician ethics'²⁸, and that bioethics emerged as a result of the recognition that there are other people besides physicians who are involved in medical decision making. This means that the field of bioethics emerged as a response to social dimensions of medicine and health care. Why were these sources no longer able to guide medicine once it reached its modern scientific phase? To understand why neither of these sources is sufficient for contemporary medicine, one must take into account the phenomenon of 'moral pluralism', according to which people not only hold different moral values, views on topics (e.g. abortion), but work out different moral frameworks and with different moral methodologies²⁹.

As it has been mentioned traditional medical ethics had been focused on physician ethics³⁰. The development of scientific medicine gave patients so-called choices and options concerning courses of treatments to be pursued or refused. If a physician and patient share the same moral value and way of thinking, such choices may not be all that problematic. However, when patients and physicians hold different views, the understanding of medical ethics must not be seen as reflecting the judgment of the physician alone²⁸. Determining what is in the patient's best interest cannot be done solely by the physician. The physician may speak in the medically best interests of the patient, but not necessarily the overall best interests of the patient. To make judgment concerning the patient's

best interests, the patient needs to be involved. Furthermore, in secular societies there are likely to be different religious views that shape people's judgments about what is morally appropriate. This is why procedures like informed consent have come to play such a central role in both clinical and research ethics, such procedures allow people to exercise judgment about what is in their best interest.

Moral pluralism affects not only patients and physicians, but also the medical profession in general. A key part of the classical notion of a profession was that professions had distinctive moral dimensions. Many people still assume that professionals act in ethical ways and that it is reasonable to have fiduciary expectations of professionals. However, with the development of the medical knowledge and technology, one finds a wide range of views among physicians on issues ranging from abortion to euthanasia and the economic structure underlining medicine – about what is not appropriate behaviour. As a result, it becomes more and more difficult to sustain claims based on the internal morality of medicine; the notion of an internal ethics of physicians, a cornerstone to traditional medical ethics, becomes less and less tenable.

Life in a pluralistic society is full of flux; one cannot assume that theological ethics will supply the type of guidance that is needed. In several religious traditions, there have been long, well-developed reflections on medicine, its uses and ethics. As the field of bioethics began to emerge, it became easily understandable why many theologians felt interested in these broader questions. Given their longstanding reflections of medicine and health care, these traditions were able to understand easily the changes that were taking place in medicine.

Yet fairly quickly, theology came to play less and less of a public role in bioethics. As Daniel Callahan has argued, bioethics became acceptable in America because it 'pushed religion aside'³¹. Callahan does not argue that religious thought became irrelevant to medical questions. Rather he argues that as bioethics became a form of public discourse³², it moved to the more 'mortal' language of philosophy and law and away from the 'closed' languages of the medical profession and theological discourse²⁶.

The process of secularism in western societies helped the non-theological orientations. There appeared a new system of secular-moral experts who could act independently. The philosophy of bioethics was drawn into this vacuum, transforming the philosophy of medicine from an endeavour into a socio-politically endorsed and influential profession containing socially and politically authorized ability.

In plural societies, where there are often many cultures, moral pluralism is found and valued. As a result, the traditional sources of reflections are limited in their effectiveness and are thus much less helpful. Traditional professional classes will be limited in their moral autho-

rity in these societies, and religious tradition will have far less claim on the lives of men and women.

It is also important to understand that the field of bioethics has emerged in the era of civil rights and choices and mounting emphasis on the protection of individual freedom and liberties. Minorities and women were arguing for, and achieving, greater and greater legal protections. Thus at a time more and more options for medical treatment for privileged classes were emerging, patients of this class were becoming more and more aware of their own liberties and protections. During this time period, many groups, such as women and minorities, found a voice in society and in their lives, patients found a voice there as well.

Social dimensions

Bioethics has emerged as a result of several developments and complexity in medicine and society; two in particular stand out. First, the development of medical knowledge and technology created 'choices' in medical care. Second, the moral pluralism and multi-culturalism in societies led to the existence of different moral voices and views. This, in turn, meant that there would be differing views on appropriate medical care. Bioethics arose as a way to help people from different moral views navigate these choices and cooperate together. The field provides a window into the social and cultural settings of medical practices and as such provides a way to understand a society. It can help a society or culture examine basic questions of health, disease, sickness and death. It can also enlighten the way a society thinks about moral authority and how it is exercised. There are other reasons beyond those that emerge when one considers the development of bioethics as a research field, to conceive bioethics as a form of social philosophy. One such additional reason is the nature of medicine itself. That is why physicians and health care workers apply scientific and medical knowledge that has been discovered in the laboratory. There is little, if any, acknowledgement that science, especially medical science, is not value-free. Medical science is embedded in values of the society or culture. The scientific norms of medicine, such as health and disease, are often influenced by the social and moral values involved in their specification.

If medicine is a social construction, then bioethics should be thought of as a form of social philosophy. The term 'social construction' has multiple meanings and should be used with caution; philosopher Ian Hacking has pointed out that the term suffers from overuse and is incoherent³³. Given the ambiguity and confusion surrounding the term, one might ask what value it will have for understanding medicine. The term 'social construction' is helpful because it recognizes that the practice and goals of medicine are contextualised and specified by the

society's values. The specification of meaning of key medical concepts like 'health' disease, and 'standard of care' is socially influenced by many instances. While there are universal elements in medicine, such as healing and health, there are many local elements involved in specification of universals. It is in this sense that one can speak of medicine as social construction.

How one can understand and practise medicine will depend largely on what one assumes about the nature of medicine and the nature of knowledge. There is a common perception that medicine is applied science and that philosophy of medicine is about models of explanations. However, to think of medicine as a science, or as a scientific one, needs the articulation of the assumptions that one holds about the different models of science. Medical knowledge is scientific in that it is statistically based, empirical, verifiable and generalized. A scientific model alone, however, does not capture our experience or expectations about medical practice, for such a model does not appreciate sufficiently how medicine acts as a social structure and set of practices within a given society. The relationship between the values of a society and its medical practices can be discerned by examining how the concepts of medicine such as the concept of disease, are specified in that society.

Some thinkers understand medicine only through the lens of the physician–patient encounters³⁴. However, contemporary model of medical care cannot be fully understood if one only looks at this relationship. Such a 'physician–patient model' is too narrow in that it ignores the reality that medicine is set in a social context. The horizons in which the physician and patient encounter one another are shaped by important social forces. For instance, societies often define what medical procedures will or will not be allowed (e.g. abortion or physician assisted suicide), and insurers generally decide what procedures will or will not be paid for when they meet in the clinic, then the physician and the patient are not alone³⁵.

It is in this very encounter in the clinic that one finds the discussions of social construction in the contemporary medical practice, with its research and technological infrastructure. The physician–patient encounter involves other health care professionals, nurses, clinical or hospital administrators, legislators and regulators. This means we must reject the physician–patient model of the practice of clinical medicine for a more expanded view of the practice, one with a very different sense of medicine. Medical practice cannot be adequately explained as the encounter of the physician and patient, nor can medicine be adequately explained as the application of scientific knowledge. Medical knowledge is deployed in a set of social circumstances where the circumstances and values that help people to interpret reality and society is involved in establishing the norms of medicine³⁶. Medicine is shaped by the values of a culture, and medicine then helps to reinforce and control the values of that culture.

Most physicians and patients would agree that medicine is not just a set of technical skills. Understanding medicine as a practice opens a set of philosophical questions about the nature of the practice. As Alasdair MacIntyre argues that a practice is a coherent method of achieving socially established goods that are internal to the practice³⁷. Practices are public in public domain. They are not the habits of abstract individuals, nor are they to be confused with the place and role of institutions that support practices but also support goods external to those practices. So, for example, while medicine is a practice, hospitals and delivery networks, institutions that support medicine and other goods as well, are not. A practice is considered a part of a way of life. As Stein and Thung write 'any attempt to completely divorce medicine from other domains of culture would be futile, even foolish'³⁸. To say that medicine is socially constructed is to recall that medical practice is influenced by the values, moral and otherwise of the culture and society in which it is situated. This influence is evidenced again and again in bioethics, where the issues and controversies of the field often reflect differing assumptions about health, disease, illness and goals of life. Some thinkers worry that if one holds the view that medicine is in part a socially constructed practice, then the door to relativism and the 'Nazi problem' is wide open. That is, if medicine is constructed socially, how can it be argued that the medical practice of the Nazi physicians was wrong. However, there is a response to this criticism. Medical practice, like all practices, has moral boundaries. These boundaries are not unique to the profession or part of any special morality for professionals generally. What the Nazi doctors did to patients and research patients were normally incorrect for anyone to do so. One therefore, does not need a morality unique to the medical profession to criticize ethically the practice of the Nazi doctors. One can argue, for instance, that the Nazi doctors, irrespective of their profession, had no moral authority to do what they did. The Nazi doctors never got consent from the people they acted upon and in many cases were consciously attempting to do harm³⁹. As a result, we can, holding this sort of ethical perspective, claim that the actions of the Nazi physicians were wrong. Yet, we understand that medicine is a social practice with socially constructed elements.

If one takes the social and cultural turn in trying to understand medical practice, then one will have to accept a more expansive understanding of bioethics. This is because bioethics is not a field devoted only to the resolution of moral controversies. In many cases, the underlying issues in bioethics are issues in philosophy of medicine and provide insights into the social context of medical practice. From this more expansive view, it can be argued that bioethics can be a coherent and increasingly important field in helping to understand the social context of medicine.

In contemporary medicine, the scientific aspects of medicine have become increasingly important for medical practice. The development of scientific research and treatment along with the use of statistical and scientific knowledge to determine guidelines for treatment, reimbursement and allocation of resources, has accentuated the scientific side of medicine and limited the role of the physician's judgment. This emphasis on the specific model contributes to a view of medicine as being trans-cultural and objective. The quantitative and qualitative developments of the scientific dimensions of medicine have led to a forgetfulness of the art of medicine.

It is this art of medicine that guides the interpretation of scientific facts in individual cases. Facts need to be understood in relation to other facts and assumptions. These relationships are what give the facts meaning and structure. Philosophers such as Paul Feyerabend, Thomas Kuhn, Imre Lakatos and Allen Musgrave brought to an understanding the formation of facts, a deeper awareness of both sociology of knowledge and the role of cultural values and social customs. Medicine is not just a set of techniques or skills. It is 'philosophy in action', as Engelhardt argues that medicine seeks to remake the human in certain ways and certain purposes³⁹. As one thinks about medicine, one is well advised to remember the words of Rudolf Virchow, a 19th century figure in the philosophy of medicine who said that 'medicine is social science in its very bone and marrow'⁴⁰. In his analysis of the Silesian typhus epidemic of 1847, Virchow said that its causes were as much economic and political as they were biological and physical. He later generalized this view in a series of articles on public health, in which he discussed the relationship of medical problems to social and political developments. Virchow conceived the scope of public health as broadly as possible, indicating that one of its major functions was to study the conditions under which various social groups lived and another to determine the effects of these conditions on their health.

In the past, the art of medicine essentially involved the physician's judgment in relation to individual patients. However, in an age that is increasingly aware of cultural and moral pluralism and of the role of patients in medical decision-making, there is an expanding dimension for medicine's artistic side. The very concepts like 'health', 'disease', and 'normalcy' – are greatly influenced by surrounding cultural and social assumptions, and those assumptions are in need of interpretation. The art of medicine helps the physician apply scientific medical knowledge to particular contexts and patients.

The relationship between medicine and social values is borne out in many issues in bioethics. For example, one way to examine certain issues about end of life care and physician-assisted suicide is by treating these as bio-ethical issues that involve scientific facts as well as moral and cultural attitudes concerning the meaning of life and death. These also raise further questions about the pur-

pose of medicine and the appropriate role of health care professionals. The different responses to these different bioethical issues reflect differing views as the philosophy of medicine, which are influenced in turn by the cultural views of those involved. Within the field of bioethics, the broader questions about the social nature of medicine cry for attention. We need to see Descartes and Rousseau in a dynamic relationship.

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MEETINGS/SYMPOSIA/SEMINARS

National Conference on Emerging Fields in Life Sciences

Date: 16–17 November 2009

Place: Thane

Themes include: Agro revolution – revisited; Taxonomy, biodiversity, phylogeny; Emerging frontiers in medical biosciences; Industrial face of life sciences; Opportunities and challenges in bio-informatics and nanotechnology; Bio-monitoring.

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Workshop on Electron Microscopes: Instrumentation and their Application in Material Science and Biological Science

Date: 23–25 November 2009

Place: Kolkata

Topics include: Instrumentation of SEM, TEM, SPM; Specimen preparation techniques for SEM, TEM, SPM; Applications of SEM, TEM, SPM in material science and biological science; SEM, TEM, AFM and CPD laboratory demonstration.

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