THE GOAL OF MEDICINE: To Attaining Health and Curing Illness

"Medicine appeared, and still appears, as a technique or an art situated at the crossroads of many sciences, more than a science in itself."

George Canguilhem
"The Normal and the Pathological"

INTRODUCTION

It has always been argued that the main goal of medicine is attaining health or curing illness, but how are these apparently antagonistic states we face daily, health and disease, normal and pathological, understood? Without these concepts the physician´s judgment and activity would be inexplicable.

What does the physician use to qualify, among the tangle of symptoms provided by the patients, the "*illness*" that could indicate whether he is *"ill"* or still "*healthy*", or interpret laboratory results as *"normal"* or *"pathological"*, in order to identify the concept of health or disease, of normal or pathological? Is the qualification used, a scientific truth, a philosophical matter or a common concept?

Any of us asked to explain these concepts would be in great difficulty. Jaspers says: "The physician is whom least explores the sense of the words health and disease." (1)

In turn, the Spanish word for disease really implies a trinity of concepts that capture different aspects of "bad health".

"Illness" which indicates *"bad health"*, and is identified by the subject based on his own reports to communicate his mental or physical symptoms, entails a wide concept; *"illnesses"* may be self-limited or trivial, or limit the ability of a person to lead a normal life. As stated by Maurice Merleau-Ponty, it is Descartes who acknowledges that a part of the human being´s existence is "inaccessible to others and only accessible to the possessor". (2)

On the other hand, *"disease"* is considered a condition which is diagnosed by a physician or another health specialist. At best, it should include a standard and systematic diagnostic coding, better still if it has a known biomedical cause with treatment and cure. Limitations are that, despite this definition, diagnoses are many times based on a group of subjective symptoms, as in rheumatological diseases. It is said that a patient goes to the doctor with an *"illness"* and comes out with the diagnosis of a "*disease"*.

"Sickness" is a different phenomenon, because it indicates the social role that illness or disease occupies for a person or is assigned by society. An example of this concept is the absence from work due to "sick leave". (3)

WHAT DO WE MEAN BY HEALTH?

Returning to the meaning of health, George Canguilhem* will consider as starting point the third section of *The conflict of the faculties* by Immanuel Kant:" One can feel healthy, that is, judge according to a vital sensation of welfare, but never know that one is healthy. The absence of a sensation (of being ill) does not entitle man to express his well-being other than by expressing that he is apparently in good health." (4) Kant invites us, in a few lines, to think that health is an object alien to the objective field of knowledge.

On the other hand, Canguilhem makes a more drastic statement than Kant, taking it to the limit when he expresses: "There is no science of health. Let us accept this for the moment, Health is not a scientific concept, it is a crude concept, which is not the same as trivial, but simply common, within evrybody´s grasp." (4)

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* Canguilhem (1904-1995) was born in Castelnaudary, France, on June 4, 1904. At the age of 20, he entered the elite of the Ecole Normale Supérieure in Paris, where his early writings were on the positivist Auguste Comte. It was here that he became interested in the relationship between rational sciences and society. In 1930, after a short period of military service, he became a teacher in several provincial schools (a requirement for all fortunate recipients of an education in the ENS) before becoming editor of a radical newspaper, On Freedom (Libres Propos). There he continued his activities of "discreet impertinence" to defend the rights of conscious objectors, a group which was very vilified by the existing government. Although a committed pacifist (he purposely failed the exam for officer training in 1927, dropping a rifle on the foot of his examiner), Canguilhem felt compelled to join the French Resistance movement with the birth of the German National Socialism. He redirected his energies to writing anti-fascist polemics about the consequences of fascist dictatorships in Germany and Italy.
In 1936, in Toulouse, he began his medical studies while still teaching, but four years later he resigned his university position because he refused to work for the Vichy government. To escape the Vichy regime he moved to Strasbourg to concentrate on his medical degree, and in 1943 produced his doctoral thesis in medicine: The Normal and the Pathological. Later that same year, Canguilhem narrowly avoided capture by the Gestapo when the German forces violently broke into the University of Strasbourg, killing two professors and transporting students and faculty members back to Germany. He became an active member of the Resistance and, in recognition of his dangerous work, was awarded the Military Cross and the Medal of the Resistance.
After the war he returned to Strasbourg, but from 1948 to 1955 took the prestigious title of General Inspector of Philosophy and supervised teaching in the schools of France. In 1955 he became professor of History of Science at the Sorbonne, where he gained a reputation as a forbidding examiner and director at the Institute of History of Science and Technology in Paris. He wrote and published iconoclast essays and brief critical reflections on the philosophy of medicine and produced original historical studies on the concept of reflex, the thyroid gland, and "the role of analogies and models in biological discovery". He retired in 1971 but continued to write extensively during the seventies and early eighties. (5)

Descartes also thinks that, same as physicians, ordinary people scarcely think about health. In a letter to Chanut on March 31, 1634, he writes: "Even though health is the most important of all the goods that concern the body, it is yet the one to which we dedicate less thought and enjoy less. The knowledge of truth is like the health of the soul: once man has it, he does not think any more about it." (6). Canguilhem turns around the final phrase of Descartes stating that truth is the health of the soul, by declaring that "health is the truth of the body".(4) He considers, according to the French language dictionary, that "truth" is the "quality by which things appear as they are" and "verus" from Latin as the sense of real and right. Regarding "sanus" from Greek, which has the double meaning of well preserved (intact) or safe, he says that this is the origin of the expression "safe and sound", meaning secure or intact and safe.

Many philosophers and physicians have expressed the sensation of health discretion and to the phrase of Kant, "To tell the truth, well-being is not felt, because it is the mere consciousness of living, and only its obstruction generates the force of resistance", one should add the famous definition of the surgeon René Leriche: "Health is the silent life of the organs, and disease is that which annoys men in their normal life and occupations, and most of all everything that causes suffering."

Canguilhem then adds: "If health is life in the silence of the organs, then, strictly speaking, there is no science of health. Health is organic innocence. It must be lost, like all innocence, so that knowledge may be possible." (7)

If when we speak of disease we cannot avoid referring to ill body or body illness and when, in turn, we speak of health we cannot avoid referring to body wellness or well-being, we are speaking in the first person of our "subjective body" and not in the obdurate third person of scientific language. (8) At the same time we acknowledge that we are making *evaluations* about a *norm*. As Canguilhem says: "In short, norms, whether in some implicit or explicit form, refer the real to values, express discriminations of qualities in conformity with the polar opposition of a positive and a negative."

And it is true "hence, that a medicine exists first and foremost because men *feel* sick. It is only secondarily that men *know*, because medicine exists, in what way they are sick."

Consequently, an objective method does not allow certifying a certain biological phenomenon as pathologic. It is always its relationship with the sick individual, by means of the clinic, what justifies its pathological description…, it is not possible to speak with logical precision of 'objective pathology' …It is possible to objectively, that is, impartially, perform a research whose aim cannot be conceived and built without reference to a positive and negative appraisal, whose purpose is then not so much a fact but a value."

"Hence, would it not be better to declare that the pathological fact can only be grasped as it is, that is, as an alteration of the normal state at the level of the whole organism and, in the case of man, at the level of the whole conscious individual where disease becomes a kind of evil? Being ill means to man, living a different life, even in the biological sense of the word." (9)

The idea that disease can be explained by the physiological alteration of separate organs communicated by the "internal milieu" is postulated by Claude Bernard, the father of experimental medicine, in the second half of the XIX century. The awareness of this possibility, and even of this reality, supports the fundamental idea of Claude Bernard: "I believe that in our days there is a vast quantity of facts that clearly demonstrate that physiology is the basis of medicine, in the sense that it is possible to include a certain number of pathological phenomena within physiological phenomena and show that the same laws apply to one and the other (Principes de médicine experimentale)". (10)

Therefore, "the pathological state is not at all radically different from the physiological state, with respect to which 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, never being able to produce really new phenomena which, to a certain degree, did not already have purely physiological analogues". (7)

However, much earlier than Bernard, Descartes, who had already read Vesalius and knew Galileo´s theories, identified nature with the laws of motion and its conservation, and defined everything alive, including medicine, as a kind of machine. (9) He was, nonetheless, forced to consider different positive attributes when he compares health with the mechanism of the pendulum clock in the VI metaphysical meditation (11)

He writes: "And as a clock, composed of wheels and counter weights, observes not the less accurately all the laws of nature when it is ill made, and points out the hours incorrectly, than when it satisfies the desire of the maker in every respect…; if the body of man be considered as a kind of machine, I easily discern that it would also be as natural for such a body, supposing it dropsical, for example, to experience the parchedness of the throat that is usually accompanied in the mind by the sensation of thirst…" Although he initially considers natural and equivalent a clock mechanism that gives or not the exact hour and the body of man that is healthy or ill, he immediately adds that "there is ground for thinking that when the throat is parched and drink does not tend to its preservation, it does not follow the order of its nature…" and it would not be "a pure denomination, but really an error of nature, for it to feel thirst when drink would be hurtful to it". We could say that a machine does not become ill, and does not die, it disappears.

Therefore, disease of a tangible living individual is a negative value behaviour, and as stated by

Canguilhem (7): "For this reason, we postulate, contrary to all current medical tradition, that it is medically incorrect to speak of diseased organs, diseased tissues and diseased cells."

We can add that the parts in their different levels, be them organs, tissues, cells or molecules, have mechanisms or functions, but never behaviors that refer to the whole individual. We should not speak of a diseased liver, but of hepatic dysfunction, and neither state a renal behavior disorder, but a renal mechanism disorder.

"When an isolated symptom or a functional mechanism is termed pathological, one forgets that what makes them so is their inner relation in the indivisible totality of an individual behavior. The situation is such that if the physiological analysis of separate functions is known in the presence of pathological facts, this is due to previous clinical information, for clinical practice puts the physician in contact with complete and concrete individuals and not with organs and their functions. Pathology, whether anatomical or physiological, analyzes in order to know more, but it can be known as pathology, that is, as the study of the mechanisms of disease, only insofar as it receives from clinical practice this notion of disease, whose origin must be sought in the experience men have in their relations with the whole of their environment." (7)

Canguilhem is categorical when he affirms: "We maintain that the life of the living being, were it that of an amoeba, recognizes the categories of health and disease only on the level of experience, which is primarily a test in the affective sense of the word, and not on the level of science. Science explains experience but it does not for all that annul it."

… "To be in good health means to be able to fall sick and recover; it is a biological luxury.

Inversely, disease is characterized by the fact that it is a reduction in the margin of tolerance for the environment's inconstancies." (7)

He adds: "The solution to a problem posed by the entire organism, first to the sick man, later to the clinician, has been sought in the tissue or cell. To look for disease at the level of cells is to confuse the plane of concrete life, where biological polarity distinguishes between health and disease, with the plane of abstract science, where the problem gets a solution."

…"The same biological data given can be considered as part or as whole. We suggest that it is as a whole that it can be called sick or not.

"Cells of the renal or pulmonary or splenic parenchyma can be called sick today or sick with a certain disease by a certain anatomist or pathologist, who has perhaps never set foot in a hospital or clinic, only because these cells were removed, or they resemble ones which were removed, yesterday or a hundred years ago – it doesn't matter - by a practicing physician, clinician and therapist, from the cadaver or amputated organ of a man whose behavior he had observed … Virchow proclaimed that if the microscope is capable of serving clinical practice, it is up to clinical practice to enlighten the microscope." (7)

Michel Foucault, in a press conference, says that "Medicine has also a legal function. It defines not only what is normal or abnormal, but, in essence, what is licit or illicit, criminal or innocent, what is lack of control or harmful practice". (12)

HOW IS HEALTH MEASURED

This theoretical approach of the subjective concept of health is associated to the increasing interest of medicine in the measurement of the perceived health condition, leading to the development of different self-rated questionnaires evaluating health-disease status. A simple unique question is one of the most used and valid tools: "How do you rate your health?" with alternatives ranging from 1 to 7, where 1 = very poor and 7 = excellent, could not be better", without written labels of the intermediate steps. (13).

This self-rated questionnaire with a 7-point Likert scale was used in a Swedish cohort of 11880 men and women over 25 years of age, selected between 1973 and 2003 and followed-up to a maximum of 30 years. (14)

For each point of increase in health category, corrected for confounding covariates (age, marital status, smoking habits, leisure physical activity, educational level, unemployment, number of chronic symptoms), there was 13.2 day decrease of sick leave in women and 9.5 days in men, 23% decrease of disability pensions and 13% decrease of hospital admissions. Mortality in men at 19-year follow-up with score 6-7 was 34% and with the worst score (1-3) 48%, with a relative increase of 41%.

This discrimination in mortality arising from self-rating the degree of health-disease is also observed in the so-called emerging countries. In an Indian rural population of 5087 elderly adults > 50 years with 3- year follow-up, mortality was significantly higher when health was rated as poor/very poor, independently of age, disability and other covariates. (15)

Likewise, in a cohort of 11753 subjects > 50 years followed-up for 3 years in Indonesia, after adjusting for covariates (education, socioeconomic status, disability and chronic diseases), mortality risk for poor health increased 3 times in men and 4.9 times in women. (16)

This is the most recent empirical proof that men and women communicate feeling sick or in poor health to their physicians, who in turn, can measure the increase in sick leave applications, the number of hospital admissions, the percentage of disability retirements and mortality, be it in developed countries with advanced social security systems as Sweden, or in countries with a high degree of inequality and vulnerability as India and Indonesia.

We will pose the two current visions on the way physicians understand health and disease, because the consequences for medical care differ considerably

and are not simply academic, as they have ample impact on daily medical practice.

TWO PHILOSOPHICAL-MEDICAL APPROACHES OF HEALTH AND DISEASE:

My intention is to discuss and illustrate two specific philosophical concepts in order to characterize health and disease from the medical standpoint.

The two approaches in their general forms, expressed or implied, are well known to all of us.

We might initially consider what we might call the "organic biostatistical perspective" (OBP) of health and disease, which from a scientific point of view considers these concepts value-free and merely descriptive; in some sense as the concept of atom, metal or rain are value-free, so the concept of people's disease can be discovered, according to this thoughts, using scientifically validated procedures. On the other hand we would consider the "holistic normative approach " (HNA), where the concept of health, along with other medical concepts, is essentially value-laden and states that an individual is healthy depending not on the result of any examination or objective measurement, but on a general perception of the physical and mental state of the person. (17)

The OBP was developed by Christopher Boorse in the seventies (18) and reviewed in his famous 1997 article, (19) where he first defines disease by saying: "A disease is a type of internal state which is either a depression of a normal functional ability, for example, a reduction of one or more functional abilities below species-typical levels, or a limitation on functional ability caused by environmental agents." Then, he laconically identifies health as the absence of disease.

According to Boorse, an organ exercises its "functional ability", just as the heart pumps appropriately, if it contributes to the individual survival and reproduction of the species as crucial biological targets.

In this perspective, every organ and every function should be measured separately, with a statistical method to describe normal operation, and any local infection or simple deterioration would indicate that the person is sick.

But is statistical frequency a normality measurement? Canguilhem clarifies: "Consequently, in the human species, statistical frequency expresses not only vital but also social normativity. A human trait would not be normal because it is frequent, but frequent because it is normal, that is, normative in a given kind of life."

"Having admitted that some conditions are normal, the physiologist objectively studies the relations which actually define the corresponding phenomena, but he does not really objectively define which conditions are normal."

"The true role of physiology, of sufficient importance and difficulty, would then be to determine exactly the contents of the norms to which life has succeeded in establishing itself."

"The concept of norm is an original concept which in physiology more than elsewhere cannot be reduced to an objective concept determined by scientific methods. Strictly speaking then, there is no biological science of the normal. There is a science of situations and biological conditions called "normal'. That science is physiology. "

"By way of summary, we think that the concepts of norm and average must be considered as two different concepts: it seems vain to try to reduce them to one by wiping out the originality of the first." (7)

The organ's normality cannot be defined independently, because "Taken separately, the living being and his environment are not normal: it is their relationship that makes them such, both one and the other."

"There is no fact which is normal or pathological in itself. Anomaly or mutation are not in themselves pathological. They express other possible norms of life."(7)

Mutations depending on the environment can be pathological or beneficial. Let us take as an example glucose-6-phosphate dehydrogenase deficit which causes anemia, mainly diagnosed in black populations in the United States. This enzymatic alteration is a genetic disorder in populations with African origin, where the "sick" affected by this disorder are particularly resistant to malaria. Their ancestors were "normal" black African people resistant to malaria compared to those without the deficit who died as a result of it.

"If these norms are inferior to specific earlier norms in terms of stability, fertility, life variability, they will be termed pathological. If these norms should turn out to be equivalent in the same environment, or superior in another environment, they will be called normal. Their normality will come to them from their normativity. The pathological is not the absence of a biological norm: it is another norm but one which is, comparatively speaking, rejected by life. "(7)

It is easier to talk about physiological normality when a person id followed-up. According to history, Napoleon Bonaparte's heart rate was 40 beats per minute and he did not need a pacemaker to conquer Europe.

Cardiologists attach great importance to the interrogation of chest pain, even though the pain may not be entirely typical, if the patient reports that it had the same characteristics that when he suffered a heart attack, because we agree with Canguilhem in that "The borderline between the normal and the pathological is imprecise for several individuals considered simultaneously but it is perfectly precise for and the same individual considered successively. It is the individual who is the judge of this transformation because it is he who suffers from it from the very moment he feels inferior to the tasks which the new situation imposes on him. "(7)

On the other hand HNA refers not only to life ex-

pectancy, but also to well-being. According to these theories, a person may have poor health, not only because the probability of life has been shortened, but also because he does not feel well or is disabled for some other vital purposes. According to the classical analysis of Galen (second century .A.D.), health is "a state in which an individual does not feel pain nor is impaired in his daily life functions." More recently, Fulford (20) says that "people with ill health are unable to do things that people usually have and do; move their arms and legs, remember things, find their way to their familiar places, and so others." Or as Canguilhem says: "Man feels in good health - which is health itself - only when he feels more than normal - that is, adapted to the environment and its demands - but normative, capable of following new norms of life". (7)

The HNA briefly states that a person is in perfect health if he/she possesses the ability, given standard circumstances, to achieve all his/her vital goals (objectives). (21)

Note that the term "standard circumstances" is something completely different from "statistically normal circumstances", as they are related to the "social norms".

In this HNA approach, disease appears if at least one organ is involved in such a state or process which tends to reduce health. The phrase "tends to reduce health" was used because not any disease really affects health in the holistic sense of being able to carry out vital targets. Some conditions do not affect the person as a whole, because they disappear after a while, as they are latent or trivial or abort in their progression.

THE TWO PERSPECTIVES IN THE MEDICAL ENCOUNTER

1. A person comes to the health center with a problem.

Pedro is referred to a cardiologist by his family doctor and he tells that he has been feeling unwell for some time. During the last two months he has experienced shortness of breath when walking; this discomfort intensified last week and for the past two days he has been unable to work. He cannot blame his ill health to something he did; his discomfort has not subsided but has increased, to the point of preventing him from going to work. Pedro says he feels unwell and assumes that a disease is responsible for his problem.

2. The doctor diagnoses the problem and treats the patient.

The doctor performs a physical examination and estimates from the signs and symptoms that the problem is a heart failure syndrome and requires some studies to identify the cause. But he looks for the cause of the patient's problem in terms of the disease language he has learnt in the medical texts and classifications; once he thinks he knows the cause of the problem he treats it according to the recommendations of the contemporary state of the art in medical care.

3. The patient is healthy again when he gets rid of the problem.

The medical consultation has been successful and when Pedro does not have shortness of breath and can return to work he considers himself healthy again, even though he has to take medication and the cause of the disease persists.

This simple vignette illustrates that the concept of health used in the consultation is a variation of the holistic normative approach. Pedro himself has determined that he has an ill-health condition due to the shortness of breath that prevents him from going to work.

It is also clear that health is taken both by the patient and medical personnel beyond and above the absence of disease. The *illness* has been cured, but the *disease* has not been eliminated and to return to work he must recover or rehabilitate from his sickness.

In this story, the discovery of the disease presupposes the prior occurrence of an illness; many would say that in modern medicine many diseases are diagnosed prior to the individual's sickness. To avoid misunderstandings, we can say that illness need not occur in this particular case, but the type of disease could not have been discovered and labeled as a disease if someone had not previously experienced the corresponding illness. As gracefully depicted by Canguilhem: "Disease, which never existed in the consciousness of man, begins to exist in medical science. However, we think that there is nothing in science that has not first appeared in the consciousness and that in the case now before us, it is particularly the sick man's point of view which forms the basis of truth ... There has always been a moment when all things considered, the practitioner's attention has been drawn to certain symptoms, even solely objective ones, by men who were complaining of not being normal, that is, of not being the same as they had been in the past, or of suffering. If, today, the physician's knowledge of the disease can anticipate the sick man's experience of it, it is because long ago this experience gave rise to, summoned up, that knowledge. Hence medicine always exists de jure, if not de facto because there are men who feel, not because there are doctors who tell men of their illnesses. "(7)

A COMPARISON BETWEEN THE TWO APPROACHES

The differences are summarized as follows:

1. In OBP health is by definition identical to the absence of disease. In HNA health is consistent with the presence of disease, but this is logically related to the concept of illness (or ill-health) and sickness is defined as a state or process that tends to reduce the person's health.

2. In OBP health is only a function of the organs or internal processes of the human body or mind. In HNA health is a function of the ability of a person as a whole to perform intentional actions and to achieve

his objectives or purposes.

3. In OBP health is a concept only defined in biological and statistical terms. In HNA the health concept presupposes extra-biological concepts such as normative values in a standard social environment that allows achieving vital purposes.

4. Another important distinction is the criterion concerning the purpose of the body and the individual. In OBP the only relevant goal is the survival of the individual and the species. According to the HNA, there are other life goals, although survival is a necessary condition to acquire all the right resources for other vital purposes.

ILLNESS, DISEASE AND SICKNESS: EMPIRICAL EVIDENCE FOR THE DIFFERENT WAYS OF ABSENCE OF HEALTH

We had already characterized ill-health or absence of health in a different trilogy: *illness*, perceived and reported by the patient as a complaint concerning the achievement of his life purposes, disease as the condition that is diagnosed by the doctor or other health expert, and *sickness* as the role assigned by society.
These definitions were tested in a cohort study, obtained through annual surveys with extensive structured interviews and a sick leave record of 13887 Swedish employees and self-employed subjects. (3) People who communicated any kind of symptoms were considered *illness* carriers. A set of questions concerning different kinds of symptoms, such as pain in the neck, shoulders, back, hips, hands, elbows, feet, legs, as well as questions about asthma and allergies, complemented in some cases with sleeping disorders, fatigue and anxiety, was used. Almost 70% of subjects reported some kind of illness, such as pain in different parts of the body, sleeping disorders, anxiety and fatigue (72% of women and 62% of men).

For this study a person was considered to have a disease if he/she had been categorized with a diagnostic code according to ICD-9. in the structured interview. About 40% of subjects had a long term disease and 15% reported more than one disease.

About 1 in 7 people (14% of the total, 18% of women and 11% men) who worked had at least one sick leave of two weeks or more during the year.

Nearly 1 in 4 (25%) had no illness, disease or sickness, according to the definitions used in this survey.

This study shows that most people have some complaint or illness, less have been registered with some sort of disease and fewer still have reported sickness with sick leave. Women had higher morbidity for the three concepts, with a larger difference in sick leave.

The interesting thing is that the degree of overlap, even though it had a significant correlation coefficient, was surprisingly low. This great discrepancy between the three concepts implies that one has to be very careful with the use of different public health data. Therefore, illness, disease and sickness represent different aspects of morbidity and should be perceived as different phenomena.

Another interesting finding is that over 80% of these same patients, answering a health questionnaire, reported that they perceived their health as very good or good.

This result unquestionably shows that according to people, health is not the opposite of disease, meaning that, the more illness or disease they have, the less healthy they are and vice versa. Obviously, health has often been understood to belong to a completely different dimension from illness or disease and thus, is not defined by its opposite.

The authors conclude: " the fact that illness, disease and sickness have been found to be so different in terms of magnitude and development over time (in 13 years there has been a proportional increase of complaints and illness, a lower increase of prolonged diseases, and sick leaves have been stable until recent years) shows the need for a very careful use of different concepts and indicators. The comparatively low degree of overlap between them further shows that they represent different realities. There is a need to further develop empirical knowledge about how different aspects of morbidity are interrelated and how the differences could be interpreted in terms of causes and effects. "(3)

CONCLUSIONS

We have tried to discourse on concepts that are fundamental goals of the medicine we practice and where we are actors, without which our work would be incomprehensible.

We have tried to show that the disease suffered by our patients is at least expressed in three different ways: illness, disease and sickness, which cannot overlap and express different realities.

Let me end by quoting the expressive prose of Georges Canguilhem, this philosopher-physician who produced a leap in our understanding, when he defines that: "Health is a margin of tolerance for the inconstancies of the environment." (7)

The environment is full of "events" which are divided into repeatable events and therefore explained as predictable laws of nature (things must happen) and contingent events in a world full of chaos and randomness (things may happen). The explanation of contingent events requires knowledge of the specific historical sequence that caused the result, so they are necessarily narrative as, for example, the patients' medical record, rather than deductive. As we are human beings, we are contingent entities rather than predictable inevitabilities.

"Certainly this environment defined by science is made by laws, but these laws are theoretical abstractions. The living creature does not live among laws but among creatures and events which vary these laws. What holds up the bird is the branch and not the laws of elasticity. If we reduce the branch to the laws of elasticity, we must no longer speak of a bird, but

of colloidal solutions. At such a level of analytical abstraction, it is no longer a question of environment for a living being, neither of health, nor disease. Similarly, what the fox eats is the hen's egg and not the chemistry of albuminoids or the laws of embryology. Because the qualified living being lives in a world of qualified objects, he lives in a world of possible accidents. Nothing happens by chance, everything happens in the form of events. Here is how the environment is inconstant. Its inconstancy is simply its becoming, its history."(7)

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