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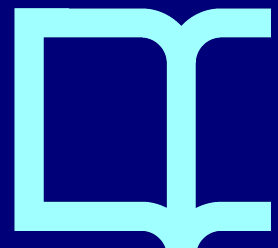
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The epidemiological factor: A genealogy of the link between medicine and politics

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Abstract

From the beginning of our civilization, the existence of infectious and contagious diseases required a search for solutions for both an individual and medical-health problem, and political interventions that involve a territory and population that must be managed. In this respect, epidemiology constitutes a strategic dimension in analysing the complex relationships established between scientific conduct and the political management of a territory. With this focus, we will provide a short historic genealogy of the links established between medicine and politics in European societies since the 18th century. From this, we should be able to see a movement from the concepts of healthiness/unhealthiness common to the 'public hygiene' managed by the 19th-century nation-state, towards the imperative of 'public health' operating with the 'global health' concept promoted by our current global institutions.

Keywords

biosecurity, clinic, epidemiology, political scales, techno-science

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The field of medicine and the promotion of health, since the 18th century, has become priority knowledge in our societies (Foucault, 1988; Rose, 2007). We consider that the *epidemiological factor* has played a central role within the wide spectrum of practices, mechanisms and disciplines that embrace biomedical knowledge. Epidemiology, like no other medical discipline, crystallizes the tension generated by the simultaneous requirements of the biomedical and the social sciences (Anderson, 2004; Berkman et al., 2014; Krieger, 2000; Nishi, 2015; Tirado y Cañada, 2011; Vibeke y López, 2004). Furthermore, to the extent that infectious and contagious diseases constitute a problem that involves society as a whole – not only attacking the individual body, but also, and most importantly, the *social body* – it would appear that their management involves procedures that go beyond the strictly medical field. That is to say, epidemiology constitutes a strategic dimension in analysing the complex relationships established between scientific behaviour and political management of a determined territory (King, 2002, 2004).

It is for this reason that we consider it necessary to perform an historical analysis of this discipline from the 18th century on, paying special attention to two analytical axes: (a) the mechanisms through which the scientific-political tensions that emerge from epidemiology are operationalized into medical practice itself; and (b) the relationships established by these mechanisms in the configuration of political organization models. In this regard, we will show how, towards the end of the 18th century, the social-medical tensions that emerge from epidemiology are updated, developed and organized, mainly by an increase and consolidation of ‘clinical practice’. Simultaneously, we will maintain that this social-technical network of practices, institutions and know-how, are closely related to the emergence of the political figure of the modern nation-state.

Later on, we will analyse the decline that both the concept of the clinic and that of the nation-state have suffered since the second half of the 20th century. In this regard, we argue that the new medical dimension that has resulted from the updating of the scientific-political tensions arising from epidemiological knowledge is so-called ‘biosecurity’. Thus, taking into account the strong influence that this latter field currently holds in the configuration of supranational legal and political systems, we end by concluding that epidemiology is a *grey area* between biomedical sciences and social sciences (in particular), as well as between science and politics (in general), which makes it possible to construct ‘geopolitical scales’ of progressively increasing breadth, interconnection and territorial scope.

Our work develops the Foucauldian proposals about epidemics. However, our analysis establishes three differences with this author. First, our research goes beyond the limit of the institutions analysed by Foucault. Second, we consider the epidemic factor as a central core in the definition of modern medicine. Finally, we put forward the relation between medicine and the modern state as a key element in the genealogy of medicine.

What do we mean when we talk about ‘scientific-political tensions’ in epidemiology?

The importance that the topics associated with the control of contagious and infectious diseases have in relation to the establishment of practical measures of political management is not something new. Already in biblical texts – Leviticus 13, 44–6, as well as in

the Gospels of Luke and John in the New Testament – we can identify how the presence of lepers directly led society to take political measures such as segregation and expulsion. Nevertheless, without going any further, it is Hippocrates (Hippocrates, 1983) himself who explicitly highlights that an epidemic is not constituted by an infection in itself but refers to the condition in which this infection begins to be maintained in general. In this respect, since ancient times, infectious and contagious diseases forced one to think not only of solutions from an individual and medical-health point of view but also, and urgently, at a strategic-political level that involved a territory and groups of people who had to be managed. It is here, therefore, that the seeds of socio-health tension are to be found, that would later collide with the scientific process and political management at the end of the Middle Ages.

Obviously, this does not mean the Middle Ages did not have any of these tensions. However, it was from the 14th century that the great epidemic outbreaks (of plague, smallpox, syphilis and cholera) emerged with such force as to shake all of Europe (Watts, 1999). It is obvious that the new navigation and commercial routes that were developed and consolidated during this period played a fundamental role, both at a medical level (emergence and spread of new diseases) and a geopolitical level (particularly due to the political and territorial configuration that involved the incorrectly named ‘Discovery of America’). In addition to all of the above, it must be mentioned that the advent of modern science roughly coincides with this historic moment, which is why we have decided to talk about ‘scientific-political tensions’ starting from this period.

But there is also another important factor to be taken into consideration. Although there are historical records that date the primary foci of bubonic plague (Black Death) in the middle of the 14th century, it was not until 1450 that the northern Italians created specific measures to combat the plague as a *sui generis* health crisis (Watts, 1999). That is to say, it led to the emergence of a medical-political structure that established the concepts of *disease prevention* and *public hygiene* – which have lasted until our times – as key elements to articulate and understand our societies. It is incidentally worth noting that this pioneering aspect is related to new structures, with the implementation, in major cities, of *Health Magistracies*, which ‘had their origin in the repeated plague epidemics, starting with the epidemic of the years 1348–1351, that devastated different parts of Europe several times and in different periods’ (Cipolla, 1993). However, it must be pointed out that quarantine and other control techniques applied during this period, were formally extended to the rest of the continent only in the past two centuries. The previously mentioned ‘Magistracies’, in fact, started by being provisional; but after about a century and a half – first in Milan (1486) and later in Florence (1527) – they became permanent, which was associated with a mature and intelligent phase of preventive action. But of what did that original preventive health action specifically consist?

Thus, the Health magistracies went on to be occupied with the quality of the food items sold in markets, with the movements of beggars and prostitutes, with the hygiene conditions existing in the homes of the poor, with the pharmacies, and the types of drugs sold, sewage system, functioning of hospitals, the activities of the medical profession, the hygiene conditions in taverns and bars, with the movement of merchandise, travelers, pilgrims, and ships, quarantine of the travelers and suspicious merchandise, with the introduction of health passports for travelers and merchandise, with the keeping of death registers ... (Cipolla, 1993: 36)

As can be seen, it was the establishment of a social-technical network that goes far beyond the medical-health dimension, and with an epicentre that may be located in the questions and tensions emerging from epidemiology. In this respect, Michel Foucault's assertion (2003) that the epidemic is something more than a particular form of disease, must be taken into account. In the bilious fever outbreaks of Marseilles of 1721, Bicêtre of 1780 or Rouen of 1769, what we have is an emergence of epidemiology as regards 'autonomous, coherent, and adequate evaluation of disease' (Foucault, 2003: 23). Furthermore, Foucault emphasized that:

"a medicine of epidemics could exist only if supplemented by a police: to supervise the location of mines and cemeteries, to get as many corpses as possible cremated instead of buried, to control the sale of bread, wine, and meat, to supervise the running of abattoirs and dye works, and to prohibit unhealthy housing." (Foucault, 2003: 25)

Thus, Foucault presents a fairly similar picture to that painted by Carlo Cipolla as regards northern Italy in the 16th century. Therefore, we consider *the epidemic as something more than a particular form of disease*, not being limited, in any way, to the socio-political and health vicissitudes that occurred in Europe from the 18th century. The foci of epidemiological tension, on the contrary, constitute a force already present, which is updated in the medical and political mechanisms that define and characterize a particular historic period.

In this sense, from the 18th century, 'nosopolitics problematization' is introduced, which expresses the emergence, in many fields, of 'health and disease' as problems that required collective management (Foucault, 2001a). However, 'the most striking trait of this noso-politics, concern with which extends throughout French, and indeed European society in the eighteenth century, certainly consists in the displacement of health problems relative to problems of assistance' (Foucault, 2001a: 92). That is to say, the medical-political problems that arise, to a great extent, from the field of epidemiology, are redefined depending on new health care techniques. For example, the collective management of disease up to the end of the 18th century tended to be focused on care of the poor, insane people, invalids and the needy in general by means of a 'hospital institution', that did not aim for cure, the promotion of health or treatment of the disease as its purpose, but instead constituted an exclusion zone sustained by charity (and not by medicine) to which these people literally went to die in company. The mutation of *hospital technology*, in this respect, constituted an update of the previously mentioned tensions by the reconceptualization of a technical mechanism (the hospital) and a political management model in full swing (the nation-state). Therefore, we consider it necessary to simultaneously analyse the emergence of these mechanisms in order to understand what the *medical- health explosion* consisted of for European societies from the 18th century.

The birth of the clinic and the emergence of the modern nation-state

The sudden importance that medicine assumed in the 18th century finds its roots in the intertwining of a new 'analytical' economy of health care and the emergence of a general

health 'policy' (Foucault, 2001a). In this way, the new nosopolitics inscribes the diseases of the poor within the general of *health of populations*. That is to say, that the biological traits of a population thus become pertinent elements for economic management, being necessary to organize, in turn, those mechanisms that ensure their subjection and a constant increase in their usefulness (Foucault, 1988, 2001a). And these mechanisms, as we have mentioned, are not only medical, but also expressly legal-political. One representative and paradigmatic example in this regard is found in the campaigns to combat syphilis developed in European countries at the end of the 18th century. For example, the authorities, concerned by the low growth of the French population compared to that of its English and German neighbours, created an institution known as the 'Register' in 1802. Centred on cities with military barracks, this institution would allow police nurses to inspect the bodies of prostitutes using a speculum popularly known as a 'state penis' (Watts, 1999).

However, the coordination between the *population* and *state* vector is far from a harmonious and tension-free process. If we analyse the period immediately after the French Revolution, we could say that medical knowledge (that emerges from the university faculties, which even started being closed down in August 1791) and associated institutions (like hospitals) were strongly attacked due to being considered corporate structures belonging to the old monarchic regime (*Ancien Régime*) that threatened the spirit of the revolution. However, 'a free state that wishes to maintain its citizens free from error and from the ills that it entails cannot authorize the free practice of medicine' (Foucault, 2003:46). Similarly, the direct attack that was initially launched against the institution of the hospital was very soon recalibrated once medical services were accessible to the better off segments of the population. Thus, a paramount need of this period would be to problematize and redefine the institutional structures that would enable the ideological agenda of the revolution to be achieved and implemented. And, in this process, medical knowledge (and, in particular, the epidemiological factor) would play a leading and decisive role. But to what is that position due?

As we mentioned before, the epidemiological field has historically been a focus of social and health tensions that intertwine requiring a collective approach that is direct and inherently political. For example, in relation to the outbreak of 'exanthematous typhus' that gripped Tuscany during the 18th century, during an epidemic the medical-hospital structures (in this case the hospital of Santa Maria Nuova in Florence) and the political structures (the previously mentioned Health Magistracy) were jointly subjected to a tough test that redefined their relationship. Thus, the hospital manager of Santa Maria Nuova (Monsignor Giovanni Mattioli) refused to accept orders emanating from the Magistracy, stating that, 'as a clergyman, I was not obliged to obey the Health Magistrate and that the hospital had an exceptional benefit [i.e. status]' (Cipolla, 1993:126). Although Monsignor Mattioli finally 'took the document [the orders]' from the Magistracy, he maintained his reservations, invoking the independence of the clergy as regards the legislative, jurisdictional and executive powers of the state. In this regard, this incident demands that we 'recognize that the postures adopted by the Magistracy and in the reports sent by this to the court is evidence of the awareness of the State, an awareness that had been arduously maturing since Medieval times' (Cipolla, 1993:151). Put another way, what we have is a clear example of how epidemiological tensions played a

very significant role in Europe, at least from the 16th century, in the exercise of political management of populations by means of an incipient state apparatus. And that the notion of state, in the case of the years after the French Revolution, will mature and will be consolidated, taking in medicine a vector of strategic coordination. But how is this strategy deployed?

In a conference held in 1974 at the Institute of Social Medicine of the University of Rio de Janeiro, entitled 'Crisis of Medicine or Crisis of Anti-Medicine?' Michel Foucault (2004) presented us with four fundamental keys as regards this. According to his analysis, from this period medicine began to consider other different patient fields, widening the scope of the medical machine, using the following means:

1. Appearance of a medical authority, which is not restricted to the authority of knowledge, or of the erudite person who knows how to refer to the right authors. Medical authority is a social authority that can make decisions concerning a town, a district, an institution, or a regulation.
2. Appearance of a medical field of intervention distinct from diseases: air, water, construction, terrains, sewerage, etc. In the eighteenth century all this became the object of medicine.
3. Introduction of a site of collective medicalization: namely, the hospital. Before the eighteenth century, the hospital was not an institution of medicalization, but of aid to the poor awaiting death.
4. Introduction of mechanisms of medical administration: recording of data, collection and comparison of statistics, etc. (Foucault, 2004:13).

If we develop the analysis of Foucault further, it is possible to say that from the 18th century, medicine acquired a new statute, in that it was constituted in a vector that enabled it to politically manage a territory explicitly and directly. And that management was carried out by a reconfiguration of the mechanisms within medicine itself (for example, mutation of the hospital institution), as well as in strictly political instances (consolidation of the nation-state model). As regards the first dimension, it should be noted that, thanks to the hospital, conceived in this period as a 'therapeutic tool' for those who live in it, 'clinical medicine' acquired totally new dimensions. That is to say, that the new position held by the hospital institution meant that the 'clinic', understood as a change in medical perception that vindicated practical training (to the detriment of the previous model of pre-eminently theoretical learning centred in the university), became one of the most powerful tools, with its sights set on achieving an increase in (and promotion of) the level of health of the population. On the other hand, that promotion of health will be built on one of the priority dimensions through which it will carry out the political management of the territory (that becomes 'national') by means of an incipient state apparatus. As noted by Foucault (2003:18–19), 'this structure coincides exactly with the way in which, in political thought, the problem of assistance is reflected', to the extent that it was 'necessary to conceive of a medicine sufficiently bound up with the state for it to be able, with the cooperation of the state, to carry out a constant, general, but differentiated policy'.

We have, therefore, two vectors that are simultaneously combined in this reform process: (a) a medical exercise of power that becomes inseparable from the political

field; and (b) a 'constant' character (rather than a merely circumstantial one) in its application and functioning. If we remember, for example, the previously mentioned Health Magistracies of northern Italy, we could corroborate how they operated initially by means of a defined temporary criterion (during an epidemic emergency) and with a clear differentiation between the health field (the old hospital space under the protection of religion and Christian charity), and the political management field (embodied by the Magistracy). Thus, the consolidation of the idea of a state that manages and administers a territory that gradually extends to a defined group of cities in order to *become a nation*, triggers a process of secularization of health space and its subsequent constant and continuous use of political management as a tool. Towards the end of the 18th century and the beginning of the 19th, a clear tension arises between the reorganization demands of medical knowledge (birth of the hospital clinic and, to a lesser extent, theoretical-university training) and the need for effective surveillance of the health of the nation. In other words, the constant and continuous exercise of medical-political power over the population implies the emergence of a 'multiple networks of super-vision' that connect both individual and social vectors. That is to say, a principle of communalization of health care (that will end ideally conceiving this as a free – but obligatory – question) is combined with an intertwining free individual subject that must contribute to the active life of the nation. As we can see, an assemblage of the ideals of *equality* and *liberty* that drove the revolution. And these, in the specific case of the medical-political apparatus, were found in 'public hygiene', a mechanism that connects both dimensions to the extent that healthiness and unhealthiness affect both the individual and social body.

Meanwhile, in addition to the appearance of a new medical authority with powers that transcended the health field there is the introduction of comparative and statistical types of medical administration mechanisms. The inclusion of this vector would have significant indirect effects, with some of the main ones being: (a) the systematization of data as regards, birth and death rates, life expectancy, etc., which would help in directing and supporting the planning and execution of public policies; (b) the monitoring of the health of the workforce in the face of an economy that was becoming industrialized; and (c) the emergence of a new analytical economy of health care that will foster, especially during the 20th century, the inclusion of health in the calculations of the macro-economy.

We find in the approach to the cholera epidemic that first emerged in India (1817), reaching Great Britain in 1831, a particular example of this new social-technical architecture of the 19th century. If the death rates between the two countries are compared, an enormous gap could be seen between the approximately 130,000 deaths registered in Great Britain and the more than 25 million deaths registered in India during the 19th century and the first quarter of the 20th century. While it is a risk to identify a single factor to explain these catastrophes and dissimilar results, there can be no doubt that the position of colonial subjugation of India as regards the British Liberal monarchic-state apparatus was a determining factor. For example, the inability to make advances in public health in India was due, to a great extent, to the absence of a holistic management approach so that medical, military, engineering and/or financial topics were isolated and compartmentalized (with an almost total and exclusive priority assigned to this last

aspect) (Watts, 1999). It is not by chance, therefore, that Sheldon Watts tells us of the existence in India of a 'fiscal English State', mainly concerned with economic questions, such as maintenance (and extension) of the commercial infrastructure, in the decline of measures intended to promote the public health like the construction of sewerage and running water systems that would be of crucial importance in the face of an infectious-contagious disease like cholera.

Put another way: the colonial position of India impeded the development of a nation-state that would promote the health of the population by introducing measures such as: the Anatomy Law of 1831 (which allowed the use of cadavers for the progress of medicine); the carrying out of prevention and cleaning campaigns among the working classes during the cholera months; the amendment of the Poor Law of 1834, which created a national system based on grouping parishes; or the approval of laws by Parliament that allowed the local authorities buy water pumps and appointed medical-health staff, culminating in the passing of the Public Health Law of 1862. This combination of measures adopted by the British government were, without doubt, a determining factor in the battle against the epidemic, in that they coordinated a network of practices, laws and institutions that gave form to the idea of a modern nation-state.

A similar example can be found in the promulgation by the Spanish state of the Organic Law of Health of 1855 (precisely during a cholera outbreak), which was one of the most significant changes that occurred in the organization of the health service as it included the individual right of universal health care (Algué i Sala, 2012). In this way, it simultaneously opposed the 19th-century liberal principle of fraternity based on charity, as well as the inefficiency of the 'Health Council', which only became active when the presence of an epidemic was declared. That is: it helps in the implementation by the state of a constant and continuous exercise of medical-political power. Whatever the pragmatic efficiency of these measures as regards the promotion of the health of the population, we must not start to naively conceptualize the biopolitical management of the new territories. Obviously, the organization of a modern nation-state helps in confronting epidemic outbreaks (in comparison with a colonial management centred on economic maximization and plundering), but this does not mean, in any way, that it achieves the objective of a project of freedom (individual) and equality (social) with its inherent antithetical tensions.

For example, in the 19th century (particularly in England) a medicine appeared that essentially consisted of control of the health and bodies of the most needy classes, with the aim of making them more fit for work and less dangerous to the rich classes (Foucault, 2001b). In other words, public hygiene, far from being an emancipation mechanism, was constituted as a means through which to update the logics of submission and domination in accordance with the new *spirit of the times*. In this way, a renewed management logic was introduced that helped to establish a continuous form of medical care for the poor, the control of health of the workforce, and the general register of control of public health (thus protecting the most favoured classes by ensuring hygiene control and guaranteeing the productive fibre of the nation through control of the workforce). Thus, during the last decades of the 19th century, a process of full medicalization of the West was coordinated and consolidated that raised medicine to become one of the most powerful sources of veridiction and coordination of our time.

Biosecurity and the building of global institutions

Without doubt, the previously described process was consolidated across a broad space in the decade of the 1940s. At the height of the Second World War, the 'right to health' began to develop in Europe (starting with the so-called 'Beveridge Plan' in Britain) by introducing social security systems. Similarly, the discovery of antibiotics (that is, the previously unknown possibility of fighting infectious diseases) led to a great political, economic, social and a legal change in medicine; for example, health-related topics were included in macroeconomic calculations. This prevalence of the use of statistics (as a barometer of health; as source of knowledge for political management; as a strategic vector of the economy) finds a strategic catalyst in epidemiology. As could already be seen at the end of the 18th century, the 'control body for epidemics, it [epidemiology] gradually became a point for the centralization of knowledge, an authority for the registration and judgment of all medical activity' (Foucault, 2003: 28), in which its techniques were not restricted to topics directly related to treatment and cure, but also developed a knowledge of the *healthy human being* (that is to say, an experience of the 'non-sick man' and a definition of the *mode man*). At the same time, the use of statistical calculation became a privileged tool to confront the *risks* inherent in an increasingly interconnected society. As has been established by several authors (Beck, 1992; Ramos and García, 1999), the scientific and technological development experienced by modern society, especially during the 20th century, served to introduce the term of potential risks as a factor of great importance in the management of economic, political, ethical, environmental topics, among others. And, obviously, the epidemiological dimension (despite the great advances in matters of biomedical research and the implementing of social security systems and a public health structure) was no exception to the rule. For example, the importance of developing knowledge about a healthy human being may serve as a reference model. In this line, risk analysis is an intellectual tool to achieve well-being, reducing the dangers and limiting the role of luck, with the logistical analysis being assessed using perfect information, the descriptive study of decision-making and prescriptive interventions that attempt to minimize the gap between the reference ideal and the descriptive reality (Fischhoff and Kadavy, 2011). On the other hand, the notion of risk arises from the human need to know something about the future, which is one reason why this knowledge becomes oriented towards security (Caduff, 2014, 2015). It is in this respect that we have to understand the emergence of social security systems during the second half of the 20th century. It is not only about adopting retroactive and contingency measures, such as the previously mentioned 'state penis' in the French case, or the laws on registering prostitutes to slow down the growing number of cases of syphilis in the British case. What it does now is to establish a constant and continuous management of populations (that is to say, it makes the exception a stable rule/procedure) with a view to ensuring the global deployment and propagation of a capitalist, liberal and industrialized society. But when the risks become global and associated with renewed epidemic logic (for example, the possible use of biotic vectors as war mechanisms), the potential risk becomes omnipresent and classical security becomes 'biosecurity' (overwhelming, in turn, the territorial management limited and defined by the state, as well as the use of statistical calculations as a privileged tool in the understanding and treatment of these cases).

Thus, on the emergence of a novelty (that could go from the mutation of a virus to the use of a biological weapon), statistical calculation was obsolete to the extent that the information provided by this tool (reference ideal, descriptive reality, etc.) became sterile before the *new* management (Lakoff, 2015). And the nation-state, for its part, lost strength and its leading role as the new vectors exceeded the political-legal territorial boundaries defined by states. One recent example of this logic in action can be found in the A/H1N1 influenza outbreak that gripped the world in 2009. With regard to this case, two vectors are of enormous interest: (a) the reconceptualization executed by the WHO in relation to the definition of ‘pandemic’ (which modified the classic criteria of morbidity and mortality based on ‘a possible scenario of a mutation of the virus’ – from H1N1 to H5N1); and

(b) to have constituted the event by holding a meeting of the ‘Emergency Committee’, as set out in the International Health Regulations (IHR) for the first time (WHO, 2001). This regulation establishes a set of ‘legally binding’ requirements for the WHO and the 194 member countries, with its ‘Emergency Committee’ responsible for providing direction during public health emergencies. In other words, we witness a clear example of how the use of the calculation of risk using a statistics-type tool gives way to the new logics of action in epidemiological matters (‘preparedness’ criteria based on the creation of ‘scenarios’). On the other hand, it can clearly be seen how the apparatus of the nation-state itself transferred sovereignty (not only in tangential terms, but also directly by means legal-type concessions) to global supranational institutions.

As can be observed, that biomedical and epidemiological about-turn operating from the second half of the 20th century led to an important transformation in the way emergency biological situations were approached. Put very simply, it may be a moving away from the use of statistics as a tool for essential actions to the use of the concept of *preparedness* and the creation of ‘fictitious scenarios’ as a basis for every intervention and prevention. Nowadays, we are in a period of transition from a *classic biosurveil-lance* model based on statistics (in which the risk variables and their effects are known and could be controlled), to a *new biosurveillance* where the risk (becoming a bio-risk) becomes omnipresent on a planetary scale, making statistical calculation a tool that, by itself, becomes sterile and useless compared to the new challenges (Collier, 2008).

In this respect, the *preparedness* model is understood as an anticipatory rationality or intervention logic when faced with potential global risk (Lakoff, 2008; Lakoff and Collier, 2008; Samimian-Darash, 2009) and constitutes a mechanism by which it brings any future threat, natural or created by man, to the present, as regards the security of the population, or the economy or politics. This ‘preparation’ is conducted using *scenario-based* techniques, that is, the creation of scenarios that are characterized by being imaginative forms, common to science-fiction literature very near to reality, which has the objective, according to the Joint Research Centre (JRC) of the European Commission, to create simulations of possible futures that constitutes an exploration method, as well as a decision-making tool. In this way, the actions to prevent a bio-terrorist attack or to mitigate the consequences, by citing two representative examples, is not now priority based, like before, in the statistical calculation and of probabilities in relation to the occurrence of these events. Since the governmental logic that underlines this mode of action considers that the threat may be in any place, at any given moment, and that we must be constantly alert, *future scenarios must be created* that taken into account all the action possibilities in case of an emergency.

However, how is this significant change introduced in the intervention logics that look to understand and manage those biotic risks? A fundamental episode is to be found in the epidemiological strategy that the United States adopted during the time of the Cold War. Rejecting the security models implemented in Europe, the American government focused its attention on building a medical infrastructure directly linked to the response capability against a potential biological weapons attack by the USSR. While the social security mechanisms collectivize risk and distribute compensation costs through a population, ‘epidemiological preparation’ is totally oriented towards the present management of an exceptional future event. That is to say, it is a preparation strategy that aims to guarantee the continuity of government and military capability through the protection of critical infrastructures (including chain of command, key industries, etc.), which is one reason why the dimensions concerning *national security* and *public health* are directly and explicitly *connected*.¹¹ Thus, the purpose of these systems is to conduct a constant surveillance of *pathogenic agents*, but with interventions of a discontinuous and sporadic nature in the case of the *population* (which, again, contrasts with the modality of continuous and adaptable intervention on the population common to the social security systems) (Fearnley, 2005a; Fee, 2001). This intervention logic is clearly demonstrated in the declarations of Alexander Langmuir – founder, in 1951, of the ‘Epidemic Intelligence Service’ of the Centers for the Disease, Control and Prevention (CDC) of the United States – pointing out that the *aim of surveillance is the disease, not individuals* (Langmuir, 1963); it is not only the individual body but also the social body (as Hippocrates said) that at this time is becoming pathogenic and molecular.

In this regard, the theory and practice of this type of surveillance is far from being a health policy that is restricted to the territory of the United States. It need only be mentioned that, during the 1960s, the World Health Organization supported the Langmuir’s proposals as a fundamental health strategy and, during the following decade, appointed Donald Henderson (ex-member of the ‘Epidemic Intelligence Service’) to direct the WHO in its efforts to globally eradicate smallpox (Fearnley, 2005a, 2005b). Also, as we have seen in the previous example of the H1N1 influenza, the issues related to biosecurity, since they had not been abolished by the social security systems in Europe, played a crucial role in the renewed socio-political links of the new millennium. In fact, if in the 18th and 19th centuries we saw the emergence of the ‘public hygiene’ concept as a fundamental and priority dimension in the link between medicine and politics, from the second half of the 20th century up to the present day, its main feature is, without doubt, so-called ‘global health’.

To put it this way: the concept of global health produces a change in medical perception that currently has a global reach and a molecular form of thinking about life (Rose, 2007). In this respect, it is not enough to remember that, in the 18th century, it is precisely a change in medical perception, operationalized in the emergence of the clinic, which renewed socio-political tensions, generating a blend between the imperatives of public hygiene and the emergent organization of the nation-state. Now, on the other hand, what we have is a molecular and dynamic perspective of the epidemiological risks that transcends, by means of a concern for the issues related to biosecurity, the previous political-legal framework of the state, using an agenda focused on the idea of ‘global health’ promoted and installed by supranational institutions. In fact, this *molecularization of living beings* is not limited to being operationalized in a logic of preparation and surveillance of pathogenic agents and disease. Its scope is much more far-reaching.

If a logic of disease surveillance (and not of individuals or populations) is installed during the second half of the 20th century, the beginning of the 21st century has seen the emergence of new surveillance mechanisms that directly monitor 'symptoms', without waiting for them to be grouped into clinical categories of disease. One paradigmatic example of this is in the 'syndromic surveillance' system implemented in New York immediately after '9/11', which, although it began as an emergency response adopted by the 'Epidemic Intelligence Service', ended up becoming a routine biodefense programme. The great novelty of the service is the irrelevance that this intervention logic implies regarding the characterization or description of the epidemics, being content, instead, with the immediate detection of them using a 'systematic compilation of data' that dispenses with (and, to a certain extent, opposes) 'clinical diagnosis'. Traditional surveillance depends on diagnostic reports on the diseases detected in a determined population, while 'syndromic surveillance' presents a clear lack of confidence in clinical diagnosis that is reflected in the installation of new forms of surveillance that take note of the direct experience of the sick person without the mediation of clinical medicine (for example, monitoring by computer and in real time, the sale of drugs in the pharmacies of a determined city, or first-hand reports of the emergency service calls) (Fearnley, 2005a).

In this respect, it is interesting to note the strong reticence clinical medicine aroused in medical practice after the French Revolution, exalting values like its free exercise in order to counteract its elitist and corporative structure. As we saw, that liberating boost was rapidly neutralized and channelled by a reconfiguration of the medical perspective that crystallized into *the birth of the clinic*. After almost two centuries, the clinic appears to be in its death throes.

Conclusions

Epidemiology plays an essential and dominating role in the organization and management of our societies. Although the medical mechanisms by which scientific-political tensions emerging from the deployment of epidemiology have been updated through significant changes (from the rise of the clinic at the end of the 18th century to its impoverishment and obsolescence), epidemiology is far from being a dimension that is only confined to – and alluded to in – the medical field. What we have is a real blending of different territorial scales (city, magistracy, department, state, world) and a plurality of dimensions (medical, economic, scientific, political).

Thus, we move from concepts of healthiness/unhealthiness characteristic of 'public hygiene' managed by the nation-state, towards the imperative of public health operationalized as 'global health' promoted by global institutions. The strong links established between public health, business and national security by our current globalization models makes them an uncontrollable source of geographic transgression that is propagated by the world in a 'defensive imperialism' that favours and boosts the economic growth of the great western powers (particularly the United States) (King, 2002, 2004). Based on treaties and projects of cooperation that have as their premise the idea that 'it is easier and less costly to treat a disease in its place of origin', western knowledge is now not only responsible for promoting a 'civilizing mission' (as in the case of the aforementioned English colonial model) but also for providing a technological and

medical infrastructure as argument and justification for international integration and development. Likewise, the adoption of new practices and logics of intervention, like the syndromic surveillance systems mentioned above, position issues regarding biosecurity as a fundamental concern for European societies; while they maintain their social security systems focused on the population, they also play a leading role in incorporating the new molecular surveillance rationalities.

In this respect, emphasis should be placed on the importance of the role of ‘epidemiological surveillance’ in the constitution of European societies from the 18th century onwards. Meanwhile, as happened with medical mechanisms (from the clinic to biosecurity) that were modified over time, it is no less certain that their presence played a fundamental role. If, during the 19th century, an epidemiological surveillance is consolidated based on the principles of statistical calculation and, during the 20th, it becomes a surveillance of diseases based on preparedness criteria, what we have today is the emergence and gradual consolidation of molecular syndromic surveillance that redefines our classical conceptions about what societies, populations and individuals are.

However, at this point, we must ask ourselves again: what, in short, is the epidemiological factor? From the ideas developed in this article, we can say it is about the generation and propagation of an effect of indistinctness between science and politics. It is, therefore, a privileged dimension for the biopolitical exercise of power to the extent that, simultaneously, within science itself, epidemiology constitutes a zone of indeterminacy between biomedical sciences and social sciences. Thus, in this ambiguous – or even enigmatic – status helps epidemiology to be constituted in a privileged vector for enabling the transgression and creation of the most diverse scales and the most varied dimensions.

The mentioned indistinctness between science and politics is more than evident in the case of the recent H1N1 and Zika epidemics. These examples show how a matter of health is at the same time a matter of politics; a question involving nation-states and global institutions; micro-actors and global networks. H1N1 and Zika are only two out of myriad similar events testing the analytical capacities of the social sciences and demanding, at the same time, new tools for the comprehension of a new reality.

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