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COVID-19 as a Global Risk: Confronting the Ambivalences of a Socionatural Threat

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Abstract: On the face of it, the COVID-19 pandemic seems to fit into the risk society framework as a danger that is produced by the modernization process in its global stage. However, coronaviruses are a very particular kind of risk which risk theory does not properly explain. In fact, there is no single perspective on risk that offers a fully satisfactory account of the SARS-CoV-2, despite all of them having something valuable to contribute to the task. This paper attempts to categorize the COVID-19 pandemic as a particular kind of risk that is not adequately explained with reference to the risk society or the new epoch of the Anthropocene. On the contrary, it combines premodern and modern features: it takes place in the Anthropocene but is not of the Anthropocene, while its effects are a manifestation of the long globalization process that begins in antiquity with the early representations of the planet as a sphere. If the particular identity of the disease is considered, COVID-19 emerges as the first truly global illness and thus points to a new understanding of the vulnerability of the human species qua species.

Keywords: risk; COVID-19; Anthropocene; modernization; globalization; disease identity

1. Introduction

What kind of risk is the COVID-19 pandemic? How can the social sciences help us to understand the rapid spread of the coronavirus SARS-CoV-2 and its impact across the globe? Which are the available theoretical frameworks for doing so and how well do they apply to zoonotic infections turned global? Is perhaps the Anthropocene, as a brand-new hypothesis about the human impact on the natural world and its unintended effects, the most appropriate explanation?

These are the questions that this paper will deal with. I depart from the assumption that despite the spectacular quality of the COVID-19 pandemic, this was neither an unprecedented nor an unforeseeable risk. Natural scientists have been warning for some time now that the presence of a large reservoir of SARS-CoV-like viruses in horseshoe bats, together with the culture of eating exotic mammals in southern China, is a time bomb [1]. The same fear was expressed in a piece published in *Nature* five years ago, in which the possibility of a human emergence was explicitly formulated as a way to call the attention of public authorities [2]. Even among economists there was someone who alerted, just a month before the outbreak in Wuhan came to be publicly known, about the potentially high cost of a global pandemic to prevent which not much was being done [3].

They were all quite right, although the advantages of retrospection must also be considered. However, pandemics are hardly an unknown historical phenomenon. Zoonotic spillovers, in which an infectious virus jumps from non-human animals to humans, are not new either. It should be remembered that so-called Spanish Flu killed between 50 and 100 million people around the world in 1918–1919, becoming the most globalized epidemic in history [4], and despite having been mostly forgotten, the Asian Flu in 1957 killed around 2 million people all over the world and reduced US economic growth by 10% in the first quarter of the following year [5], whereas the Hong-Kong Flu caused the death of a million people in 1969, including 25,000 French people just in December [6]. Later,

zoonotic viruses come one after another: the Lassa (1969), the Ebola (1976), the VIH-1 and VIH-2 that cause AIDS (1981, 1986), the Hendra (1994), avian flu (1997), Nipah (1998), West Nile (1993), swine flu (2009), and finally SARS-CoV-2. David Quanmen, a science journalist specialized in the phenomenon, wrote a couple of years ago that the word zoonosis was going to be around for some time now [7]. Just when some historians were labeling the last one hundred years as the pandemic century [8], COVID-19 seems to herald the continuation of an infectious epoch.

Yet there is no single mention of pandemics in the late Ulrich Beck's account of the global risk society, which was published eleven years ago [9]. This omission is shocking, although nobody had noticed it until COVID-19 began its unstoppable global spread. What does this say about risk society theory? Is it just a distraction on the part of Beck, or perhaps viruses do not have a place in his account of the relation between modernity and risk? If that is the case, which other approaches to risk may assist us in understanding pandemics as particular social threats? Such diagnoses matter, because the way in which societies relate to their environments has much to do with their own self-understanding. This resonates with Luhmann's assertion that there exists a strong critical potential in the analysis of the way in which a society confronts misfortune, as the latter makes it possible to see more thoroughly the reverse of their normality [10]. On such occasions, societies resemble the sick body in which a fluorescent liquid is introduced when a tomography is performed—their inner functioning can be briefly observed in more detail.

Hence this paper deals with the ambiguous relation between COVID-19 and modernity. It does so through the lenses provided by the category of risk—including ecological risks and the new theoretical and symbolic framework provided by the Anthropocene. Against the idea that the pandemic is a typically modern event caused by a predatory view of socionatural relations in the context of a capitalistic-driven globalized world, I suggest that the former is a rather primitive threat that has accompanied human populations ever since they have existed as such. Needless to say, pandemics reflect the features of the age in which they take place. In the case of COVID-19, globalization and social acceleration serve to explain its rapid spread as much as the unprecedented swiftness with which the virus has been decoded and a number of vaccines have been announced. In fact, the pandemic is less the result of a *failed* modernity than it is the outcome of a *lack* of modernity. On the one hand, the virus overcomes the species barrier in a country, China, where food security is notoriously lacking and the flow of information is restricted for political reasons. On the other, most Western countries have resorted to rather primitive strategies of contention based on lockdowns and have proven themselves unable to display a data-driven, sophisticated approach to the pandemic.

The article is organized as follows. Section 3 offers an overview of the relation between globalization, risk, and pandemics. Section 4 discusses risk society and the Anthropocene as theoretical frameworks that may help to explain the COVID-19 pandemic. Section 5 employs cultural approaches to risk in order to highlight the difference between perceived and objective risks. Section 6 deals with the metaphorical dimension of COVID-19, suggesting that this may be the first disease that is perceived as affecting human beings as a totality, irrespective of their ethnic or social belonging. Finally, Section 7 suggests the need to rethink global risks after the corona pandemic, so that a more balanced account of the relation between potential threats and materialized disasters is achieved. Section 8 serves as a conclusion.

2. Methodology

This article uses a qualitative methodology, as it seeks to understand the nature and meanings of the COVID-19 pandemic with the tools of the social sciences (sociological risk theory, political theory) as well as with those of other, typically interdisciplinary, academic endeavors (environmental studies, epidemiology and other natural sciences). The article does not involve an empirical effort, although it benefits from the work of empirical social and natural scientists.

3. Globalization, Risk, and Pandemics

The COVID-19 pandemic has impacted on a globalized world in which the circulation of people, goods, and information had reached an unprecedented magnitude and speed—despite the political backlash that started to take shape in the aftermath of the Great Recession. Yet the history of globalization is interlocked with that of epidemics, as the effects of the Spaniards' landing on the health of native Americans back in the 16th century came to show; the sudden contact between two human populations that had been separated for millennia caused a number of lethal epidemics that facilitated the European conquest of the Americas [11]. Thus, the seminal fact of modernity's globalizing praxis is attached to a warning about the epidemic potential of the world's shrinking. Something of the sort had happened in continental Europe during the Black Death in the 14th century, albeit at a lesser scale. On its part, the novel coronavirus SARS-CoV-2 has not provoked an ethnic catastrophe, nor has it thrived in the trenches of a devastating war—it has travelled from China to Europe as one of the trade goods in post-communist globalization.

The link between globalization and pandemics is not accidental. The latter are called crowd diseases for a reason: the epidemic transmission of a virus requires an abundant population and that explains why many viral diseases are relatively recent. Although traces of smallpox have been found in Egyptian mummies, polio is not documented until the 19th century and AIDS appeared at the end of last century [12]. It is not surprising, then, that epidemics do not exist before big human populations, nor that the viruses take advantage of the commercial routes through which individual carriers circulate together with their merchandise [13]. Yet the homogenizing of the global biota that begins with the so-called Columbian exchange after the Spanish colonization of America produces in turn an ambiguous effect on the infectious vulnerability of human populations. Environmental historian Alfred Crosby [11] has highlighted its negative impact on genetic diversity:

The flora and fauna of the Old and especially of the New World have been reduced and specialized by man. Specialization almost always narrows the possibilities for future changes: for the sake of present convenience, we loot the future. (. . .) The Columbian exchange has left us with not a richer but a more impoverished genetic pool.

Biodiversity loss has also been singled out by biologist Edward O. Wilson [14] as a threat for the future of the human species and, consequently, one of the major threats of the Anthropocene. The Anthropocene is the name given to the epoch in which natural systems at a planetary level have been disrupted by human activity. Anthropogenic climate change is perhaps the best-known manifestation of this phenomenon, together with ocean acidification or biodiversity loss. A group of geologists claim that this should actually be recognized as a new *geological* epoch, insofar as the change induced by human activity would have left a trace in the fossil record [15]. Regardless of the decision eventually adopted by the International Commission on Stratigraphy, the Anthropocene can also be taken as a historical epoch, a rupture in socionatural relations that is sustained in biological and ecological evidence [16].

Nevertheless, it is not clear whether ecological homogenization worsens the lethality of epidemics. On the one hand, humanity as a whole becomes more vulnerable to an extremely aggressive super virus insofar as the lack of human genetic diversity would facilitate the sinister task of the germ. The more lethal a virus is, however, the less easily does it spread—carriers who die often cannot communicate the disease so easily as those who can live with it for a longer period. On the other hand, it becomes more unlikely that geographically distant populations can inflict on each other the kind of acute harm that Spanish *conquistadores* unintentionally inflicted on native Americans by transmitting to them diseases against which the latter had no immune defense. A different matter is that a densely interconnected world can experience a great disruption by the quick global spread of a highly contagious and moderately lethal virus—as the SARS-CoV-2 that causes COVID-19 has proven to be [17].

The global nature of the virus is expressed in that it has a local origin that quickly becomes transcended by an accelerated diffusion, so that a situated phenomenon is rapidly turned into a planetary event: zoonosis infections begin *somewhere* but may end up happening *everywhere*. The pandemic presents the appearance of that which Virilio [18] designates as an integral accident, which is the one capable of integrating a whole heap of incidents and disasters through chain reactions. This alarmist view of modernity places emphasis on the fatal consequences of globalization, described as a sort of “voyage to the center of the Earth” in the gloomy obscurity of a temporal compression that definitively looks down upon the habitat of the human race [18]. The epidemic circle is thus completed: the Columbine tragedy repeats itself as a zoonotic farce that empties out the malls in a world whose confines have already been thoroughly explored. Most recently, Andreas Malm has explained the pandemic as a consequence of Western imperialism: a capitalistic oil-fueled economy that thrives on natural destruction intrudes in the wild and forces pathogens to leap towards us [19].

Despite the support that it seems to receive from the pandemic, the apocalyptic view of globalization denotes a narrow understanding of this complex human phenomenon. According to Sloterdijk, globalization is not a modern event, but rather is a far more logically and historically powerful process that begins when the Greeks started to conceive the world as a totality [20]. A similar point can be found in Carl Schmitt’s idea of the spatial revolution, which designates moments in which new lands and seas are incorporated into human collective consciousness, thus transforming the locations in which its historical existence takes place [21,22]. Throughout this process, global risks emerge—modernity is the time in which thinking about the globe is supplemented by action. The expansion of capitalism is key for understanding this change, but it is not the only factor at play: modernity involves a gradual liberation from previous constrictions, and this allows the exploration of a world that can now be economically exploited, religiously evangelized or culturally civilized [20]. It is in this context that insurance is born, as an institution that protects entrepreneurs against the dangers of seafaring—in the event of an accident, those who pay their fees are proportionately compensated by the insurance company. Business investments are thus made safer and the notion of risk acquires its modern meaning.

Despite the obscurity that surrounds its origin, the word risk may come from the Arabic *risq* (meaning wealth or good luck), from the Greek *rhiza* (cliff) or the Latin *resigare* (which means cutting with a single stroke). It might have been firstly used to designate the danger of navigating close to the rocks [23]. Arguably, that is what humanity has always done: navigating close to the rocks. Yet at a given point in history individuals and groups started to calculate the likeliness of accidents and other contingencies, thus showing confidence in their ability to handle their relations with the environment. Risk calculation produced a number of legal institutions, administrative customs, economic interests and technological appliances, all of which gave shape to modern capitalistic societies—from the assurance provided to the investor to the sickness leave enjoyed by the worker. The scientization of risk began in the 18th century, in connection with the development of probability. In the following century, positivism reinforced the trend so much that some people believed that chance does not play any role in shaping social reality; objective knowledge should lead to the taming of chance [24]. From the vantage point of the present, it may be surprising that a century in which three cholera epidemics took place in Europe—Hegel himself died because of the third one—exhibited such an unrestrained faith in reason. Since then, risk becomes less a property of the world than a property of the human knowledge of the world: there is risk where there is not yet enough knowledge [25].

There are reasons to believe that this worldview, in which a radically indeterminate world becomes calculable through the exercise of reason and conquerable through insurance, still permeates late modern societies. It remains to be seen whether the COVID-19 pandemic will change this, but it does not seem likely—confidence in the ability of the scientific system to find a vaccine against the disease has not been shaken throughout the pandemic. Such confidence resembles a faith, a typically modern belief that is however grounded on past achievements and not just on false promises.

4. From Risk Society to the Anthropocene: The Search for Explaining COVID-19

The speed at which the coronavirus SARS-CoV-2 has spread around the globe has been unanimously interpreted as a consequence of the dense interconnection that binds national societies to each other. This is just another manifestation of the dark side of modernity, which usually expresses itself in the form of collateral damages. A most spectacular instance of this structural feature is anthropogenic climate change, but many others can be added to this sinister lot—nuclear hazards, food crisis, technological collapses. In the words of Virilio, the new century inaugurates the paradox of the failure of success, for it is the success of progress that provokes disaster [18]. The assumption that modernity creates its own threats is naturally at the center of Ulrich Beck's risk theory, which was formulated by the late German sociologist in the mid-1980s and has now been signaled as an obvious starting point for making sense of the coronavirus pandemic [26]. This feeling is summarized in the statement that Ulrich Beck's 'risk society' appears to be taking on new forms in current times [27]. The pandemic is thus seen as a risk that has materialized, a threat that has inflicted a great harm on current societies across the planet, thus validating, empirically, in spectacular fashion, Beck's theory about the reflexive quality of modernization.

In the company of fellow sociologists such as Anthony Giddens and Scott Lash, Beck deals with risk from a macrosocial perspective, putting the latter in connection with key features of modern societies: individualization, detraditionalization, reflexivity [26,28–30]. Rather than dissolving themselves in postmodernity, Western societies entered into a new stage of modernity in which some of the latter's features are radicalized. These societies are reflexive precisely because they are confronted with the unintended consequences of their development. According to Beck [9],

Risk represents the perceptual and cognitive schema in accordance with which a society mobilizes itself when it is confronted with the openness, uncertainties and obstructions of a self-created future and it is no longer defined by religion, tradition or the superior power of nature but has even lost its faith in the redemptive power of utopias.

In this regard, our epoch is defined by new kinds of potential dangers hitherto unknown, namely those that do not obey the vagaries of fortune and instead originate in the modernization process. Their source is social, not natural—the problem lies in DDT rather than in the locust plague. Moreover, some of them are so huge that they threaten human survival. For the same reason, the logic of insurance does not apply: there is no company that can compensate a series of nuclear accidents. Foreseeing risks thus becomes a public task, as the state is in charge of counteracting an industrial fatalism that threatens to spoil the fruits of modernization [29].

It should be noted that a *risk* is not the same as a *catastrophe*—risks are potential catastrophes and thus their anticipation. Strictly speaking, we are referring to threats or dangers of a particular kind, namely those that are socially originated and depend on human decisions. That is why Beck speaks of manufactured uncertainties which are socially created, collectively imposed and individually inescapable [31]. In his view, modern societies are constantly shaken by the global anticipation of global risks: financial crises, climate change, terrorist attacks. As risk is a possible disaster that has not taken place yet, imagination is essential—societies formulate self-refuted prophecies that require the adoption of precautionary measures [9]. Otherwise, the risk can give way to catastrophe. For Giddens, modernity is double-faced and spontaneously produces a risk culture [32]. How likely is it that what should not happen finally happens? Potential threats are an expression of contingency and uncertainty, and it is through the concept and culture of risk that late modern societies express the impossibility of extending the dominion of reason to each and every sphere.

What about the COVID-19 pandemic? Does it fit into the category of global risk, as Beck elaborates it? Is the coronavirus a product of risk society? Although there is the temptation of taking this for granted, the answer is not straightforward. The pandemic certainly participates in some of the features that Beck attributes to modern risks—it has a local origin and global consequences, its potential effects are not calculable and barely indemnified. Viruses are also threats that can be imagined without

necessarily happening, as the number of existing viruses does not correspond to the number of epidemic outbreaks.

However, a virus is hardly a *consequence* of modernity. On the contrary, it should be catalogued as a *remainder* of premodernity—a primitive threat that is related to the animal side of human beings and thus to a biological condition that cannot be suppressed. Likewise, zoonotic viruses have not disappeared in the Anthropocene and it is even likely that they become more frequent in the current stage of socionatural relations [33]. Yet these entities are old inhabitants of the planet and they already represented a danger for human beings in the Holocene. They were in fact a greater danger, as modern virology did not exist yet and there was no way to fight them. That is why the statement that COVID-19 is the disease of the Anthropocene does seem a bit hasty [34]. A different matter is that viruses seemed to have been forgotten in the face of other global risks. As the 20th century demonstrates, though, they really never disappeared. Granted, the rapid spread of the virus cannot be explained without the globalization process that increases mobility and connects parts of the planet that used to be isolated from each other. This pandemic is thus a combination of the old and the new, the product of a zoonotic spillover that reproduces a well-known human vulnerability in a contemporary setting.

On the other hand, the coronavirus is not a social creation nor can it be attributed to any particular human decision. Are pandemics a natural risk then? This is another hard question. Virilio distinguishes between *natural* and *artificial* accidents: the former originate in the non-human world and the latter result from the innovation of a motor or of some substantial material [18]. Yet if the ship entails the invention of wrecks and nuclear energy created the risk of neutron leakage, which is the human invention that produces the threat of zoonotic spillover? As a matter of fact, it does not exist. The potentially infectious contact between humans and animals is a natural circumstance, and as such there is nothing remotely modern about it. If the anthropos of the Anthropocene is to be understood as a technological subject who inhabits a multifaceted technosphere that includes the industrial production of meat and food additives that transform human bodies or those of cultivated livestock [35], then all that is known so far about the source of SARS-CoV-2 speaks of an anthropos that maintains a rather unmediated relation with animals. Instead of food additives, wild animals as captured and sold in wet markets may contain zoonotic viruses. Dyer-Whiteford rightly speaks of a “planet factory” to describe a world in which a world-market crisscrossed by supply chains operates by producing and destroying the biosphere itself [36]. Had the virus been originated in a meat processing plant, the causal and symbolic connection to the Anthropocene would be much clearer.

Admittedly, this is not to deny that the modern organization of socionatural relations may facilitate contagion and accelerate the global communication of the disease. Society and nature are now more firmly interwoven than in the past:

Nature has become an integral part of societal reproduction both in its positive guise as a provider of the material assets of social life and in its negative dimensions as a risk for our health, safety and the possibilities for future development [37].

In this particular sense, the pandemic can actually be categorized as a *socionatural* rather than just a *natural* risk. As Ferreira et al. point out, a pandemic is always a point of articulation between natural and social determinations [38]. Corona resembles hurricanes: although they have always existed, their greater current intensity can be related to anthropogenic climate change [39]. Likewise, changing patterns of animal migration caused by global warming or habitat invasion may significantly affect how zoonosis takes place. A pathogen has already been identified as the first mycotic disease produced under the new planetary conditions—the *candida auris* discovered simultaneously in three different continents [40]. Whether we are witnessing a microbial insurgency, only time will tell, and yet the COVID-19 pandemic does not seem reason enough to speak on such terms [41,42]. Humanity’s recorded history, after all, is full of epidemics originated in some non-human animal. Further, given that the sedentary organization of human beings is a precondition for the massive spread of viruses, it makes

sense to label epidemics as *dangers of the Holocene* rather than as *risks of the Anthropocene*—provided that risks as such are confined to modernity.

Naturally, this much depends on the moment in which the beginning of the Anthropocene is located. From the viewpoint of geologists, the beginning of the Anthropocene cannot be dated before industrialism has produced its effects—otherwise there are no global, synchronous effects to observe in the fossil record [15]. As much as the agricultural revolution associated to human sedentariness gives way to an intensification of socionatural relations in the Holocene, it is not enough to produce a disruption of planetary systems. Sedentariness, though, brought about crowd diseases and thus epidemics. In sum, if Anthropocene risks are those that originate from anthropogenic changes in key functions of the Earth system, whose emergence is due to the evolution of intertwined social-ecological systems often featuring inequality and injustice, and which exhibit complex cross-scale interactions that potentially involve Earth system-tipping elements [43], then the COVID-19 pandemic should not be categorized as an Anthropocene risk.

To be sure, the conditions that created the Anthropocene may increase the risk of zoonotic spillover in the near future, and it is undeniable that the conditions of late modernity accelerate the global spread of the disease. However, it does not follow that neither risk as described by the sociologists of reflexive modernization nor the Anthropocene as it is commonly understood provide the best explanation for pandemics—and for the COVID-19 pandemic in particular. Unsurprisingly, the sharp distinction between natural pre-modern risks and manufactured modern risks has been one of the weak spots of risk society theory from the outset [44]. Many modern risks exhibit natural features, whereas many premodern threats have social components. The claim that risk society begins at the point in which nature disappears is just too categorical. It has to be considered that the human adaptation to the environment, which is an aggressive adaptation in that it involves the transformation of the environment to satisfy human needs, is hardly a novelty. What has changed in the last two centuries is the magnitude of that transformation.

In this regard, the pandemic reflects less an inherent feature of modernity than the contrast between different modernities—or rather, different rhythms of modernization. Industrialization, imperial colonialism and globalization explain that the Eastern epidemics of the 19th century reached Europe, that the Spanish Flu was a global episode, and the fact that in the last two decades several epidemics originating in Asia have spread across the Western world. It is not by chance that the two significant outbreaks of flu that were communicated to Europe and the US during the Cold War—1957 and 1969—originated in Hong-Kong under British rule, and it goes without saying that China's development in the last four decades represents an important portion of the Great Acceleration of the Anthropocene—that which begins after the second world war. Still in the wild stage of modernization, Asian societies are a frequent source of zoonotic viruses, and this reflects a number of cultural practices as much as a more casual approach to risks associated to food security. This is another paradox of development—while fighting poverty increases pollution, it also increases the likeliness of zoonotic infection. Thus the COVID-19 pandemic partially reflects a kind of risk that is produced by the incorporation to modernity into an interconnected world in which communicable threats are easily communicated.

In sum, although Beck's account of risk illuminates some aspects of the COVID-19 pandemic, the latter's explanation cannot entirely rely on this theoretical framework. The same goes for the Anthropocene hypothesis, which has been suggested as a major explanation for the occurrence of the pandemic—and which can be seen in itself as a major consequence of modernity, as the human colonization of nature acquires a new dimension in the industrial era. The problem with such approaches to COVID-19 is that the search for a novel explanation may lead to overlooking that which is not new in a communicable disease originating in a zoonotic spillover. Despite the grand talk about emerging viral diseases, viral outbreaks have always emerged that way, and have always produced previously unknown diseases. The novelty lies in how fast the disease has spread globally—a relative novelty, though, taking the Spanish Flu into consideration. Admittedly, the COVID-19 pandemic

cannot be fully explained without resorting to either risk society theory or the circumstances created by the Anthropocene. The coronavirus SARS-CoV-2 is a hybrid: a pre-modern threat that shares some features with modern risk, as well as a danger of the Holocene that is amplified in the Anthropocene. Yet it is not a manufactured risk, nor one that may be explained as a side-effect of the way in which modern humans relate to nature—there is nothing particularly modern about been infected by eating a bat or a pangolin after having captured them in the wild or having purchased them alive or just killed in a wet market.

In the wider field of risk studies, though, there are valuable analytical tools beyond risk society theory—ranging from the scientific–cognitive perspective that seeks to identify observable risks to the culturalist approaches that focus on the social and cultural contexts within which risks are perceived and experienced, to the governmentality theory that sees risk as a way of disciplining individuals in the name of safety. Let us now turn to them.

5. The Pandemic as a Perceived Risk

Is there such thing as a *real* risk, or are they all somehow *imagined* by particular communities? Can risks be objectified, or rather do they result from a process of social construction that determines the individual perceptions of them? In this particular case, have societies and individuals reacted to the spread of coronavirus in a rational way? Or perhaps have social and cultural factors been decisive in shaping such responses in each case?

Despite the skeptical stance initially adopted by some observers, such as philosopher Giorgio Agamben [45] when he likened the pandemic to a flu and warned against the threat of biopolitical authoritarianism, there are few doubts left about the reality of the pandemic. This has nothing to do with the idea that risks are the anticipation of disaster, an exercise in pre-emptive imagination on the part of modern societies. Yet risks are not *imaginary*, but rather *imagined*—even though some can certainly belong to the former category and refer to implausible threats. On the contrary, disasters are materialized risks. However, the perception of risk is not unanimous across a given society. Although there are not private perceptions of risk, as they all are influenced by cultural representations and social imaginaries, different social groups—be they defined by age, social class or ideological affiliation—will appraise differently what is a threat and how acceptable it is [46]. Some people are reckless, while others drink bleach. From this viewpoint, there is no such thing as an objective risk, but sociocultural contexts in which the latter are constructed and perceived.

Risks are not just social constructions, though; as the COVID-19 comes to show, they refer to particular realities that can be evaluated in an objective manner. Rationalistic approaches attempt to do just that—they seek to distinguish between reality and perception. More to the point, they try to locate particular risks and to identify their causes, building predictive models and designing pre-emptive policies with the help of experts [47]. Their usefulness has been proven during the first wave of the COVID-19 pandemic, as the effective responses of countries such as Germany or Austria demonstrate. The public response to a public health challenge, after all, cannot depend on shared beliefs. It is debatable whether a risk can be objectively measured, but perhaps the question is whether the public perception of risk can be aligned with their expert appraisal. Ultimately, Beck is right when he claims that acceptable risks are those that are accepted [9]. While some people drive a car, they never fly; others reject nuclear energy but eat processed meat. For each of those risks, different people behave differently. Social processes through which a threat is perceived, categorized and evaluated thus remain decisive for understanding how particular risks are socially met. Risks are never unmediated, but perceived—a perception that results from a process of social construction in which cultural, psychological and social factors play a key role [48]. Media coverage is also essential, exerting a strong influence on our sense of vulnerability: plane crashes are breaking news, whereas car accidents are barely reported [49].

In this regard, the COVID-19 pandemic offers some remarkable insights. On the one hand, epidemiologists have long warned that a greater medical knowledge and a more intense monitoring of infectious diseases may create new fears by making individuals aware of previously overlooked

threats [8]. Yet the coronavirus pandemic has shown that epidemic risks can also be fatally underestimated; the slow reaction of some governments after the outbreak, notably the Spanish and the British ones, facilitated the spread of the virus in their countries. National agendas can hinder public action—the political interest of the government in celebrating the Women’s Day demonstration on March 8th led the Spanish authorities to downplay the threat, misleading the public as far as the lethality of the disease was concerned. The slogan that captured this view is eloquent enough: *Solo es una gripe* (it’s just a flu). Once the virus started to send people to the hospital, the imagined likeness to flu was lost and, in view of its menacing features, the public was ready to accept restrictive measures [50] (see Kasperon et al. 1998). A new virus seems thus liable to cause a strong disjunction between the accepted risk and the real danger—an imagined threat is thus accepted, while the real one is ignored.

Such misreading, which is more likely to occur in the face of an emerging virus, was reinforced in those countries whose governments reacted either too slowly or just overconfidently, thus leading to unfortunate political decisions about how best to respond to the pandemic. Something of the sort happened during the first years of the AIDS epidemic, before scientists had a firm grasp of the disease’s nature. A part of the gay community, among them philosopher Michel Foucault, openly questioned the epidemiological response to the virus, which they took as an instrument of social control maliciously directed against a minority [51]. Risk evaluation is rarely unanimous, as the social construction of risk cannot escape the dynamics of democratic pluralism—nuclear energy is a case in point. In the case of COVID-19, there is no single answer to the question of how to handle the trade-off between an epidemiologically-led lockdown and the halting of economic activity. Political conflicts and moral debates have a lot to do with risk evaluation. In a hyper technological society in which new dangers emerge, their centrality can only increase.

However, disagreements on the scale and significance of social risks do not only arise from the lack of a rational consensus about them, but also from the way in which the subjective experience of anxiety is anchored to our categories of knowledge [25]. In other words, the social assimilation of both imagined risks and realized disasters—such as the coronavirus pandemic—can barely be understood without taking emotions and moods into account—fear, panic, recklessness, hope. This affective response is influenced by political messages, but they have a life of their own and they largely determine how citizens react to particular threats. Whereas angry individuals sticks to their beliefs and are not willing to compromise, frightened ones will accept more easily those public decisions that are presented as necessary for guaranteeing their safety [52]. From the viewpoint of the public authority, then, it is better to frighten people than to make them mad. In the face of a potentially lethal outbreak, people who are angry demand a public response from their representatives and hold them accountable, whereas fear leads to the adoption of precautionary measures such as washing hands or wearing face masks [53]. Thus, emotions count, but it is not easy to know which of them are going to prevail in a given situation.

Unlike the realistic approach, which tries to evaluate threats from a rational standpoint, and the culturalist focus on the context in which risks are perceived, the post-modern perspective claims that *threats themselves* are socially constructed [54]. To put it differently, it is not just risk that is imagined—dangers too. Inspired by a conventional reading of Foucault, sociologist Mitchell Dean has explained this stance in the following way [55]:

There is no such thing as a real in reality. Risk is a way—or rather, a set of different ways—of ordering reality, of rendering it into a calculable form. It is a way of representing events that makes them governable in particular ways, with particular techniques, and for particular goals. It is a component of diverse forms of calculative rationality for governing the conduct of individuals, collectivities and populations.

From this standpoint, the idea that a risk can be figured out is preposterous. The meaning of risk does not lie in its objective dangerousness, but in the governing regime that it helps to implement, as well as in the moral technologies that it brings about. This suspicion explains Agamben’s interpretation of

the virus as a political strategy intended to declare a biopolitical state of exception [45]. It can certainly not be disregarded that elements of the exception may remain in place after the outbreak is over, thus eroding liberal democracies. However, the imagined risk has actually become a disaster—zoonotic spillover is no longer an imagined abstraction but a threat that has caused more than a million deaths across the world. Even if we accept the idea that objective threats do not exist, it should be accepted that all risks are measurable through a number of rational operations that seek to determine how likely it is that a given risk finally occurs. For instance, we know that a strong hurricane has more chances of reaching the coast of Florida than an asteroid of hitting Earth—and so on and so forth. Such calculations cannot produce absolute truths, but they help to guide public and private decisions in the face of uncertainty.

However, the post-modern approach to risk is in itself one of the ways in which Western cultures respond to risk. Ultimately, it is a manifestation of critical reason—a suspicion about the aims of those actors who identify risks and derive normative consequences from them. It can be a well-grounded suspicion: homosexuality was persecuted in the past, and still is in some countries, as an unhealthy practice. Being alert to the political manipulation of public health emergencies makes sense, provided that this alertness does not prevent the recognition that many threats are painfully real. A thin line separates a sophisticated mistrust from an unfounded suspicion, as the number of conspiracy theories about the COVID-19 pandemic that have been put into circulation by populist groups or plain amateurs demonstrates.

6. COVID-19 and Its Metaphors

Social theory offers different approaches to risk, but this does not entail the need to choose among them. On the contrary, they all provide valuable insights—rationalists objectively assess the probability and dangerousness of particular threats, while culturalists help us to understand why the latter are assimilated in different ways by different cultures and social groups, including the key role played by the media, and post-modernists alert us to the chance that risks are turned into elements of a given regime of government. Those approaches that focus on individual subjectivity make valuable contributions as well, be they phenomenologists that study the meanings that risks are attributed in different contexts, or psychoanalytical theorists who try to decipher the unconscious dynamics at play. Let us think of the massive purchase of food and toilet paper in the early moments of lockdowns, which can be interpreted respectively as enacting the morbid phantasy of starvation and as expressing a need for cleanliness. Likewise, risk can also become a transgressive force, less a danger than a practice from which strong emotions can be derived—clandestine parties in Berlin or London during lockdowns suggest that much. Thus, the social reaction to the coronavirus pandemic can be contemplated from several vantage points, and all of them are useful in their own ways.

Cultures adapt to risk, then, as they learn to make calculations or to produce obligations. In countries that suffered the SARS outbreak back in 2002–2004, such as Taiwan and Singapore, past experience has shaped an efficient response to COVID-19 [56]. By contrast, Western societies for which zoonotic spillovers are a less familiar affair reacted more slowly and less efficiently. Yet the coronavirus pandemic has taken place in the context of a global culture—one that does not replace local and national ones, but which is intertwined with them and thrives on hybridization [57]. Strictly speaking, the novelty does not lie in the global reach of the pandemic, since the Spanish Flu was also a world disease that emerged at the end of a long period of mercantilist globalization. The latter is, however, more intense today. Most decisively, digital technologies of communication have substantially changed how people see their societies in relation to the world, and vice versa. In the global public sphere, the dimensions of which are still modest, educated citizens from all over the world exchange information, express their opinions and communicate their emotional states [58]. For better or worse, this trend has been reinforced by the global pandemic.

Mostly, it has been for the good. Despite the fear of a xenophobic reaction against Chinese residents abroad during the first months of the epidemic outbreak, this has not happened or has been

almost unnoticeable. There have been racist episodes and some countries have seen how negative feelings against particular minorities increased [59]. So far, however, no massive or violent reaction against social groups on account of their supposed role in creating or extending the disease has been registered—national populist movements have not succeeded in implementing their exclusionary agenda. This marks a stark contrast with the AIDS outbreak in the early 80s, when the idea that described the disease as a moral punishment against practitioners of deviant forms of sexuality was widespread [60]. The notion of the abject, understood as a source of horror and fascination that destabilizes our psyche in the presence of an outer threat [61], has been reserved in the case of COVID-19 for certain Asian cultural practices related to the source of the zoonotic spillover: the image of the bat soup has figured prominently in the Western imaginary of the pandemic [62]. This fixation does not correspond to a wave of ethnical hostility, though. A triumph of the emerging global culture can be cautiously announced as far as the COVID-19 pandemic is concerned.

To test this hypothesis, the sociological concept of disease identity can be useful. According to it, every major disease is associated to a particular identity, which takes shape once the illness acquires public visibility for the first time and tends to keep stable in the future—in a manner that is akin to the stickiness of racial and ethnic stereotypes [63]. It is a collective construction that attributes specific features to a given disease and its carriers, and which originates in a discursive process in which scientists, political leaders, journalists and (increasingly) citizens take part. Such identities are not without consequences, as they influence public policies and private attitudes: they make up the dominant image of the disease. In her classic study on tuberculosis, Sontag described how the imaginary surrounding this disease portrayed it as a romantic condition, associated to passionate people gifted with an artistic sensitivity [64]. On its part, the negative effects of the moral stigmatization suffered by patients of AIDS have been richly documented [65].

But which is the emerging identity of COVID-19? At this point, we can only speculate. Despite president Trump's attempts to label it as the Chinese virus, the quick spread of the disease across the world soon weakened the strength of such symbolic association. To be sure, the source of this zoonotic spillover is not meaningless, as Chinese society goes through a wild stage of modernization that facilitates epidemic outbreaks. Yet the labeling has not become popular and will hardly help us to define the disease's identity. COVID-19 stands out as a highly infectious disease, and that is the reason why it has spread so quickly around the globe, potentially threatening all its inhabitants—although it is more lethal for the elderly and for those who suffer other medical conditions, anyone can develop the disease, and there is no particular minority or ethnic group that finds itself at greater risk than others. That is why COVID-19 rather emerges as a universal malady that, attending to the historical context in which appears, might be described as the first disease of the Anthropocene. Never mind that this association is not straightforward, as we have seen above, since what counts for fixing a disease's identity is collective perception—be it right or wrong.

Moreover, a typical symptom of the worst cases of COVID-19 is acute respiratory failure, and this severe condition can be symbolically related to the undesirable consequences of industrialization, the more worrying expression of which is climate change. French president Emmanuel Macron has made this tenuous connection explicit, by saying that fear of dying by suffocation reflects the fear of breathing the polluted air of our cities [66]. Small wonder, then, that face masks have become the universal symbol of this pandemic—despite them being already around during the Spanish Flu. Yet the mask is an ambivalent sign. On the one hand, it points to a partial suspension of individual autonomy, thus representing an emancipatory regression. On the other, it summarizes a communitarian feeling that equalizes us all despite the cultural differences that can be found once their use within particular contexts is analyzed. Some anthropologists foresee a normalization of the face mask due to the intensification of climate change, and as the air quality of our cities further deteriorates [67]. It could as well be forgotten, though, once wearing masks ceases to be compulsory. The symbolic association between the virus and the acceleration of global modernity seems, however, established. Hence the successful metaphor that displaces the subject of the disease: instead of the virus being the

one that kills, human beings have been presented as the virus that devastates the planet and suffer the consequences of their reckless behavior in the form of a zoonotic disease.

7. Rethinking Global Risks after Corona

It is tempting to reach the conclusion that COVID-19 confirms that we live in a global risk society in which latent threats turn into real disasters at worrying speed. The planet has become a claustrophobic place, and there is some irony to this: globalization has made the planet smaller. Yet we should not jump to conclusions that quick. It is not surprising that risk society theory resonated so strongly when it was first formulated—the original German edition coincided with the Chernobyl disaster. Western societies, though, when observed from a different angle, can lead to different conclusions about the prevalence of risk.

The category of risk, as we have seen, emerges with modernity. Prior to that, human endeavors are seen as mediated by danger and misfortune. It is precisely because humans increase their ability to shape their environment and learn how to relate to it that the notion of risk appears—as a contingency that escapes from calculation, an occasional system failure that leads to an accident. Through technological development and bureaucratic systems, complexity and randomness are reduced at the expense of creating new threats that are inherent to this societal transformation. As it happens, modern societies are reasonably efficient in exerting control over such threats, which needless to say cannot be totally eradicated. It suffices to think of the lethality that accompanied Black Death or the Spanish Flu, as opposed to the moderate lethality that characterizes COVID-19. From this viewpoint, the risk society might rather be contemplated as the control society as far as the ability to minimize threats is concerned. Western societies have grown in complexity in the last three centuries, but this process has not been accompanied by a proportional rise in the number of disasters—although disasters, of course, do exist. The fact that disasters capture media attention, while prevented risks do not, helps to explain this paradox of modernity. The same applies to social expectations, which have changed significantly in the last three centuries: the normality of disaster has given way to the perception that disasters are exceptional.

Let us take into consideration the century in which health policy was seriously developed for the first time, namely the 19th century. It was then that, as historian Jürgen Osterhammel points out, the democratization of the long life took place. What makes it possible for humans to live longer lives is the increase in material prosperity, a process the first positive outcomes of which were visible in Europe between 1890 and 1920, and only later in other regions of the world [68]. Yet this would have never been achieved without the emerging knowledge on disease prevention and the invention of public healthcare, which has since then turned into a state duty. By improving water quality, for instance, cholera's spread was contained. Early modernity was indeed insalubrious, and the biological cost of modernization was higher for those countries that industrialized first. At the same time, the universalization of the new health values was not always accompanied by the provision of the means necessary for realizing them, a political limitation that hindered the rise of the *homo hygienicus* [68]. From then on, the human being becomes the animal that successfully disinfects itself.

In the 19th century, then, an epidemiological transition begins that will run parallel to the demographic shift—the substantial reduction of mortality is mostly due to the reduced likelihood of dying from infection. Following Osterhammel, it was characteristic of the time that disease was more easily communicated and yet also more successfully treated. Plague and typhus were weakened between 1600 and 1750. Then it was the turn of scarlet fever, diphtheria and whooping cough, and in the 19th century respiratory diseases lost strength, with the exception of tuberculosis. New diseases appeared, of course: meningitis was discovered in 1805. Still, it can be safely affirmed that the 20th century established a new medical regime thanks to the coming together of Koch and Pasteur's insights, the end of smallpox (it was eradicated in 1980), and the salutary influence of the progressive social hygiene movement. Sometimes, though, some luck was required: the transition to stone architecture reduced the natural habitat of domestic rats that carried the plague.

This historical account offers a number of lessons regarding pandemics and risk. The first, most evidently, is that the human animal remains constantly threatened by biological accidents—no matter how many diseases have been eradicated, others will follow. Yet the second is that this very human animal has developed a remarkable ability to prevent them, with the proviso that such capacity is initially less effective when we are confronted with new viruses. Epidemic risks, in sum, cannot be eliminated. Furthermore, even though they can turn into disasters, thus completing the shift from imagined risk to real catastrophe, major epidemic outbreaks are not that common. The COVID-19 pandemic is a system failure rather than an expression of a failed system. A failed system would be one in which pandemics are common and lethal; a system failure describes an event in which well-known precautionary measures, regarding for instance food security, are not adopted. Chinese wet markets, widely believed to be at the source of both the COVID-19 and the SARS outbreaks, are clear cases of risk misgovernment. The lack of food security is the key risk factor as far as zoonotic spillovers are concerned. As the journalist James Palmer puts it, the important thing is not *what* is eaten but *how* it is eaten, a distinction that the Chinese society does not feel compelled to make [69]:

The country's food safety standards are notoriously bad, despite numerous government-led initiatives to improve them. Food scandals are common, and diarrhea and food poisoning are a distressingly regular experience. Markets, like Huanan, that aren't licensed for live species nevertheless sell them. Workers are undertrained in basic hygiene techniques like glove-wearing and hand-washing.

Climate change may very well bring about new pathogens humans will have to defend themselves against. However, if modernity had never occurred, if a new healthcare strategy based on disease prevention and personal hygiene had never been implemented, how many highly lethal pandemics might have ravaged human societies? On the contrary, those societies have learnt to prevent and cope with epidemic outbreaks—risk control has been reasonably efficient. That is why disasters are perceived as failures. Yet the yardstick according to which risk management should be evaluated cannot be the elimination of all disasters, a utopian goal that can only be sustained by a naive belief in the power of reason.

It is worth insisting on this point: risk is consubstantial to human activity. The right not to be subject to threats that people have not consented to cannot be granted, because social inaction would follow; almost nothing could be done lest risk emerge [70]. Correspondingly, total safety does not exist. In other words, a *decision* will always involve an unavoidable risk and the same applies to the *lack of decision*, which is in itself a decision. According to Luhmann, so many things can go wrong that rational calculation becomes very difficult—the key question being upon who or what the acceptance or rejection of a risk depends. He presents his point in the following way [71]:

what can occur in the future also depends on decisions to be made at present. For we can speak of risk only if we can identify a decision without which the loss could not have occurred. (. . .) For the concept as we intend to define it, the only requirement is that the contingent loss be itself caused as a contingency, that is to say that it be avoidable.

Therefore, a risk can be attributed to a decision, while a danger comes from the outside. In order to know whether something is a risk or a danger, Luhmann warns, observers must be observed, since they are the ones who decide about the source of the threat. Thus an unknown risk, one that has never been identified or labeled, does not exist—it can only appear, out of the blue, as a danger [10]. What, though, about COVID-19? Was it a risk or a danger? It was, most obviously, a risk; the chance that a new coronavirus could spread globally was almost taken for granted after the outbreak of SARS in the early 20th century. The reach of the pandemic was not anticipated, nor was prevention enough to stop it. However, the ability to identify risks in a complex global society is not in harmony with the ability to minimize the likeliness of their realization—risks abound, and resources, including public attention and political decisiveness, are scarce. Yet this imbalance can be attributed to political reasons,

as the stark contrast between the performances of different societies in the fight against the pandemic comes to show: those who have displayed a more efficient strategy have made use of massive testing and tracking devices, as opposed to those who could not properly identify the sources of infection, and thus resorted to banning social activity to prevent the spread of the virus. This is but another manifestation of the modernity shortage described in this paper.

Admittedly, the social and ecological changes that are characteristic of the Anthropocene may end up demanding a completely new approach to epidemic risks—pandemics may become the new normal [71]. In that case, which remains to be seen, there is no alternative to accepting that total safety is impossible, and the best must be done for preventing this old natural threat. This entails, reinforcing food safety and educating the public about the dangerousness of cultural practices that put us in intimate contact with wild animals. Science is not enough, of course, as it cannot decide alone which risks are socially acceptable—experts are just one of the voices that are heard in the *polis* [72]. Likewise, reinforcing the role of experts does not lead to the elimination of risks. As Luhmann suggests, it cannot be a coincidence that risk theory develops in parallel with scientific specialization; the more we know, the better we realize that there is still much that we do not know [71].

A crucial irony of risk management comes to the fore: the *realized* danger produces far more emotional impact on the population than the *averted* risk. The latter is invisible, while the other captures our attention and dominates the public conversation. As a result, a successful risk management leads to failure—only disasters make it to the headlines. This suggests that perceiving contemporary society as a risk society, a view that will surely be reinforced by the pandemic, is a misperception that fails to consider all the potential risks that do not turn into disasters. Instead of emphasizing the ability of modern societies to control their relationships with the environment, there is a focus on the negative aspect of that exchange. A culture of fear is thus fostered which, in the case of pandemics, adopts elements from the forbidden knowledge narrative—a virus is hidden in the jungle in which human beings dare to penetrate. The social relation with risk is described in negative terms: the latter escapes human control, and while we have the power to destroy whole environments and livelihoods, there is not much that we can do about the dangers that threaten our daily existence [73].

It may well be that the psychological bias that leads us to exaggerate the likeliness and deadliness of potential risks, coupled with the sensationalist media handling of those that turn into disasters, serves a means to prevent them. On the other hand, modernity has not suppressed risks; on the contrary, it has enlarged their variety and range. Yet labeling late modern societies as risk societies is, in view of the latter's ability to handle complexity, debatable. Again, the problem lies in the yardstick used for appraising risk management: the utopia of a riskless society is not a realistic one and the question remains open—it is a political question—as to how many risks, and which ones, are socially acceptable. Still, as COVID-19 shows, major disasters can happen, and actually great epidemic outbreaks had been common until recently—the Spanish Flu, polio outbreaks, AIDS. A moderate approach to risk in modernity barely helps when a risk turns into a disaster. In fact, their occurrence is received with perplexity as people in the Western world can hardly believe that a virus can kill so many people and upend their societies so quickly. However, yes, a virus can do this—especially when prevention is weak, and governance fails. Yet this is no reason for discarding a nuanced approach to risks, a multi-faceted subject that is best understood through the combination of different perspectives.

8. Conclusions

The COVID-19 pandemic is a socionatural threat that reproduces a well-known danger, that of zoonotic infectious disease. This kind of virus belongs to the category of crowd diseases, and can be associated to human sedentariness rather than to late-modern conditions *per se*. Corona, however, appears in the context of late modernity, and thus it reproduces some of its features—above all, the speed at which the virus has spread globally in a globalized world. Likewise, this particular virus has succeeded in jumping onto humans in the Anthropocene, and this might lead to the claim that COVID-19 is the first disease of this new epoch. Literally, it probably is. However, this pandemic

shares some key features with the Spanish Flu and other past outbreaks, including the global epidemic of bubonic plague known as the Black Death that lasted from 1347 to 1351. If the virus had actually originated in the meat industry, the Anthropocene framework would be more apposite for explaining its appearance and diffusion. It seems certain, though, that the source is a Chinese wet market, where the relation between humans and animals is anything but modern. The pandemic is thus rather a Holocene risk that remains in the Anthropocene. That said, the latter's conditions make zoonotic spillovers more common due to the human colonization of wet and tropical habitats in which dangerous pathogens abound. Social sciences should thus provide a nuanced view of epidemic risks, including the COVID-19 outbreak, taking the most obvious theoretical associations with a grain of salt and making others, perhaps less conspicuous ones, more explicit.

In this regard, I have argued that it would be a mistake to frame the COVID-19 pandemic as a negative side-effect of modernity. As such, zoonotic infections are a pre-modern threat that have survived the advent of modernity, despite the success of the new hygienic and immunological policies implemented in the late 19th and the early 20th century. Given the number of viruses and bacteria that populate the Earth, eradicating zoonotic infections does not seem feasible. Human societies should then focus on minimizing this kind of risk by increasing their association to modern immunological strategies, and at the same time by refining their relation to natural environments. While zoonotic infections have lost virulence, they seem to occur more often due to human penetration into wild habitats and trafficking with wild animals. Needless to say, the industrial food system should also be criticized, reformed and/or reduced on both health and moral grounds. The emergence of new viruses due to global warming is also a concern. Yet the COVID-19 pandemic is to be explained in a different way—getting it right is a first step toward preventing the next global pandemic.

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