

# Catastrophes and Time

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## Catastrophes and temporal discontinuity

We usually view sudden events, an earthquake, a flood, a landslide or a major industrial accident that strikes in a moment and brutally transforms people's life, as paradigmatic catastrophes. Characteristic of such catastrophes is a form of temporal discontinuity that primarily concerns agents' expectations concerning the future. What before the catastrophe could be taken for granted as the normal way things are and have (always?) been, cannot afterwards be taken as such, at least not for some time. The sudden event shatters normal expectations. No more is the ground solid; the trains, the electricity and telephones do not work; one's house has disappeared; streets are flooded; the familiar landscape looks radically different and often there are no known answers to questions such as: where will I sleep tonight? What and when will I eat? What will happen tomorrow? Where are my dear ones, other members of my family? If the catastrophe severs the normal connection with the expected future, it also separates victims from their past, not only or so much in terms of memories or mementoes that have been lost and destroyed, rather the catastrophe damages the past as it persists in the present. Ongoing projects, present commitments, everyday occupations usually have their root in a more or less distant past. Through them a person's relation to his or her past is maintained and this continuity shapes our life and how we understand it. Because close persons disappear and ongoing projects often lose all meaning as a result of a catastrophe, it is also the victims' relation to their past which is broken or at least profoundly changed. Thus victims of catastrophe are uprooted in time, deprived of the ballast of their past and face an obscure future.

The catastrophe institutes a time of its own, which lasts more or less depending on the nature and extent of the catastrophe and on how long it takes for help to arrive and for people's future, at first the immediate future and then the longer term future, to become foreseeable and allow them to have rational expectations again about what is likely to happen. In the immediate aftermath of a catastrophe agents often cannot easily distinguish what constitutes a rational expectation from what does not. Sometimes, the measures taken to respond to the catastrophe only add to the confusion and uncertainty. As happened, for example, in the United States during hurricane Katrina when people were systematically sent to the Superdome. The concentration of a large number of persons in a small space with insufficient facilities and in the absence of any clear policy to provide for their needs not only became the occasion of many false and irrational rumours, but even added to the disaster itself.<sup>1)</sup>

However, as time goes by, people generally adapt to their new situation, they form different expectations concerning the basic, 'normal' form of their life and recognize a new set of possibilities concerning what is 'normal' and 'rational' for them to expect. Of course this does not mean that they feel that their new set of rational expectations corresponds to a completely reasonable and normatively justified situation. A rational expectation in this sense simply means an expectation that is more likely to be fulfilled than not, but it does not imply anything about what is to be expected. Whether that is reasonable, normal, fair, just or whatever has nothing to do with whether or not the expectation is rational in this sense. Expectations are rational in this sense, to the extent that on average most turn out to be well grounded more often than not. Such expectations are *rational* in that they constitute basic conditions which make it possible for agents to act rationally. The point where, after a catastrophe agents become able to make rational expectations again does not necessarily indicate the end of the catastrophe; that depends on how far their expectations can reach into the future. As long as their expectations remain (mostly) limited to the immediate future – i.e. where and at what time food will be handed out tomorrow – we are still in the time of the catastrophe. It is only when they can foresee a longer more distant future and a 'new life' that reconstruction begins, even if many times it is with more limited expectations than what was the case before the catastrophe.

One of the interest in defining catastrophes as a rupture in time is that it allows us to identify catastrophes as a particular type of events, independent of their causes, or of the number of agents they concern. We tend to consider that the number of victims is an essential aspect of a catastrophe, in the sense that catastrophes imply (sufficiently) large numbers of casualties and that numerous deaths invariably signify catastrophes. That however is far from clear. For example, car accidents in the European Union or in the United States lead to 30,000 (EU) or 37,000 (USA) fatalities yearly. In either case, that is more or less the size of a small town, the total destruction of which would certainly constitute a catastrophe. As a comparison, it corresponds to one and a half times the total number of people who died (18,000+) and of those that are still considered missing (2,000+) from the Great Tohoku Earthquake and Tsunami of March 2011. Yet car accidents are not catastrophes – at least not in the sense in which the 2011 Tohoku earthquake and tsunami was – car accidents, numerous as they may be, are just part of the normal order of things: most people consider that cars accidents inevitably happen. Even when countries undertake major efforts to reduce the number of fatal car accidents, authorities are apparently ready to accept high levels of accidental fatalities as a normal consequence of being part of the modern world.<sup>2)</sup> Take a different example, imagine that a new bird flu virus ravaged the Canadian population and killed say around 70,000 persons in one year; that would certainly be viewed as a major health disaster.<sup>3)</sup> Yet, 70,000 is more or less the number of people who die of cancer in Canada every year, and that, regrettable as it is, is also part of the normal order of things.

It is clear that time is of the essence here. If all 30,000 car accidents happened on the same day, or during the same week, if all cancer deaths in a year occurred within a month, we would believe

we were confronted with a major catastrophe. And we would be, because the suddenness of the event would shatter our normal expectations concerning car accidents or cancer deaths. That is also why a new epidemic that suddenly causes in one year as many deaths as cancer does would constitute a catastrophe. Not because of the number of fatalities as such, but because neither experts nor average persons would know what to expect. Numbers in themselves are no indication of the importance of a catastrophe. What defines an event as a catastrophe, I submit, is the havoc it creates in the network of expectations that structures our world, reassures us, and gives us the feeling of being able to tame the future while remaining in touch with our past.

Does it follow then that catastrophes depend on what we believe? That they are socially constructed? No! Expectations are not beliefs, though they can always be translated into the language of belief, which is what we usually do when we talk about them. Rather they are *thoughts in action*, in the sense that my expectation that the chair will hold me and not collapse is the fact that I sit on it. The converse, clearly, is not true. There can be many different reasons why I may decide not to sit on the chair, i.e. I am in a hurry, it is dirty, or you are standing, but that I sit on it implies that I expect it to hold. Expectations do not correspond to either explicit, or to unconscious beliefs, but to true implications of specific actions, which is why when an expectation is not fulfilled the action fails. If the chair collapses as I attempt to sit on it, properly speaking I don't sit on it, the action is never completed; I fell or/and I broke it would then constitute more appropriate descriptions of what happened and of what I did. Understood in this way, expectations are closely related to *affordances* as J.J. Gibson understood the term.<sup>4)</sup> What we primarily perceive argued Gibson are not objects, but affordances, that is: what the world offers us in terms of opportunities and obstacles. Escape routes, hiding places, protection from the rain, gentle slopes that afford leisurely walking, steep hills that require strenuous effort, impenetrable thickets, each of these affordances requires some expectations about the world to be fulfilled. If they are not fulfilled, the agent has failed to perceive and the action fails.

Expectations then are more closely linked to affordances, to opportunities for action than to belief. That is why when the expectations of agents change or lose their ability to support action, it is not because the beliefs of the agents have changed, but because the world has changed. Catastrophes are events that transform the world and in consequence agents' expectations, they do not result from the transformations of agents' beliefs, but can lead to such transformation. In fact, the empirical record clearly indicates that relative to catastrophes the beliefs of agents concerning the world can be very stubborn, something which is known as "belief inertia". In spite of repeated disasters, populations return to the same dangerous locations where past landslides, earthquakes or volcanic eruptions took place<sup>5)</sup> and start afresh, as if nothing had happened and as if it could not happen again. It may be argued that, rather than simply irrational, agents are not entirely free in these choices. Their actions do not so much reflect false beliefs about the danger involved in that location, as their limited opportunities and capabilities. This is often true, and when it is, it indicates how much more important than beliefs, are the affordances and the expectations of agents in order

to explain and understand their behaviour.

### **Paradigmatic and persistent catastrophes**

Paradigmatic catastrophes last, so to speak, but an instant. They institute a radical rupture between before and after disaster struck. A rupture that may nonetheless have a temporality of its own; a 'no-man's time' so to say, that belongs neither to "what came before" nor to "what happens after". This 'time of the catastrophe' may last from a few seconds – the front wave of a lava flow, an earthquake – to a few hours – the Bhopal chemical plant accident, the lake Nyos poison gas release in 1986 in Cameroon <sup>6)</sup> – to a few days – a volcanic eruption – or a few weeks or months – a famine, a drought. In any case, even when they last over more or less extended periods of time catastrophes belong to the category of 'events', <sup>7)</sup> of 'incidents' and 'accidents' rather than to that of a 'states of affairs' or 'states of the world'. That is to say catastrophes are not (and are not expected to be) here to stay. They are not normal; they do not correspond to the usual course of the world. They have a beginning and an end, a before and an after.

Yet, there are at least two important ways in which catastrophes, in the above sense of a rupture in time, can last and persist. When that happens the catastrophe comes to constitute an alternative temporality, an alternative time line of which agents become prisoners, unable to reintegrate the normal time of every day life. The best examples of the first type of persistent catastrophes are provided by Nazi concentration and extermination camps during the Second World War. Descriptions of the camps by survivors, like Primo Levi <sup>8)</sup> or Germaine Tillon <sup>9)</sup>, illustrate how the camps were organized in such a way that from the moment prisoners entered the camp (and even before), to that of their death (or unexpected liberation) life constituted a permanent catastrophe. As soon as they entered, the camp steps were taken to disorient prisoners, to prevent them from forming alliances and from trusting each other. Prisoners could not anticipate the moment of their death, later today, tomorrow, next week, next month, in a few years... so that even if days went on, life had no future; rules and what was normal behaviour on the part of guards or among inmates changed suddenly; prisoners never knew what to expect in terms of new demands or punishment. Disease, depression, violence, madness and systematic assassination, were the basic elements of life, jumbled together in such a chaotic way that prisoners could hardly form an image of the world that extended farther than immediate survival.

Many forms of large scale systematic violence against civilian populations share a number of these characteristics, for example ethnic cleansing and massacres. The goal of such violence is not only to kill individuals, but to traumatize populations, to force them to leave, to convince them that if they stay life will be a constant catastrophe and to prevent members of the target populations from helping each other, from recreating stable social bonds. The main characteristic of such permanent catastrophes is not only that they are man-made, like an industrial accident or an ill-conceived dam that bursts open flooding a populous valley<sup>10)</sup>, but that they are socially instituted,

set up and planned to last as a catastrophic state of affairs for the victims. Such persistent catastrophes exist as the result of human actions, and, unlike the market according to economists, they also are the result of human design. They are created on purpose, rather than they simply happen, and are made to last.<sup>11)</sup>

The second type of permanent catastrophe corresponds to some forms of mental illness, especially where subjects feel that they are not in charge of their own actions anymore, they hear voices that incite them to perform various actions, from the banal to the horrible, or have the feeling that their thoughts are not their own. In such cases, what the person loses is the ability to make rational expectations concerning his or her own actions and behaviour in what appears to others as very usual or normal circumstances. Because individuals do not know if and when the phenomena will start again, and because they are afraid of what they might do, either in response to the suggestions they receive, or in an attempt to escape this intrusion, they live in a state of constant uncertainty. In response to which they often resort to strategies, such as drugs, alcohol, going away (i.e. traveling somewhere, anywhere), or 'personal rituals', all of which tend in turn to sever normal social bonds and to make the behaviour of others towards them, less and less predictable.

The onset of such mental illness thus constitutes a catastrophe, a bifurcation into an alternate temporality which shuts the individual, either permanently or recursively, out of the normal time of the normal world shared by others. This side alley in time is marked by the agent's incapacity (or extreme difficulty) to dominate, to tame or simply to peruse his or her future horizon, unlike what is our undeniable ability when we plan (or feel no need to plan) our day from morning to evening. Throughout the day our life retains an order in which unexpected events and accidents rapidly find a settled place and integrate into the assured normal flow of time. When a catastrophe happens this capacity fails, and when this capacity fails a catastrophe happens to the agent. Victims of systematic violence or torture are forced to remain in such uncertain unpredictable situations, which others transform into more or less permanent states. Similarly, victims of some forms of mental illness seem caught in a temporal dead end, as if the temporal deviation in which they ventured had an entry but no exit, no other side which allowed the agent to reintegrate normal time. It is as if the bifurcation and anomaly only led to a nowhere without end.

As the previous examples of catastrophes suggest, catastrophes should not be identified with just any type of trauma, disaster or massive accident, but to a very particular type only. From this point of view, a plane accident, even a very large one, like the Tenerife airport disaster in which over 583 persons died in 1977<sup>12)</sup> is not a catastrophe. It is a disaster and an accident; however, its consequences remained local in the sense that they did not challenge the network of standard expectations about the world, about planes and about planes accidents. The disappearance of the Malaysian airline MH370, which involves a significantly smaller number of victims, is closer to being a catastrophe. A Boeing 777 is a large widely used modern airliner, commercial air routes are under constant surveillance and planes using them are in regular communication with the ground,

therefore such a plane flying on a scheduled flight with 239 persons on board should not simply 'disappear' without leaving any trace or debris and supposedly end up thousands of kilometres from its last known position. This challenges everything that we know, or that we think we know about flying in a modern commercial airplane. People often fear that a plane may have technical problems or run into severe turbulence, but not, that it will disappear into thin air! That is why this accident (incident?) has received such 'disproportionate' attention, and why such large amounts of money are still being spent trying to find the vanished plane. Yet, it is not a catastrophe because the effect on normal expectations remains too local and has not swamped the air traffic industry; many persons may be intrigued, but most agents remain sufficiently unconcerned to continue flying as if nothing happened.<sup>13)</sup>

This analysis of catastrophes focuses on victims, on those who experienced a catastrophic event and survived (at least for a while), as well as those who now have to live in the aftermath, who have to rebuild or start a new life. Thus the idea of the catastrophe itself as a fracture or rupture in time that sunders from each other two normal periods time, but not just as an interval or interlude, as a real discontinuity. A discontinuity in time that is usually destined to end and to be breached to some extent, but that may nonetheless under certain circumstances continue. Persistent catastrophes then are catastrophes where for various reasons victims are unable to proceed to the next period which begins 'after the catastrophe', not because the victims died, no they are very much alive, but either because others prevent them from exiting the catastrophe or because, in a sense, the catastrophe, the inability to anticipate their own actions and reactions cannot be separated from who they are anymore. Understood in this way, catastrophes are inseparable from the experience of the catastrophe, which I think is correct and as it should be. Nonetheless this approach does not reduce the catastrophe to the subjective feelings of agents; rather what it does is to recognise and to measure the catastrophe through the (radical) transformation of the capability set of agents, something which depends both on the characteristics of agents and on the state of the world.

### **Silent, invisible, slow moving catastrophes**

It may seem at first sight that from this point of view which focuses on the experience of victims and survivors, there can be no such thing as silent, invisible catastrophes, at least if these are to be understood as catastrophes that no one experiences as such. Properly speaking, silent invisible catastrophes would not be catastrophes at all. What the adjectives 'silent' and 'invisible' would refer to is the fact that we fail to see the catastrophe coming, rather than to the catastrophe itself. Silent, invisible catastrophes would be catastrophes, like global warming, or a famine for example, which many agents fail to see coming, among other reasons perhaps precisely because they are slow moving. However, once the catastrophe itself strikes, it is anything but silent and invisible and its consequences may unfold at incredible speed. The same would apply to many

ecological disasters or to financial crises, these catastrophes are silent and invisible in the sense that we do not see them approaching. They are slow moving in the sense that the ground for the disaster may have been laid down years in advance and that it took a slow, stubborn accumulation of mistakes and minor failures to unleash the catastrophic result.<sup>14</sup> This is a perfectly reasonable understanding of the expression “silent, slow moving, invisible catastrophes” and it certainly is fundamental to draw agents’ and policy makers’ attention to the invisible catastrophes which they may be unwittingly, silently and slowly preparing for us.

However, it is possible to understand silent, invisible, slow moving catastrophes in different ways. A catastrophe may be invisible in itself, in the sense that we only become aware *that* it has happened, but not *when* (or at least not exactly when) it happened and therefore that (in a sense) we are not aware that it happens when it happens. One reason which can explain the invisibility of a catastrophe while it happens is the statistical distribution of its effect, the way in which the catastrophe results from the aggregation of individual events. Some demographic transformations can lead to such catastrophes. Many villages and small towns here in Japan experienced rapid population growth in the 1950s and early 1960s. Confident in the future, they invested in infrastructure, roads, schools, hospitals. However, beginning in the late 1960s young people began to leave for larger cities in search of better opportunities, so that today in many of those places only a small, mostly ageing, population is left, and children, if there are any, have radically different expectations from those which structured the lives of their parents or grand parents. Young people rarely come back and there is little or no future for what once, not so long ago, was a burgeoning lively community. For older people at least it is often clear that a catastrophe has happened, though exactly when it happened is extremely difficult to determine, some people will suggest one particular date or significant event (for example, when the local school closed) others a different date or event.

Some may want to argue that this is not a catastrophe at all, and not only or mainly because it was never experienced as such except retrospectively. That, children have radically different expectations than their parents, is not particularly new or surprising and parents often do not only hope, but also work hard so that their children will have different life expectations than theirs. So where is the catastrophe here? Can nostalgia for the past and a life form that has disappeared be considered a catastrophe? Or to put it in another way, can the fact that the future turned out to be radically different from what agents expected be considered a catastrophe? The catastrophe, I believe, comes from the fact that the expectations of those who are left behind simply do not have any grasp on reality anymore. The house they built for their children not only will not be occupied by them, but it cannot even be sold. Their future which they planned and for which they prepared themselves never came to pass, and what today is, is too different from what they have been used to, and subject to too many forces they do not understand. Their life is parked on a side track in time that leads absolutely nowhere.

What brought about this catastrophe is the aggregation of individual choices that aimed at a

future that was entirely different from what happened. The catastrophe is invisible because what we are dealing with here is not a threshold effect where a brutal change happens, if for example an explosion takes place when a given concentration of gas is reached. Rather the process is one of monotonous accumulation. True enough, at some point the change has happened, for example, in the suburbs more than half of young adults, between the age of 20 and 30 years, are now unemployed and have not finished high school, but that is not usually something that takes place overnight, which is why it is something which we notice once it *has happened*, rather than *when it happens*. Invisible catastrophes sometimes carry agents from one set of normal, rational expectations to another completely different one, but without a brutal rupture and without plunging them into that intermediary stage that corresponds, I argued earlier, to the catastrophe as such. Invisible catastrophes in that sense are not only invisible because we do not see them coming, but also because we only notice them once they have struck.

If invisible catastrophes are catastrophes that only appear, that only become visible after the event, silent catastrophes are catastrophes that are not recognized as such when they happen, neither by society at large, nor even by those to whom they happen. The best examples of such catastrophes are discriminatory laws that target ethnic, religious or other minority groups. These laws prevent members from these minorities, for example from being educated in their own language, from using their mother tongue in public, from accessing university and/or certain professions, and from traditional or religiously required ways of dressing, etc. Very often, community leaders from the minority group recommend and individuals chose to adapt, rather than to protest. That is to say, they prefer or choose to limit their life prospects, in the hope of avoiding greater, more dangerous forms of repression. Such catastrophes are silent, because those who edict these laws do not think that they are catastrophic and because those who are discriminated against adopt a strategy which avoids recognizing the catastrophe as such, a strategy that aims at survival and, if possible, even at success under the new circumstances. In many cases members of oppressed groups have very little choice in this and that is why it may be better to name these *silenced* catastrophes, rather than silent catastrophes.

However, climate changes or economic transformations can also lead to similar local adaptations. Slowly adapting to what appears to be local changes only, or a string of bad years bound to end sooner or later, it may take a group or community one generation or more to realize that their life prospects have radically changed, that ancient techniques do not yield good results anymore, that they must abandon traditional occupations, as well as their entire mode of living and customs. Economic modernization can also sometimes constitute a silent catastrophe, silent in the sense that many times everybody knows that it is a catastrophe (at least for most people), but nobody wants to recognize it as such. Both silent and silenced catastrophes can disappear without leaving a trace. In all cases, that of discriminatory laws or of climate or economic changes the existence of a catastrophe does not imply that the agents' adaptation was unsuccessful. Just as the fact that survivors of an earthquake may end up being better off as a result of the quake does not



change the fact that they were victim of a catastrophe.

So what is a catastrophe then? A rupture in time, a discontinuity between what came before and what comes after the catastrophe which in a sense is that discontinuity itself. In the case of invisible catastrophes, it is only after the catastrophe has happened that agents realize the discontinuity with their past. In the case of silent catastrophes, the agents may never notice that there was a catastrophe, a rupture, but that does not prevent the catastrophe from having taken place. One may argue that a catastrophe understood in this sense of a rupture in time may correspond to a happy constructive event, rather than destructive one. Happy events, no matter how surprising and unexpected they may be, do not disrupt the network of agents' expectation in the same way as destructive events do. Happy events rarely spell uncertainty, doubt and anxiety, rarely result in confusion and disorientation. The discontinuity in time is not therefore simply a formal criterion. It is closely connected to the structure of human consciousness which holds together the immediate past, the present and the anticipated future. A catastrophe is an event that either shatters that structure or that cannot be assimilated without a radical transformation of its content.

## Notes

- 1) See, A. Lovell, « Aller vers ceux qu'on ne voit pas » in A. Lovell, S. Pandolfo, V. Das & S. Laugier *Face aux désastres une conversation à quatre voix sur la folie, le care et les grandes détresses collectives*, (Paris : Ithaque, 2013), pp. 27-81.
- 2) Interestingly it seems that all countries in which the ratio of fatal road accidents to the number of vehicles is the highest are poor countries. However, not all poor countries have a high ratio. In most, rich and developed countries the ratio is generally low which means, in the United States 37,000 deaths per year and in Canada which has (more or less) 1/10 of its population, 2000 deaths per year. See, <http://www.worldlifeexpectancy.com/cause-of-death/road-traffic-accidents/by-country/>
- 3) The recent ebola epidemic killed about 10,000 persons.
- 4) J.J. Gibson, *The Ecological Approach to Visual Perception*, New York: Psychology Press, 1986, pp. 127-143.
- 5) See D. Alexander, *Confronting Catastrophe*, Hertfordshire: Terra, 2000, pp. 56-57.
- 6) See B. Wisner, P. Blaikie, T. Cannon & I. Davis, *At Risk Second edition natural hazards, people's vulnerability and disasters*, London: Routledge, 2004, p. 9.
- 7) See R. Casati & A. Varzi « Events » in *Stanford Encyclopedia of Philosophy* that can be accessed on line at: <http://plato.stanford.edu/entries/events/>
- 8) P. Levi, *The Drowned and the Saved*, R. Rosenthal, tr. (London: Abacus, 1988).
- 9) G. Tillon, *Ravensbrück*, Paris: Seuil, 1973.
- 10) For example the Gran Teton Dam in the United States that breached in 1976, killing 16,000 head of cattle, flooding 100,000 acres of farmland, leaving thousands homeless and causing more than 1 billion dollars in damage. See Ch. Perrow, *Normal Accidents. Living with High-Risk Technologies*, Princeton University Press, 1984, pp. 237-238.
- 11) Not necessarily intentionally however, what I mean is that such catastrophic states of affairs can arise, for example, from the conflict of an insurgent or guerrilla group and the army. The local population is caught in between these and their catastrophic situation is the result of the purposeful actions of the belligerents,

but the goal of no one.

- 12) On March 27, 1977 two Boeings 747 planes crashed on takeoff at the Los Rodeos Airport on Tenerife Island in Spain, killing most passengers on both planes. It is still the most important airplane accident in history, with the highest number of victims. See, [http://en.wikipedia.org/wiki/Tenerife\\_airport\\_disaster](http://en.wikipedia.org/wiki/Tenerife_airport_disaster)
- 13) Unlike what happened for a few months in the United States, after the 9/11 attacks, when the air industry was nearly brought to a standstill.
- 14) See for example the “Disaster pressure and release model” in B. Wisner, P. Blaikie, T. Cannon & I. Davis, *At Risk Second Edition Natural hazards, people’s vulnerability and disaster* London: Routledge, 2004, pp. 49-86.