

How Scientists and Prophets have to Collaborate to Face a NEO Threat

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ABSTRACT

In the case of any scientifically proved NEO threat, space agencies, scientific institutions and governments worldwide would have to face the most complicated of all challenges: finding a way to convince populations of the reality of the danger, to be able to find ways to prevent it. The slowness, or the absence of reactions towards the threats generated by global warming, biosphere pollution, depletion of the biodiversity, and extensive use of nuclear energy for energetic or military purposes, cast doubt on the capacity of reaction and mobilisation of civil societies faced with major catastrophes, even the most obvious. In his book "The Imperative of Responsibility", Hans Jonas mentions the role of fear in the capacities of a society to face its responsibilities and act accordingly. But is fear enough in the very case of NEO? Actually, this threat dwells into our ancient and collective conscience and belief, and the vision we have over human history is particularly pessimistic. Moreover, it is not granted that the representation of the universe is yet completely free from the Aristotelian duality, which separates and opposes Earth, the lower world, and Cosmos, the upper world. Scientific information today can contribute to that representation, without people even being aware of it. Today, scientific knowledge does not seem enough to convince humans to support a voluntarist and international policy which could lead to an efficient strategy against a NEO threat response. Men are conscious of it, but not afraid. To the "knowledge" offered and shared by the scientist, we should combine the "belief" that the prophet exposes to us. The prophetic mission is not only to frighten populations by evoking, or even imagining, a catastrophic (apocalyptic) future. Its first role is to raise a lucid and reasonable consciousness of the present situation. Then and only then is it possible to foresee the future, and possibly to try and modify it, without falling into fatalism. With NEO, no need, or rather no reason to imagine, or to fantasise over a future of mankind that would be driven and mastered by human desire. The objective is merely to try to preserve our species against an exterior threat, a threat that is totally beyond our control. From that moment, humans cannot refer themselves to what they wish they were, but to what they are already, in their fragility, their dissensions, their jealousy and their pursuit of power. A NEO is not just a threat to the integrity of the biosphere, but also to the understanding humans have of themselves. And it is undoubtedly for that very reason that NEO represent a danger that is difficult to handle.

Keywords: NEO, space ethics, responsibility, prophetism.

INTRODUCTION

The scientifically confirmed existence of an NEO threat would constitute a potentially insurmountable challenge for space agencies and scientific institutions, tasked with convincing

the general public and governments of the reality of the danger, to ensure the implementation of means capable of diminishing this danger. We must note and recognise the slowness to react, or even lack of reaction to threats associated with climate change, pollution of the biosphere and the erosion of biodiversity, due to dangers associated with the use of nuclear energy for energy and military purposes, and to the lack of knowledge relating to the outcome of a large-scale use of genetic engineering and GMOs. Society's current reaction to the consequences of technological progress and development over the 20th and 21st centuries raises doubt over humanity's ability to react and to mobilise human societies, their organisations and their institutions, when scientists announce an imminent threat from space of an NEO.

One of the specific things about NEOs is that they do not call into question what I have just qualified as technological progress and development. Are we to reproach the modern telescopes for revealing celestial objects of which, until now, our astronomers have been unaware? Like earthquakes or volcanic eruptions, NEOs belong strictly to the category of natural, and often major, disasters. No human could be blamed for their occurrence. However, once we have knowledge of a pending disaster and a threat is detected, the question of reaction and possible responsibility is raised. This constitutes the planetary-scale singular fact that a final and definitive catastrophe could spell the end for humanity (the word catastrophe in Greek means the final chapter, the denouement to a theatrical performance). Although such a catastrophe is singular in nature, the situation is not a totally new concept. Small and large-scale tragedies of this kind have been envisaged in the past, giving rise to the emergence of a particular "breed" of doomsayers. Whilst their behaviour and their claims may make us smile, we should not forget that the primary role of the prophet is to raise awareness of the present, to clearly assess the way in which we understand our situation and how we act, etc. Such an approach can sometimes frighten us more than threats concerning our future.

THE IMPOSSIBLE JOB OF A PROPHET

The Bible tells us the colourful story of the prophet Jonah, sent by God to threaten the inhabitants of Nineveh with divine punishment if they refused to change their evil ways. Jonah initially refused to carry out God's will, choosing to run away as told in the story of Jonah and the whale. The whale was tasked by God to guide Jonah along the right path, in other words in the direction of Nineveh and his mission as prophet. Under duress, Jonah roamed through the town... and the people of Nineveh listened to his words. They did penance and were saved from divine punishment. The Bible explains how Jonah felt very torn and asked God to end his life! Why did the prophet react in this way? Very simply because, by taking his words seriously, the people of Nineveh turned him into a wrongdoer and a liar: contrary to his predictions, their town was not destroyed! It was because Jonah knew this possible outcome that he had initially refused this mission. He knew in advance that he was inevitably doomed to failure. Either the people would not listen and would be destroyed by lightning or in a massive earthquake, a failed prediction, or they would listen and escape the threatened punishment, a failed prediction.

From this actually very simple observation, Jean-Pierre Dupuy derived the stimulating discourse known as "enlightened catastrophism". The message is simple: "if one is to prevent a catastrophe, one needs to believe in its possibility before it occurs. If, on the other hand, one succeeds in preventing it, its non-realization maintains it in the realm of the impossible, and as

a result, the prevention efforts will appear useless in retrospect” (Dupuy 13) The main difficulty therefore resides in how to connect understanding and faith, awareness and belief, two fields which the modern world has often separated to the benefit of the former.

IS THERE STILL A NEED TO BELIEVE SCIENTISTS?

Over five centuries ago, Galileo started to publish the results of his observations of the heavens. He was the founder of modern astronomy and his first act was to shatter the crystal balls with which his Ancestors had provided the cosmos, to eliminate the boundary, established by Aristotle, separating the supra-lunar and sub-lunar worlds, between the beautiful and distant perfection of the stars and the overcrowded and transient world of the Earth's biosphere. Asteroids and comets played a key role in this revolution, proof that the sky, far from being perfect, could fall down on us. At the same time, this change in the notion of the world made human travel into space theoretically possible, as Kepler wrote to Galileo as early on as 1610.

Galileo stated that the universe, thus redefined, was written in the language of mathematics which needed to be learned and taught for humans to become “masters and possessors of nature” (Descartes). What their Ancestors had called fate; destiny and God’s will, could now be expressed in scholarly formulas. The invention of probabilities made humans stronger than the gods, capable of challenging destiny, ready to plan, manage and take risks. In other words, the acquisition of knowledge gave humans increased self-confidence and faith in their future. Knowledge of the world encouraged self-belief.

Yet the world changed again. After the age of risks to be confronted and explorations to be undertaken, gradually came the age of zero risk. After the age of sciences and a reliance on it, came the age of techniques of which the substantial development, in all fields of human existence, led to a belief in the arrival of complete control of reality, to the point of hoping, and even of reckoning the ability one day of eliminating all failure, defeat, illness and even death itself. Knowledge and those who claim to have it see themselves as possessing unlimited power, a power that could reduce all risks at the same time as all necessary references to a form of belief, a form of trust and a form of faith. Men would come to take the place of gods in such a way that they could themselves establish a perfectly ordered cosmos and, contrary to the cosmology of their Ancestors, including the Earth itself. This new world order, controlled by human power, would become a modern expression of ancient thought, an updated view of the cosmos, this "beautiful ordered whole".

NO HORIZON

How can the occurrence of a disaster be understood through this contemporary vision of reality? Dupuy gives a useful description: “The terrible thing about a catastrophe is that not only does one not believe it will occur even though one has every reason to know it will occur, but once it has occurred it seems to be part of the normal order of things” (Dupuy, 84-85). Having laughed about Candide’s adventures, as told by Voltaire, we are today threatened by an ideology that is comparable to his and with Leibniz’s ideology of “the best of all possible worlds” (which is somewhat distorted in Voltaire's tale). Now there is an option that is as good as any other, you could say, similar, as I have said before, to age-old fatalism. In fact, the choice of ignoring catastrophes or of forcing their introduction in the natural course of events is not devoid of reason, when an individual takes stock of his or her own existence, of his or her human

condition. When asked, “what is man?”, the preacher Qohelet answered: “Vanity of vanities, all is vanity.” A very Latin way of translating the author’s original Hebrew words: “Mist, mist, all is mist.” Every day, as throughout man’s history, man appears to be a finite being in space, limited in time. Transience is the heaviest burden of the human condition. In this case, why do we not return to old fatalistic systems, the already trodden paths of destiny? Why do we need to look further than our individual mortal horizons? We sometimes end by saying, “after us the deluge”. Today’s governments seem to adopt this very approach, looking no further than the next election, satisfying the immediate needs of their electors, rather than adopting a medium- or even long-term approach. This is often one of the main criteria policy makers use to make a decision. Besides, do they not sometimes admit to not having enough time to think about the future, that of their country and their children? Unless they fear, rather than thinking about and needing to assess risks, making decisions and assuming responsibilities. It would be difficult or even impossible for a governing body or politician to behave like a prophet. Remember that Jonah initially refused this mission.

LOOKING FOR PROPHETS

The threat of an NEO, if it were one day confirmed, would surely provoke the re-emergence of doomsayers who would not necessarily have the perspicuity of their ancestor Jonah. They would without doubt not hesitate to threaten populations with divine wrath, condemning their sinful ways, inviting them to do penance if God were to be merciful enough to agree to forgive them, etc. More necessary, but also more difficult would be to adopt the position of a “lay” prophet who would find the arguments and words likely to mobilise opinion, to motivate governments to react in the medium-term (ten years), in order to try to protect against the danger coming from above.

Biblical tradition teaches this prophet that he would be reproached for his apocalyptic visions. Not only those of the future (according to the incorrect interpretation of the term apocalypse), but those which concern the present, revealing (as the word apocalypse actually means revelation) the form and the content. Like Balaam, the prophet “whose eyes are open” (*Book of Numbers*, chap. 24, 3), our prophet has a clear and sharp vision of the present. He analyses diversity and complexity, denouncing hypocrisies and contradictions, assessing strengths and weaknesses. He above all reminds us that human existence is radically based on intimate convictions and on choices made, on trust of others and self-trust, on the desire to be, as far as is possible, the master of his own future.

Once again, with the NEO threat, it is not a question of dreaming of or imagining a future in which humanity is only controlled according to human desire; it is solely about looking to preserve our species faced with an external threat completely unrelated to our desire and our past actions. Consequently, humans are not restored by the prophet to what they would like to be, but to what they are already, with their genius and their talents, their courage and their hopes, but also their fragility, their dissensions, their jealousies and their desires for power. Especially in terms of the integrity of the Earth’s biosphere, an NEO can challenge the often smug impression that human beings have of themselves. It is without doubt for this reason that this threat constitutes a danger that is truly difficult to manage.

CONCLUSION

Since the dawn of humanity, cultures and religious traditions have attempted to tackle the challenge of the future. They ask us to regard the future not as the only and unavoidable consequence of present action (along a causal line of varying complexity and continuity) but as the goal to be reached through present action (for example, going to heaven, avoiding hell). This specific mode of future governance is based on the two terms of promise (the future) and alliance (the path); with the need for a judgement that in some way breaks the continuous line of time, so that the promise is reached at the same time as the alliance ends. The prophet can be and must be a man of promise: promise of happiness or doom. It is an inhuman yet necessary task to place another horizon in front of individual and collective existences. The prophet can also propose an alliance, as described by the philosopher Hans Jonas in his intergenerational responsibility theory, inspired by Immanuel Kant's imperatives: "Act so that the effects of your action do not destroy the future potential of such life."

Scientists who, tomorrow, will have to inform the human population of a probable and imminent danger as terrible as that of an NEO will not be able to rely solely on their knowledge to convince their contemporaries to act; they will have to associate themselves with prophets on a par with Jonah to be believed. This will be without doubt one of the most effective ways to close the gap, the abyss that today threatens to open between the force of the knowledge of foresight and the power to understand...

References

J.-P. Dupuy, *Pour un catastrophisme éclairé. Quand l'impossible est certain*, Editions du Seuil, Paris, 2002.

H. Jonas, *The Imperative of Responsibility: In Search of Ethics for the Technological Age*, University of Chicago Press, Chicago, 1984.