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**Title:** Earth Defense Against Bad Extraterrestrials

**Abstract:** Life on Earth is allegedly the largest threat to itself: extra-terrestrial influence, be it natural or as a consequence of conscious Alien action, is of too rare occurrence to out-weight the missteps we, humans, can do to harm our own environment. This said, it is with some naivety that we do not consider the eventuality of predatory Alien attack. Earth is a planet rich in resources, and as such, presents an ideal target for a resource-hungry civilization. While seemingly of little urgency, relevant planning and strategies should be outlined. This might help to avoid the fate we ourselves repeatedly inflicted on so many indigenous communities which were on the different level of technological development.

**Introduction**

When dealing with the future of our planet, we often forget that we are but a small part of it. Yes, we reached the Anthropocene, yes, we can destroy ecosystems and make our planet uninhabitable. Yes, we can make it a wretched desert or raise dark clouds over it.

But all this would cease with our disappearance. Earth would soon – on a geological timescale - reestablish itself as a home for another species, as it was for such a long time before we, humans, appeared.

This is because, ultimately, we are at the mercy of much more powerful source of energy: our Sun. Most of our doings is just reshaping its influence.

Based on our knowledge about stars, Sun is at the middle of its life, so it should not become a dangerous ball of gas for us for the next 5 or so billion years. The only danger it could now pose for us are the occasional magnetic storms, which could flush the Earth with energetic particles. Since our planet is only a small object on the Sun's sky, there is a little probability that anything launched randomly from the solar surface would hit us. But this probability is finite, and we just started taking it seriously. The science of solar weather prediction is a thriving new direction in astrophysics. Usual solar flares could wipe out our electronics in the near-Earth orbit, and even affect the electromagnetic balance on the Earth surface. There were such events in record, and with growing reliance on electronics, we are increasingly aware of it and engineer to protect ourselves from it.

Really huge solar eruptions which would affect the Earth atmosphere to the level of wiping it out are much less frequent, so that, luckily, we do not have historical record of such an event.

Other stars are too far away to influence us this way. To our best knowledge, our neighbor stars are rather a peaceful bunch, and we are not in the imminent danger of some super-energetic event on them which would produce X- or gamma-ray emission, which could wipe out life on Earth. On a larger scale, our Galaxy is also rather a peaceful one, without impending encounters with its neighbors.

Excluding the mentioned influences, there is only one another natural threat which Universe can impose on us: extraterrestrial life.

## **Need for a Strategy**

In spite of not having the best reputation when it goes for mankind behavior to each other-it is enough to think of various indigenous communities wiped out by "civilized" part of the Humanity-we are stupendously naive when we think of extraterrestrials. On the almost fairy-tale level, we are seeing unicorns coming with good intentions or good Gods bringing us knowledge.

There is only one serious warning issued in this matter recently, the one by late Prof. Hawking, whose worldwide fame helped to make it heard: "beware of Aliens!", he communicated through his technologically advanced communication apparatus [1].

At a recent online event, in June 2021, after his Bolzano lecture about future of the Earth, I asked Astronomer Royal M. Rees what he thinks of threat for our planet by Aliens. He optimistically stated that, when thinking of what threatens Humans on Earth, the Alien threat would be pretty low on his list of priorities. He commented that it is probably pointless for us to ponder on threats from Unknown, when we are so painfully aware of our not knowing most of the Universe.

When I think better, yes, we know about only less than 5% of the Universe, the rest is Dark Matter and Dark Energy, which are...just Dark. We do not have any idea what they are.

Still, as an astrophysicist, taking into account the dangers counted above, I feel uneasy not to be concerned about the only known unearthly thing which could seriously threaten us. While Nature is extremely kind to us, it usually does not forgive shortsightedness. Vulnerable species...extinct. There is no reason that this rule would be limited to our Earth.

It was pointless for Australian Aborigines to fight the technical civilization which invaded them, but on the mercy of the invaders, they still exist. They never acquiesced the conquest and are, in a sense, in a revival today. It was not so pointless for the Mesoamerican civilizations to fight, with their war prowess and advantage in numbers. Still, with the unfortunate natural help of contagious diseases they brought, Europeans overwhelmed the not so under-dog civilizations in a very short time. We can only visit their ruins today.

Maybe we should learn not from our kin response to external threat from other humans, but from the animal world? Yes, if Extraterrestrials would come as benign philosophers, kind of farmers of thought, we might be lucky enough to learn from them. But, if we think Evolution, why would anyone bother to go far, far away to the outskirts of Galaxy? Who would be the first to go furthest out? A Science Fiction writer I. Asimov gave us enough about that - sure, very anthropocentric - train of thought, we do not need much more of Science Fiction about it to start preparing our guns.

A recent discovery and following of the first interstellar object we observed, Oumuamua [2], reminds us how easily we could become involved in Galactic matters. The cigar-shaped object hurled through the Solar system with speed and direction showing its interstellar origin, prompting the discussion about its possible artificial origin-say, an interstellar ship. Indeed, what would, what could be our reaction if this was a ship filled with foam-mouthed T-Rexes yelling at us from our TV-screens that they'll just come and eat us all? Or, more politely, that they are very sorry but they need all the flesh we have?

## **Bad Extraterrestrials**

If we encounter Bad Extraterrestrials (BETs, as opposed to ET, which we leave for association with a benign ones), on their search for resources, Earth is a very vulnerable world. Imagine a

civilization which needs, or wants, water. Plain, simple water. There are oceans on Earth. Go and take them. The same with other gases, minerals.

Will we let "them"? Would they ask? I am afraid that, even when it is about our own kin, mankind would not apply the question. After all, even with Plato, Buddha and St. Francis in our ancestry, we are still making great holes in the "uninhabited" territories in Africa, we are still burning forests in Indonesia and Amazon. Not that we would not know that it is harming our own planet, that we are literally cutting the branch on which we are sitting. Even more directly applied to the species closer to ourselves, we are still operating slaughterhouses, each and every day killing billions of our own, perfectly earthly animals, for food, even if we perfectly could do without it. Going even closer to ourselves, wars still abound. Blind violence, war crimes and unthinkable, cruel massacres are a specifically humankind signature.

So, what we could do about visit of predatory Aliens? Most certainly very little, but as Humans, should we not prepare for the eventuality of visit by the BETs with a bit less naivety than fiery Patagonians, who accepted colorful beads and glittery mirrors from the "Beagle" crew? Or non-suspecting islanders of so many islands in the Pacific (!) ocean, who got unpleasantly surprised when they learned that The Big Gods of the Ocean who came aboard the huge winged boats are not at all so good Gods?

We DID come to understand how the Sun works, we CAN produce weaponry which matches, even if only on a small scale, the power of Sun. Yes, we developed it to eventually play the war games with our own kin, but maybe it is just a stage in our development as a society, to be able to fight against a common enemy? Earth becomes too small for it, so maybe we should think how the use of such powers could benefit us, if it would be needed.

The idea of diverting dangerous asteroids is already firmly present in our doomsday movies, even if the actual implementation would still have to be a single-handed action of technically capable countries. There is, yet, no global effort in this direction. We are too suspicious of our earthly competitors.

Maybe it is the time for a concerted international effort in the outward direction? Some more civilized-and ultimately, more useful-outlet for military oriented actions of Humanity which overgrew its planet? The United Nations Earth Defense squad? If we have people working on the preservation of deserts (yes we do, and for good reasons), then maybe we should have people working on the defense of Earth against Bad Extraterrestrials. Somewhere under the Chapter of anti-terrorist actions or natural disasters, give a task to astrophysicists to ponder about this kind of threats, and our possible response. Let them network, for a difference positively, with military planners. As we know from other extraordinary situations, standard procedures for not so standard situations might be of help.

There is another potential benefit. In many organized societies, mobilization against a common outside enemy is a force for survival against internal disruptive forces. As conscious beings, maybe we should recognize the creative power of such an instinct? It is atavistic, but there is, again, a good reason: it enables the survival of society which, without adopting it, would very probably not survive. Also, maybe it is the best way to organize-and channel-our destructive powers? They are ever-present, encoded in our genetics, but as the Earth becomes too small for our destructive powers, maybe it is time to start flexing those muscles at a larger ring?

## **Conclusions**

Taking into account small frequency of major cosmic catastrophic events which could threaten life on Earth, the largest threat to life on Earth is Humanity itself. The only other predictable major external threat could be the case of intelligent extra-terrestrial influence: predatory action of this kind is, in the author's opinion, too naively neglected. In spite of the overwhelming number of examples when our own kin inflicted irreparable damage to the newly met indigenous communities. Based on this example we should expect the worst from the eventual encounter with technologically more advanced civilization.

It can make a big difference if, with appearance of a big extraterrestrial ship somewhere in the Solar system, we have some prepared action as a civilization of Earthlings, or if we do not have it. We might be able to do a bit more than put paper bags on our heads. Sure, if it is a fleet of really big ships, or simply a ray of energy from 17-th dimension, it might be pointless and paper bags would not be so bad choice, but at least we might give it a try.

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