

PHILOSOPHERS BEFORE AND AFTER SPACEFLIGHT

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ABSTRACT

In my contribution, I will show the ways by which philosophers have treated the topic of space-travel before and after its implementation. I will discuss the following points: a) Introduction: the human condition. b) Philosophers before spaceflight: the Astolfo Protocol. c) Philosophers after spaceflight: the Promethean suspect. In this paper I will emphasize the elements of two different and alternative visions of space-flight that can be found in the Western tradition of philosophical thought.

Keywords: *human condition, spaceflight, abandonment of the Earth*

FILOZOFI PRED IN PO POTOVANJU V VESOLJE

IZVLEČEK

V tem prispevku bomo pokazali načine, na katere so filozofi obravnavali področje potovanja v vesolje pred in po udejanjenih potovanjih. Obravnavali bomo naslednje točke: a) Uvod: človeško stanje, b) Filozofi pred leti v vesolje: t. i. protokol Astolfo, c) Filozofi po potovanju v vesolje: prometejski dvom. Poudarili smo elemente dveh različnih in alternativnih vizij potovanja v vesolje, ki jih lahko najdemo v zahodnjaški tradiciji filozofske misli.

Ključne besede: *človeško stanje, let v vesolje, zapustitev Zemlje*

INTRODUCTION: THE HUMAN CONDITION

If we raise the question about the possibility that space might one day become a human habitat, we must first have an idea about the reality of the human condition. Our species has evolved on Earth, and our bodies and behaviors do not show any different characteristics from those of other animals which cannot live even for a moment outside the atmosphere of our planet. At the same time, a fate firmly anchored to the Earth's surface does not seem to perfectly match our constitution.

Even the ancient philosophers understood this specificity of the human condition. The great Democritus (460 BC – 370 BC) wrote in *The Small Cosmology*: «The element of fire participates in the constitution of man much more than in all the other animals. So he raised his head, he has the standing stance, and he touches only slightly the ground ...» and «man is a well-equipped animal. His hands cooperate with his versatility of mind, and experience teaches him the use of all techniques ...» (Democritus, Diels-Kranz, B, 4c). According to Democritus' view, the essential characteristic of the human condition lies in the relationship between these two facts: man is the animal which stands upright and which makes use of technology. The element of fire, present in large amounts in the human body, promotes upright posture and the freeing of the hands, which become available for the manipulation of objects and an essential part of the “skull-hand” device.

This complex machine turns out to be able to manipulate the world in a variety of ways not comparable to those implemented by other living beings. In our species – thanks to our upright position – the multiplicity of design solutions that the vertebrate type has invented in the development of the somatic building reaches one of its finest examples of adaptation. The special reciprocal arrangement that in the human body takes the axis of the spine, the mechanism of the suspension of the skull and the teeth determine the possibility of the development of a large brain and the consequent affirmation of symbolic thought. Man not only manipulates the environment and builds a world, but also assumes specific behaviors and cultural capacities.

Among these I wish to particularly stress the ones behaviours that give light to what I like to call the tendency to verticality. Man leans on the ground, but his predominant tendency is to escape upwards in many different ways. He raises his head and walks upright, he carefully observes the sky above him, he climbs every height, but especially, since ancient times – perhaps from the beginning of his history on Earth – man wants to fly in the sky towards the sun. This reaching out into space beyond the surface of the planet is historically attested to in two different but complementary senses. The first is attested to by the constant improvement of technological resources that men have invented in order to compensate for their apparent inability to fly. The wings of Icarus and the current rocket engines are all moments of a great story

of “flying exercises” that have no equal in any other task that mankind has attempted. The value of this effort far exceeds the material and economic aspects related to it. It assumes a spiritual dimension of incalculable significance in human culture. This leads us to the second characteristic feature of the human tendency to verticality: the extraordinary human capacity to anticipate, by way of art, philosophical discourse and literature, the technological advances achieved many centuries later. This is especially true regarding our topic: if there is a theme that has constantly engaged the human faculty of imagination, it is without doubt spaceflight. In the following pages I will illustrate two ways in which this has been done.

THE PHILOSOPHERS BEFORE SPACEFLIGHT: THE ASTOLFO PROTOCOL

When Neil Armstrong placed the first human foot on the lunar surface on July 20, 1969, he probably did not think of having fulfilled one of the oldest poetic dreams of our culture. As early as 160 AD, Lucian of Samosata (AD 125-AD 180) in his poem *A True Story* imagines that a ship lost in a storm lands on the Moon, on surface of which live strange inhabitants called Selenitians. They are seriously engaged in a war against the people of the Sun, whose King, Phaethon, captures the poet and the entire crew of the first spaceship. The variety of fantastic creatures described by Lucian is nothing short of amazing: talking mushroom-men, acorn-dogs (“dog-faced men fighting on winged acorns”) and cloud-centaurs. The war is finally won by the sun armies, which cover the Moon with clouds. Lucian’s *True Story* eludes clear-cut literary classification. Its multi-layered narration has given rise to interpretations that classify this work in literary genres as diverse as science fiction, fantasy, satire or parody, depending on how much importance scholars attach to Lucian’s explicit intention of telling a story of lies.

In my opinion, the story of Lucian of Samosata takes on yet another meaning which is not reducible to those assigned to it by philosophical and literary traditions. For the first time, the Greek poet draws up a real and comprehensive program of space-travel, which remains essentially unchanged until the present time. This is what I call “The Astolfo Protocol”, named after the famous paladin, who, in *Orlando Furioso*, flies to the moon riding the fantastic hippogriff. Why do I introduce the notion of “protocol” here? With it, I intend to express the fact that Lucian does not build just a literary representation, but he puts into play the elements of a real research project combining descriptions, objectives, action plans, time-lines and technological tools. The images presented by Lucian of Samosata are certainly inaccurate and sometimes truly bizarre, but the whole of his vision would not be abandoned in the later development of Western culture. In fact, it became a kind of imperative that says, “men can and must go into space!”

I will try to illustrate more clearly the details of the Astolfo Protocol, commenting on some passages from the famous *Entretiens sur la pluralité des mondes*, written by the abbot Bernard de Bovier de Fontenelle (1657–1757) and published in Paris in 1686. These imaginary dialogues, which were translated into all the European languages, addressed all the enlightened and progressive spirits until the beginning of the twentieth century. In the opening pages of his work, Fontenelle said, «The Earth is a planet, every planet is an Earth, and all the stars are suns – The Moon is an Earth, identical to ours, and, apparently, habitable ...» and «Venus revolves around itself and around the Sun as the Moon, you can see with telescopes its different phases according to the different ways in which Venus is with the Earth ... If there are residents on the Moon, there must also be on Venus ...» (Fontenelle, 1686). The first element of our protocol is given by the dual assumption that a) there is a multiplicity of worlds and b) these worlds are habitable. This is not simply stated, but it is argued on the basis of the similarities observed in the movement of the planets: The phases of Venus correspond to those of the Moon: for this reason if there is life on our satellite, it must be the same on Venus. More generally, the existence of living beings in the cosmos is the necessary consequence of the universal uniformity of physical laws. However, Fontenelle means something more important: the planets are not only potentially biotic, but they are habitable by man or by bodies which are very similar to humans. The verb “to live” means here more than just the occupation of a place, as done for example by a stone, and also has a further meaning from that of the satisfaction of the biological needs which are sufficient for animal life. For man “to live” is to make the world a “habitat” in which it is possible to build an artificial environment and the complex of social relations that surrounds his life. The dominant protocol of spaceflight requires that every other world could become a “habitat” for humans; moreover, the idea that the cosmos is already peopled and that it can be easily colonized became the reason that pushed forward the development of the technology that one day will lead us into space.

The second aspect highlighted by Fontenelle concerns the topic of knowledge; a little further on he observes, «The Moon is too far away from us for being judged by our point of view; whoever could find himself between the Moon and the Earth would be in the right place to see them well. We should be simple spectators of the world, not its inhabitants ...» (Fontenelle, 1686). The fact that we are inhabitants of the Earth is not only a limit for the knowledge of other planets, but it is also an obstacle to the correct view of our planet. Only a standpoint placed in external space could finally give us an adequate representation of Earth. In this way, space-travel becomes the tool that can lead us to a broadening of our understanding of the cosmos, one that otherwise would not be achievable. *The abandonment of the Earth is thus not an unnatural circumstance, but it represents the overcoming of the deficit that is due to our own location on Earth.*

This last point immediately recalls the theme of technology. Each transition to the next step of the “enhancement” of man is marked by a new technological phase. However, before the innovation is definitely established, it has to pass a long time during which the step is ideally anticipated and is subjected to rigorous testing. Fontenelle is clear on this point, «I bet that one day there could be a trade between the Earth and the Moon ... we already begin to fly a little ... many have found the secret to adjust the wings to their shoulders ... but these are just the beginnings ... like the first planks thrown into the water and the birth of navigation: from the first planks, to the great vessels able to circumnavigate the globe ... what a great distance!» (Fontenelle, 1686). The paradigm of navigation then becomes the model that should guide the development of space technology. This is significant for two reasons: the first is the confirmation of the principle regarding spaceflight, that new technological devices are envisioned from existing ones long before their implementation. The second relates to the art of sailing as such: this art provided a model of a conveyor adapted to cover long distances through an element, water, that is not immediately hospitable to humans. And it was clear that progress in ship-building, despite its slowness, was steady and would have produced an impressive growth in size, speed and autonomy of vessels.

The quest for success in long-distance spaceflight also involved specific problems of physical adaptation. In particular, Fontenelle puts the emphasis on atmosphere and breathing: «The great distance from the Earth to the Moon would be another difficulty to overcome, but even if it would not, and Earth and Moon would be closer, it would not be possible to pass from the air of the one to the air of the other ... We see that our air is mixed with steams fatter and more dense than those on the Moon.

So, if an inhabitant of the Moon, after having reached the borders of our air, could get inside, then we would see him drowning and falling dead ...» (Fontenelle, 1686). The “terrestrial” part of man, his dependence on the elements that prevail on the surface of our planet, these are the real limits to the idea of space-travel. Our species is the product of a long evolutionary history which took place entirely in contact with the atmosphere and the surface of the Earth. Just in order to be able to suggest the possibility of using our bodies on the Moon, we have to imagine not only the development of appropriate technologies, but also the realization of structural changes in our organic constitution. In short: in order to fly in space we have to manipulate our bodies the same way that we manipulate our technical tools. To achieve this aim it would be necessary to invent new exercises and new postural habits, an unprecedented regulation of respiration and perhaps a new way of thinking. In Fontenelle there are also the beginnings of this new philosophy of space. «Imagination is oppressed by the infinite variety of the inhabitants of all these planets and bewildered by their diversity. Nature, who is the enemy of repetition, has made them all different – The Universe can be done in order to make possible for new suns to be formed from time to time ... Why matter, which is able to form a Sun, should not be able to meet again in a single place, after

being scattered here and there, and lay down the foundations for a new Universe?» (Fontenelle, 1686) In the words of the brilliant French abbot, it is impossible not to hear the echo of the great impression that the discoveries of new continents and new peoples aroused in the European consciousness between the fifteenth and eighteenth centuries. Assuming that the same could happen with space-travel, Fontenelle takes the concepts of difference and repetition as fixed points of the protocol. If ocean navigation teaches us that nature always uses the same laws and that it does not repeat anything, always putting some few minor differences in the final product, a fortiori, the variety that we expect to meet with space-travel should be thought of as infinite. Even more radically, maybe it will be in space that humans will be able to know the origin of the stars that are born and perish in the endless cycle of the matter. In a nutshell, only thanks to the abandonment of Earth will man be able to penetrate the secret of its formation.

“Habitability of the worlds”, “distance from the Earth” seen as an “enhancement of man’s intellectual capacity”, technology research program based on the idea of “navigation” and the problem of “breathing” considered as a specific “obstacle” to overcome, these are some of the elements of what I called the Astolfo Protocol. With this notion I mean something very similar to that set of beliefs, practices and assumptions about the constitution of the world that Thomas Kuhn has described as “paradigm shift”. As it is known, in the perspective of the “Scientific Revolution” outlined by Kuhn «a paradigm is what members of a scientific community, and they alone, share» (Kuhn, 1977). In this line of thought, but with a broader meaning, the Astolfo Protocol can be seen as a complex and intricate “world view—shared not only by professional scientists”, which optimistic approach has accompanied the human effort to take leave of the Earth until the most recent time.

PHILOSOPHERS AFTER SPACEFLIGHT: THE ABANDONMENT OF THE EARTH

Quite different is the attitude of philosophy in the period preceding and immediately following the completion of the first flights into space. Between the mid nineteen-forties and the late nineteen-sixties, many philosophers criticized the extraordinary technological achievements produced by man. The general idea was that technology is an oppressive force that man believes he controls, but instead it escapes from his hands, destroying the Earth and its inhabitants. From the standpoint of philosophical thought, we now live in what I call the era of the Promethean Suspect, named after the Titan creator of the technique. I will try briefly to explain how this suspect also involves the adventure of space and I will do so by complying with the observations of Günther Anders (1902–1992), whom we now consider one of the most influential contemporary critics of technology.

Anders adopted an anthropology of human imperfection, which he characterized with the peculiar sense of inferiority that man feels when he compares himself to the machines he builds: «Man is made for nothing, and respect to this quality, he is less than all of his manufactured products ... Regarding strength, speed, precision, man is inferior to his devices, and even his mental performances make a pitiful figure in comparison to those of his calculating machines ... man is raw stuff to be worked by and to be adapted into already built machines or already arranged projects. The more these projects are perfected, the more man appears to be a faulty construction ...» (Anders, I, 1963, 35 et seq.).

In his 1963 essay entitled *The Promethean Shame*, Anders diagnoses the spread among men – proportional with the dizzying success of science and technology – of a new feeling, that he calls “Promethean shame”. It is, according to Anders, a new kind of feeling that we experience in the face of the humiliating high quality of the machines made by ourselves. Man, in the era of the third industrial revolution, will not feel humiliated by the excellence of God, by the power of natural forces or by the courage of the hero, but by the astonishing perfection of his technological objects. He compares his body with the performances that the more advanced machines are capable of obtaining and he begins to desire to become something that is assembled, constructed, produced. It is no longer enough for him to be born, he is instead ashamed of his humble origins, and he wants to be reborn as a performing object that is adapted to the parameters of performance and efficiency required by the technological system. The human body «is subjected to a constant and ceaseless process of modification; it does not matter how it is grown, but what abnormal stress he can bear; it does not matter what it is fixed in it, but which of its thresholds are not fixed yet – which ones could be pushed forward ...» (Anders, 1963, I).

The body must be modified to keep pace with the capabilities of the machines, which improve and evolve at a dizzying speed, certainly superior to the rhythms of biological evolution. However, the effort will be futile. According to Anders, the most extreme exercise of transformation clashes with man’s constitutive limits: he remains a being incorrectly projected and easily perishable. The philosopher wrote: «The body of man: it is still today the bodies of our ancestors, the body of the rocket manufacturer is not practically different from that of the caveman» (Anders, 1963, I). Our body threatens in itself all the new projects that our machines have bought to fruition. If it was for our devices we could fly at such a height, but this in itself has no value, because our bodies would strike. Finally «we could reach this or that planet, but we are an obstacle to ourselves, we are not able to overcome the test of endurance required ... and this is not because the wax of the wings does not hold, it is because Icarus does not hold – Man is therefore the saboteur of his own works ...» (Anders, 1954).

As can be seen in the vision of Anders, the suspicion of imperfection is not directed only to technology, but also to man. The latter appears as a being who has assigned

himself tasks and projects which he cannot master, due to his own biological constitution. Compared to machines, which already travel in space, he is truly a scrap of nature: he is designed on Earth and unable to escape his home planet. This means that the human being possesses an eminently terrestrial character. Every effort to conduct man to live permanently outside his natural element would not only be unsuccessful, but it would also be contrary to what we truly are.

The issue of the “abandonment” of the Earth became a real philosophical theme for many authors in the second half of the last century. An example of the way in which the term “abandon” is used outside of science fiction could be this famous passage of Elias Canetti (1905–1994), «there is no uncannier notion than that of the abandoned Earth, abandoned by human beings. People tend to think they emigrate, if for no other reason than to take along their memory of the Earth. They could never be as well off as here. Far-reaching instruments would have to enable them to observe the world but without recognizing what is really happening on it. They would understand what they have lost, *an inexhaustible homeland ...*» (Canetti, 1978). In this brief passage, the idea of detachment from Earth, thought for a long time to be the overcoming of a deficit and as a natural fulfillment of the human condition, becomes a “uncannier notion” and our planet is no longer the launching pad for the acrobatic leap into the space, but takes on the dramatic stretch of the “inexhaustible homeland”. The “new religion” of abandonment will lead man to leave the house he has lived in so far, but in this passage he will lose something of himself, something that will remain in him as an inexhaustible memory. In less than a century the philosophical culture has moved from the idea of space as human habitat to the nostalgia of Earth as the irreplaceable and only true home for man.

In the essay *The Conquest of Space and the Stature of Man* (first edition 1963), Hannah Arendt (1906 – 1975), the most important female philosopher of the twentieth century, poses this question: “Has man’s conquest of space increased or diminished his stature?» (Arendt, 2007).” We have come to our present capacity to “conquer space” through our new ability to handle nature from a point in the universe outside the Earth» (Arendt, 2007) and this “Archimedean point” is virtually reached, according to Arendt, whenever we release energy processes that ordinarily happen only on the sun, or attempt to initiate in the laboratory the processes of cosmic evolution, or build machines for the production and control of energies previously unknown within the borders of earthly nature. Science and technology, in their effort to realize the dreams of Archimede, «have found a way to act on Earth as though we disposed of terrestrial nature from outside, from the point of Einstein’s ‘observer freely poised in space’» (Arendt, 2007). If we look down from this point upon what is happening on Earth, that is, if we apply the Archimedean point to ourselves, says Arendt, «then these activities will indeed appear to ourselves as no more than “overt behavior,” which we can study with the same methods we use to study the behavior of rats ... Seen from a

sufficient distance, the cars in which we travel and which we have built will look as though they were, as Heisenberg once put it, “as an inescapable part of ourselves as the snail’s shell is to its occupant.” » (Arendt, 2007). From this point of view, which is the one adopted by space technology, the whole of human culture will be seen no more as sign of “magnitude”«, but rather as a large-scale biological process.” Under these circumstances, speech and everyday language would indeed be no longer a meaningful utterance that transcends behavior even if it only expresses it, and it would much better be replaced by the extreme and in itself meaningless formalism of mathematical signs» (Arendt, 2007).

The answer of Hannah Arendt to the question about the relationship between the human condition and the realization of the “space dream” is simple: *the conquest of space, and the science that made it possible, have come perilously close to the point where the stature of man has not simply been lowered by all standards we know of, but it has been destroyed.*

CONCLUSION

In conclusion, these are the outlines of the two irreconcilable visions that philosophers have proposed before and after the development of spaceflight. The Astolfo Protocol” is characterized by the following conceptual elements: a) a daring forward-looking anthropology; b) the dominance of the theme of the habitat; c) some specific technological problems: navigation, flight and breathing; d) the principles of repetition and difference. On the contrary, the prospect of the “abandoned Earth” fields entirely different elements: a) an anthropology of human inadequacy; b) a comparison between man and the machine; c) body modification; d) the “be human or not to be human” question; e) Earth as a lost “homeland”; c) the diminution of humanity up to its destruction. As it can be seen, the two standpoints are not simply in opposition, they are incomparable. In each of them is expressed a plan of reasoning that cannot be transposed in any other way. This disarticulation is a recent phenomenon and it is probably due to the detachment that, during the twentieth century, has endured the languages of philosophy and of science, which in the past were united and supportive of each other. But since philosophers have well demonstrated the ability to change their minds, they have probably not yet uttered the last word on spaceflight.

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