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# NATURE AGAINST THE HUMAN SPECIES: SCIENCE IN THE APOCALYPTIC NOVELS BY JAMES BALLARD AND OLAF STAPLEDON

**ABSTRACT.** The paper focuses on the post-apocalyptic novels by J. G. Ballard *The Wind from Nowhere* (1961) and *Last and First Men* by Olaf W. Stapledon (1930), by analysing scientific phenomena and discoveries employed in these novels, in which the *novum* is used as the springboard for the observations about human nature and human futurity. These novels can serve as a warning to mankind and may be seen as allegorical representations of the breakdown of society facing existential threats.

Not only do both writers in these novels use the latest achievements in quantum physics and astrophysics, but they also provide profound psychological analysis of the human species doomed to inevitable extinction. Stapledon and Ballard suggest that negative human features such as unquenchable thirst for money and power, egoism, irresponsibility can also lead to wars and ecological catastrophes causing the extinction of the human species. These novels can serve as a warning to the humankind and as a call to combine the great powers of science, common sense, and the best human qualities in order to solve problems threatening the existence of humankind, from the climate change to a supernova explosion.

**KEYWORDS:** science fiction; apocalyptic fiction; extinction; science; catastrophes.

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The 20th century had been extremely rich in important scientific discoveries, starting from the discovery of radiation by Rutherford, relativity theory by Einstein, quantum theory, the Big Bang theory, the evolution of the stars, and many others. These important discoveries in astrophysics and elementary particle physics inspired not only scientists but also science fiction writers, who immediately started employing this scientific knowledge in their fiction, creating numerous utopias and dystopias of the future. The modern science has also demonstrated that our Universe in general, and Solar system in particular, are not such safe places to live in as we are used to think. Deadly solar radiation, supernova explosions, comets, asteroids, changes of planet orbits, solar superflares – the list of fatal dangers has impressively extended, providing science fiction writers with almost unlimited possibilities for apocalyptic fiction.

The paper focuses on the scientific phenomena and discoveries employed in the post-apocalyptic novels by J. G. Ballard *The Wind from Nowhere* (1961) and *Last and First Men* by Olaf W. Stapledon (1930), in which *novum* is used as the springboard for the observations about human nature and human futurity. Both novels can be interpreted as a grave warning to humanity, as well as allegorical representations of the breakdown of society in the face of existential threats.

While solar activity causes apocalypse in both *The Wind from Nowhere* and in *Last and First Men*, the mechanism of destruction is different. In the former case, it is the interaction between very intensive solar radiation and atmosphere, which provokes highly destructive cyclones, while in the latter case, it is the rapid expansion of the sun and its passing to the next stage of evolution (supernova), which causes extinction of the utopian society of the Last Men. Not only do both writers use the latest achievements in quantum physics and astrophysics in these texts, but they also provide a profound psychological analysis of the human species doomed to inevitable extinction.

Let us first analyse the natural sciences employed in *Last and First Man* by Olaf Stapledon (1930). First of all, both writers employ the Standard Cosmological Model in their narrations (Liddle, 2003). The events in *Last and First Men* can be described by the Standard Cosmological Model (Big Bang, the expansion of the universe, etc.). The gradual perfection of a human species is attained along the linear timeline by means of natural evolution and eugenics from the beginning to the end of the narration. Only on very rare occasions does Stapledon allow the narration to slip beyond the Standard Cosmological Model, as in the complex, highly poetical blend describing the Soul of

All. This blend, in a metaphorical way, makes an allusion to the hypothesis beyond the Standard Cosmological Model, namely, to the hypothesis of multiple universes and parallel universes as its particular case.

The paradigm of *Last and First Men* is the evolution of different human species from *Homo sapiens* (the First Men) to the 18th Men (the Last Men) and humankind's striving for survival to make the best of itself, to "attain the highest kind of fulfilment possible for the human species" (Stapledon, 1999, p. 200). The main theme of the book may be syntagmatically divided into three distinct macro episodes: the life of humankind on Earth (the first five species), the life on Venus and the life on Neptune, where the last human species finally created a utopia.

The new possibilities available to the Last Men due to telepathy have tremendously influenced their society structure. In fact, it is a pure utopia. It is "a society dominated, as no previous society, by a single racial purpose, which is in a sense religious" (Stapledon, 1999, p. 280). The society functions without the aid of armies or even a police force; it needs no government and no laws. Suggestions about the improvement of the society's functioning are submitted directly to the whole world-population in 'telepathic conference'. Thus, the only serious possibility of conflict lies now between the world population as individuals and the same individuals as group minds or racial mind. Unfortunately, at the peak of their development, the Last Men discover that the sun is infected with an unknown disease, which will cause its explosion and the complete destruction of their civilisation in a very short time. This description roughly reminds us of the supernova explosion, which destroys everything around it by deadly radiation. Even if the last human species mastered all the secrets of terraforming and eugenics, their level of scientific development would not allow them to leave the solar system to save the humankind from the rapidly approaching supernova explosion. Thus, it might be one of the numerous messages of the narrative by Stapledon that the humankind should study the universe to foresee the possible threats to its existence.

Additionally, in *The Wind from Nowhere* the solar radiation causes great damages, though not the complete planet destruction as in *Last and First Men*. One of the scientists, Doctor Symington, observes, "Recently our monitors have detected unusually high levels of cosmic radiation" (Ballard, 1962, p. 30). According to the scientist, this radiation has caused the devastating cyclone. He proposes one of the possible explanations of this phenomenon:

All electromagnetic wave forms have mass—perhaps a vast tangential stream of cosmic radiation exploded from the sun during the solar eclipse a month ago, struck the earth on one exposed hemisphere, and its gravitational drag might have set in motion the huge cyclone revolving round the earth's axis at this moment. (Ballard, 1962, p. 30).

If some small incorrect details are ignored, the overall scientific explanation of the cyclone origins can be quite acceptable.

The solar activity, especially solar flares and superflares, have been attracting attention for a long time, especially after the famous Carrington superflare in 1859. The Carrington solar event caused the disruption of telegraph services, but the same event would lead to far more destructive effects in the modern times and that is exactly the message, which scientists and science fiction writers like Ballard are trying to emphasise in their works. Lingham and Loeb (2017, p. 12) observe that superflares of large magnitude “may be sufficient to cause total ozone depletion and lead to major ecological damage”. The scientists conclude

that a superflare of this magnitude [ $10^{36-37}$  erg] could cause destruction of the ozone layer, thereby leading to widespread damage to ecosystems, and possibly triggering a mass extinction. In addition, the air surface temperature could rise abruptly by a considerable amount, damaging the metabolic functioning of biota because of a breakdown in thermal adaptation. We also raised the important point that small environmental perturbations could lead to far-reaching implications for ecosystems due to nonlinear processes (Lenton et al. 2008). We also suggested that superflares may have acted in concert with geological mechanisms giving rise to extinction events that were neither wholly stochastic nor periodic. (Lingham & Loeb, 2017, p. 13)

The appearance of the hurricane described in the *Wind from Nowhere* can happen under the following circumstances.

Cosmic radiation is highly destructive for any life forms on Earth. Luckily, the magnetic field of our planet creates a barrier to these deadly particles. However, recent studies have demonstrated that we could expect a particularly intensive solar superflare within next 1000 years, which could be highly destructive to life on Earth (Notsu & al, 2019; Perryman, 2018; Lingham and Loeb, 2017). One should keep in mind that also ozone layer blocks a certain amount of harmful solar and cosmic radiation. Ozone layer holes, caused by the industrial pollution, diminish the protective capacity of the ozone layer significantly. If a particularly strong cosmic radiation flux penetrates the atmosphere through the ozone layer hole, it could create a low-pressure

zone in the impact area. If the affected area of lower pressure is huge, the appearance of a very strong wind due to the pressure difference is possible, as described by Ballard in the novel.

Another possibility is, it appears, that if a superflare reaches the Earth, as predicted by two scientists from Harvard University Lingam and Loeb (2017), it would be so strong that it could cause a weakening of the planet's magnetic field for a short period of time. As a result, protective power of the magnetic field against cosmic radiation would diminish and much more charged harmful particles can reach the surface of the Earth. As pointed out earlier, a low-pressure zone would appear in the impact area. If this impact area were to include the whole hemisphere exposed to the sun, the pressure difference would generate enormous air mass movements and hence, strong wind would appear all over the planet as it is described in the *Wind from Nowhere*. However, solar superflares could cause not only such disasters but “the solar electron anti-neutrinos flux produced in a super powerful flare could influence the operating conditions of a georeactor” (Boyarkin & Boyarkina, 2017).

In the novel, Doctor Symington summarises his observations about the hurricane:

The wind force is increasing at the same rate all over the world. It's at its highest—about sixty miles an hour—at the equator, and diminishing gradually with latitude. In other words, it's almost as if a complete shell of solid air, with its axis at the poles, were revolving around the globe. There may be one or two minor variations where local prevailing winds overlay the global system, but its direction is constantly westward. (Ballard, 1962, p. 10).

The scientist continues:

We're witnessing a meteorological phenomenon of unprecedented magnitude, a global cyclone accelerating at a uniform rate, exhibiting all the signs distinguishing highly stable aerodynamic systems. The wind mass now has tremendous momentum, and the inertial forces alone will prevent a sudden abatement. (Ballard, 1962, p. 30).

He adds that

Theoretically there are no reasons why it should not continue to revolve at high speeds indefinitely, and become the prevailing planetary system similar to the revolving clouds of gas that produce the rings of Saturn. To date the weather systems on this planet have always been dictated by the oceanic drifts, but it's obvious now that far stronger influences are at work. (Ballard, 1962, p. 30).

We further learn that this hurricane is highly destructive: "Winds of up to hurricane force have flattened entire towns and villages, causing heavy flooding and hampering the efforts of rescue workers" (Ballard, 1962, p. 10). Moreover, the winds have covered the entire earth surface with terrible dust.

Doctor Symington asked the chemists at the Ministry to analyse a sample of the dust and they discovered that

Apparently this is loess, the fine crystalline topsoil found on the alluvial plains of Tibet and Northern China. [...] If the same concentrations of dust are falling all over the northern hemisphere, it means that something like fifty million tons of soil has been carted all the way across the Middle East and Europe and dumped on the British Isles alone, equal to the top two feet of our country's entire surface. (Ballard, 1962, p. 11).

Apart from the extensive use of the discoveries in the field of natural sciences, it is very interesting to observe the use of the psychological analysis in these science fiction narratives. Let us focus on the differences in human reactions to the inevitable destruction of the Earth and the human species in both works.

In *Last and First Men*, the narrator, one of the Last Men, renders the feelings of his species provoked by the inevitable destruction in a highly poetic, metaphorical blend. This blend is of great importance for the narration since it contains the quintessence of the religious, spiritual and philosophic message of the text. In the wake of destruction, the Last Men have decided to produce and to disseminate the spores of life in the cosmos to ensure the continuation of the human species. This idea is very important and, projected back to the zero world, it means that humankind in every difficult conflict, in the presence of the danger of destruction, must first of all think of the future. Stapledon's agnosticism is used many times in this blend; elaborated together with many inputs from several sciences, it produces the following blend-contemplation about the destiny of intelligent life in the universe, which suggests that the future of the cosmos may lie with other minds, not necessarily with man: "Perhaps, it is with them, and not with man, that the hope of the cosmos lies." (Stapledon, 1999, p. 284).

Ballard, on the other hand, summarises the reaction to the apocalypse from the point of view of the scientist Symington and the millionaire Hardoon, who builds a pyramid in which he hopes (in vain) to hide during the hurricane. According to Symington,

On the whole, people had shown less resourcefulness and flexibility, less foresight, than a wild bird or animal would. Their basic survival instincts had been so dulled, so overlaid by mechanisms designed to serve secondary appetites, that they were totally unable to protect themselves. (Ballard, 1962, p. 67)

This is a very serious warning to the humankind, which is too involved in goods consumption and does not perceive any dangerous signs from nature. As Symington implies, people

were the helpless victims of a deep-rooted optimism about their right to survival, their dominance of the natural order which would guarantee them against everything but their own folly, that they had made gross assumptions about their own superiority. (Ballard, 1962, p. 78)

Hardoon, in his turn, was sure that

Now they [people] were paying the price for this, in truth reaping the basis of my own moral superiority. Only I, in the face of the greatest holocaust ever to strike the earth, have had the moral courage to attempt to outstare nature. That is my sole reason for building this tower. Here on the surface of the globe I meet nature on her own terms, in the arena of her choice. If I fail, Man has no right to assert his innate superiority over the unreason of the natural world. (Ballard, 1962, p. 67).

So, while the Last Men still try to think about the future of the human species even in the wake of the eminent destruction and disseminate spores of life in the open space, they are prepared to accept every outcome of this ambiguous situation. The billionaire Hardoon in *The Wind from Nowhere* seems to be more categorical about the right of the human species for survival. According to him, if the humankind is not able to meet the nature's challenge in the form of a hurricane or something else, it is not worth of living. There is very little of flexibility or acceptance of final fate in this approach as compared to Last Men.

Ballard makes the profound psychological analysis of the industrialist Hardoon, a narcissistic and psychopathic megalomania, one of the persons possibly to blame for the destruction of ecology, ozone layer, and the appearance of the hurricane. It is a scientific fact that industry and industrialists are guilty of destroying the ozone layer if they do not use ecologically friendly technologies. Ecologically and ozone friendly production requires more investments compared to the traditional one, and this reduces profits, the only target of industrial magnates. Sacrificing profits for the sake of environmental protection for the future generations could be a sign of certain moral

courage. However, Haroon clearly demonstrates in the conversation with Doctor Maitland that he is not interested in showing moral courage in daily life since it does not demonstrate well enough his talents to the entire world. He maintains as an industrialist that “moral courage is less important than judgment and experience.” Haroon is not interested in doing charity for the present generations, like founding a university, granting scholarships, etc., not to speak about the future ones. As Haroon reveals to Doctor Maitland,

What should I do? Found a university, endow a thousand scholarships, give away my money to the poor? But a single signature on a check will do these for me, and I know that with my talents I will never be destitute.’ However, he does not do even as little as a signature on a check because he is too egoistic and loves only money, so he is only prepared to spend his money on his own egoistic purposes. (Ballard, 1962, p. 94).

Haroon openly despises people, since most of them belong to the weak, in his opinion, Maitland included. As he replies to Maitland, “It’s astonishing, how the weak always judge the strong by their own limited standards” (Ballard, 1962, p. 93). However, he needs these weak people as an audience to praise him for his talents and moral courage. He wants them to admire his moral courage and philosophy that is why he keeps journalists as hostages, trying to force them to praise his motives and achievements in the newspapers. Haroon is sure that his “talents and position force me to play [his] role on a larger stage” (Ballard, 1962, p. 94). He wants to prove himself. Even the pyramid he builds is suggestive of his narcissism and megalomania. Like a pharaoh in a pyramid, he hopes to pass to another world, a post-apocalyptic one.

Ballard clearly emphasises the danger that such rich magnates present to the world: Doctor Maitland wondered to himself “whether this made him [Haroon] less or more dangerous. How much was he prepared to sacrifice to put his philosophy to the test?” (Ballard, 1962, p. 94). For example, the ecology and lives of thousands of innocent people were already sacrificed. What next?

Haroon in a way advocates the Darwinist principle of the survival of the fittest. However, his concept of the 'fittest' is somehow primitive. He thinks that his financial and industrial empires raise him above the rest of the humankind and give him the right to despise people and to decide the destiny of the human species according to his perverted system of references. Ballard is sarcastic about Haroon's sociophobic and psychopathic characteristics. The writer demonstrates that money is not everything in life; it does not even



help Hardoon to survive. The importance of science steps forward as the calculations of the pyramid are wrong and it is destroyed by the hurricane like every other building.

In fact, the death of Hardoon is very symbolical in the novel; it could mean that people like him should not exist. It is possible to suggest that by satirising the industrialist Hardoon, Ballard demonstrates that such pathologically greedy magnates with narcissistic, psychopathic, and megalomaniac inclinations can create fatal ecological disasters, which in combination with the cosmic catastrophes can lead to the extinction of the human species. In his works, Ballard shows much concern about ecological catastrophe, climate change and their fatal consequences for the humankind. For example, in *The Burning World* (1964), the writer describes the ecological catastrophe (lack of water), which is provoked by the uncontrolled industrial development and excessive industrial waste pollution of the ocean.

Additionally, Stapledon in *Last and First Men* blames the same human qualities (greediness, egoism, irresponsibility, etc.) responsible for the destruction of the civilisation of the First Men. Like Ballard, Stapledon is sure that all these negative human characteristics would lead to the inevitable destruction of the human species.

Numerous factors threatened to extinguish life on Earth, some of which are intrinsic to the human nature, such as greed for power and money, aggressiveness and other traits described in the fiction of Wells, Stapledon, Orwell, Lessing, Ballard and other science fiction writers (Boyarkina, 2018). It is these human qualities that “can cause exhaustion of the natural resources, pandemics, fatal wars and climate changes” (Boyarkina, 2019, p. 123).

While Ballard leaves a small chance of survival (the hurricane finally stops unexpectedly, leaving some survivors), Stapledon seems to be convinced that our present human civilisation is doomed unless certain human qualities like greediness, egoism, aggressiveness are eradicated completely. Interestingly enough, that on this issue Stapledon is much more pessimistic than H.G. Wells who used to believe that even with the current psychological human makeup it is possible to construct an ideal human society as he describes in *The Shape of Things to Come* (1933). Wells remained fairly optimistic about this issue until *The Mind on the End of its Tether* (1945).

Following Darwin's theory of species, Stapledon in *Last and First Men* explores both possibilities of species' development, namely, progress and regress. Like Wells, Stapledon also strongly believed in the power of science to improve the human species. In *Last and First Men*, the

gradual perfection of the human species is attained not only through natural selection but also due to eugenics, non-evolutional transformation of species.

Very particular in this respect is the case of the Fourth Men, The Great Brains, which somehow remind us of the Wellsian Grand Lunar (Wells, 2005). They were artificially constructed by the Third Men who thought that in The Great Brains they implemented the quintessence of a human being, the best and the most important human characteristic: “What is most distinctive in man is intelligent manipulation, brain and hand. [...] we must breed strictly for brain, intelligent co-ordination of behaviour. [...] the whole vitality of the organism may be devoted to brain-building and brain-working. [...] We must produce a man who is nothing but man” (Stapledon, 1999, p. 187).

The Great Brains are passionate researches; they discover almost all the possible laws of the world but still are very unsatisfied and unhappy, since their research comes to a dead point: “They had a growing sense that though in a manner they know everything, they knew nothing” (Stapledon, 1999, p. 194). The main idea here, which must be projected back to the zero world is: “With painful clarity they realised that, in spite of their vast weight of neural tissue, in spite of their knowledge and cunning they were practically no nearer the ultimate truth than their predecessors had been” (Stapledon, 1999, p. 198). Another important concept which must be projected back to the zero world is: “Man [...] was essentially an animal, though uniquely gifted. His whole nature must be developed, not one faculty at the expense of others” (Stapledon, 1999, p. 187).

Fortunately, finally the Great Brains realise that they miss something very important in life: they missed the human emotions, social life, physical experience, love for arts. They took all their own drawbacks into consideration (the main drawback being “the limitation of the insight into values.”) and constructed a more perfect human species, the Fifth Men, in whom they hoped to “attain the goal of perfect knowledge vicariously” (Stapledon, 1999, p. 198).

The parable of the Great Brains uses many important ideas. It obviously contains the eternal philosophical dispute about the nature of man: what is more important in human beings, feelings or the intellect, the soul or the body? The idea that intelligence is the most important human quality is elaborated in the blend according to the principles of eugenics. The parable is created by Stapledon to demonstrate his conviction that intellect is not the only necessary and sufficient aspect of the human species; other aspects are also very impor-

tant and must be worked on to create a harmonious human being. By means of the rule of contraries Stapledon clearly shows that “[e]vidently something more than a mere bulk of brains was needed for the solving of the deeper intellectual problems” (Boyarkina, 2014).

It is worthwhile to notice that this species has not offered many possibilities for the development of spirit. The idea of the supremacy of the intellectual activity made them despise love, other human emotions and arts as useless activities stealing time from research. The Great Brains have radioactive particles of Martians for telepathic communication inbuilt in their brains but they used them not because they wanted to achieve an ideal development of the community and a harmonious equilibrium between individuals and community (Stapledon’s ideal) but only for research purposes: “Solely for the undertaking of more profound research” (Stapledon, 1999, p. 193).

A more successful attempt on the way to fuller realisation of the human potential is the human species of the Fifth Men. They also used telepathy, which in their case contributed to the understanding between people and to the creation of a harmonious community. Each individual “was immeasurably more able to participate in the experience of the others. There were no lasting and no radical conflicts, either of thought or of desire. Every discrepancy of opinion or of aim could be abolished by telepathic discussion” (Stapledon, 1999, p. 207).

Telepathy greatly contributed to the fulfilment of the personality within a community. Together with the extremely subtle brain-structure of the species it afforded “each individual an immense number of intimate friendships, and some slight acquaintance actually with the whole race. [...] Each person was aware of every other, at least as a face, or a name, or the holder of a certain office. [...] The species constituted at any moment, if not strictly a community of friends, at least a vast club or college.” (Stapledon, 1999, p. 208). The sense of community was very strong in the Fifth Men: “They had schooled themselves to live not for the individual but for the race” (Stapledon, 1999, p. 213).

In conclusion, the analysis of role of science and its contribution to the general message in the apocalyptic novels *The Wind from Nowhere* by James Ballard and *Last and First Men* by Olaf Stapledon reveals that the scientific phenomena in these two novels are employed as the springboard for the observations about human nature and human futurity. Although many aspects and fields of science are employed in the narrations, more attention is dedicated to astrophysics since cosmic and solar radiation is the main destructive agent in both novels.

Already in the 19<sup>th</sup> and 20<sup>th</sup> centuries the idea of highly destructive solar events, like solar flares and superflares, has been in the air. However, only recently, scientists from Harvard University presented plausible proof of existing connections between these superflares and life extinction on Earth. Manasvi Lingam and Abraham Loeb suggest that “the most powerful superflares can serve as plausible drivers of extinction events, and that their periodicity could correspond to certain patterns in the terrestrial fossil diversity record” (Lingam and Loeb, 2017, p. 42). They conclude that “the risk posed by superflares has not been sufficiently appreciated, and that humanity might potentially witness a superflare event in the next  $\sim 10^3$  years leading to devastating economic and technological losses” (Lingam and Loeb, 2017, p. 42) By including solar events in their narrations, Stapledon and Ballard draw public attention to the importance of the scientific research in this field (and in many related fields as well, for example, climate change, etc.) to prevent the extinction of the human species.

In both novels considerable importance is given to the psychological analysis since Stapledon and Ballard are sure that such negative human features as unquenchable thirst for money and power, egoism, irresponsibility can also lead to the extinction of the human species, causing wars and ecological catastrophes. These novels can serve as a serious warning to the humankind, as well as a call to combine the great powers of science, common sense, and the best human qualities in order to eliminate possible threats to the existence of humankind.

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ИРЕН БОЈАРКИНА

УНИВЕРЗИТЕТ ЛА САПИЈЕНЦА У РИМУ

ФИЛОЗОФСКИ ФАКУЛТЕТ

ДЕПАРТАМАН ЗА ЕВРОПСКЕ, АМЕРИЧКЕ И ИНТЕРКУЛТУРАЛНЕ СТУДИЈЕ

РЕЗИМЕ

ПРИРОДА ПРОТИВ ЉУДСКЕ ВРСТЕ: НАУКА У АПОКАЛИПТИЧНИМ РОМАНИМА ЏЕЈМСА БАЛАРДА И ОЛАФА СТЕЈПЛДОНА

Двадесети век забележио је бројна научна достигнућа, од Радефордовога открића нуклеарних реакција, преко Ајнштајнове теорије релативитета, квантне теорије, теорије великог праска, еволуције звезда, и бројних других. Ова значајна открића у области астрофизике и физике елементарних честица инспирисала су не само научнике него и писце научне фантастике, који су употребом таквих научна сазнања створили бројне футуристичке утопије и дистопије. Савремена наука је показала да наш универзум, уопштено гледано, и конкретно наш сунчев систем, није безбедно место за живот колико се то може чинити на први поглед. Смртоносна соларна радијација, експлозије супернова, комете, астероиди, промене у орбити планета, короналне експлозије – листа фаталних опасности значајно се проширила, отварајући простор писцима научне фантастике за готово неограничене могућности када је апокалиптична проза у питању.

Рад се фокусира на постапокалиптичне романе *Вейар ниоџкуд* (1961) Џ. Г. Баларда и *Последњи и њрви људи* (1930) Олафа В. Стејплдона уз анализу употребљених научних феномена и открића. У

романима је коришћен новум као полазна тачка за промишљања о људској природи и будућности. Ови романи својеврсно су упозорење људском роду и могу се посматрати као алегорије слома друштва суоченог са егзистенцијалним претњама.

Апокалипсу у *Вешру ниоџкуд* и *Последњим и њрвим људима* узрокује соларна активност, али механизам уништења се разликује. У првом случају интеракција интензивне соларне радијације и атмосфере узрокује изузетно разорне циклоне, док у другом случају катастрофу изазива рапидно увећање сунца и прелазак у следећу фазу развоја (супернова), која уништава утопијско друштво Последњих људи. Уз обиље елемената квантне физике и астрофизике оба писца дају свеобухватну психолошку анализу људске врсте осуђене на изумирање.

Стејплдон и Балард сугеришу да негативне људске особине као што су неутажива жеђ за новцем и моћи, егоизам и неодговорност могу довести до истребљења људске врсте ратовима и еколошким катастрофама. Ови романи упозоравају и позивају на комбиновану употребу науке, здравог разума и најбољих људских особина у циљу решавања егзистенцијалних претњи, од климатских промена до експлозије супернове.

Кључне речи: научна фантастика; апокалиптична проза; истребљење; наука; катастрофе.



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