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Is Stanislaw Lem's *Solaris* a "scientific" novel?

Чи є «Соляріс» Станіслава Лема «науковим» романом?

Summary. *The given article deals with one of the most well-known Polish writers Stanislaw Lem and his novel Solaris. It is a rather controversial work which aroused a lot of discussions and disagreements. The investigation tries to prove that Solaris is not a typical classical sci-fi novel and there are several things giving evidence to the fact. One of the most fundamental dividing lines in science is that of "the observer/the observed" and this binary opposition is violated as the scientists on the planet do not do any research. The observer and the observed are polarized, with the observer inevitably claiming the dominant role, the ocean in question was never really "studied" properly because it does not let itself be studied. What is more, scientists on board the ship almost do not perform any complicated technical experiments. The things Lem describes are partly just regular ones, of everyday use, and partly related to space exploration. But the fact that they are seen in such a mundane environment, in disorder, is already indicating that something is wrong with the potential "scientific" life on the station. Solaris (ocean) itself can be read (among other things) as a metaphor of death. The ocean, obviously, possesses some information about the people who come within its reach. It is unpredictable even in terms of its external appearance. The ocean reproduces some of the objects/images it finds in human minds, and then tries to master it. The ocean obviously triggers something in humans and makes them face certain phenomena or feelings, often, as it seems, quite traumatic. So, the ocean is a kind of a container of information, a large organ that preserves and transforms it. Lem's Solaris makes us face a number of important questions. It posits itself, seemingly, as a sci-fi novel that invests in describing the scientific process of research and discovery. However, it soon becomes clear that Lem is doing all he can to question the idea of "science" as it exists in the modern mind, emphasizing the idea of the unity of the universe.*

Key words: *science, ocean, death, universal memory, observed/observer, continuum, wholeness.*

Анотація. *Ця стаття розглядає роман «Соляріс» одного з найвідоміших польських письменників Станіслава Лема. Це досить суперечливий твір, який викликав багато дискусій і розходжень у думках. Однією з найбільш фундаментальних розділових ліній у науці є «спостерігач/об'єкт спо-*

стереження», і ця бінарна опозиція порушується, оскільки вчені на планеті не проводять жодних наукових досліджень. Спостерігач і спостережуваний поляризовані, при цьому спостерігач неминуче претендує на домінуючу роль, океан у романі ніколи насправді не «вивчався» належним чином, тому що він не дає себе вивчати. Більш того, вчені на борту корабля майже не проводять ніяких складних технічних експериментів. Речі, які описує Лем, частково є просто звичайними речами повсякденного вжитку, і лише частково пов'язані з освоєнням космосу. Але те, що їх помітили в буденному середовищі, в безладі, вже свідчить, що з потенційним «науковим» життям на станції щось не так. Сам Соляріс (океан) можна трактувати (крім усього іншого) як метафору смерті. Лем зображує його як щось абсолютно незбагненне для нашого розуму. Океан, очевидно, володіє деякою інформацією про людей, які перебувають у межах його досяжності. Він є непередбачуваним навіть у плані свого зовнішнього вигляду. Океан відтворює предмети/образи, які він знаходить у свідомості людини, а потім намагається оволодіти ними. Океан, очевидно, викликає щось у людей і змушує їх стикатися з певними явищами або почуттями, часто, як здається, досить травматичними. Отже, океан – це своєрідний контейнер інформації, великий орган, який зберігає і перетворює її. «Соляріс» Лема змушує нас стикнутися з низкою важливих питань. Він позиціонує себе, здавалося б, як науково-фантастичний роман, який робить певний вклад в опис наукового процесу дослідження і відкриття. Однак незабаром з'ясовується, що Лем робить усе можливе, щоб поставити під сумнів ідею «науки» такою, якою вона існує у сучасному розумінні, наголошуючи на єдності Всесвіту.

Ключові слова: *наука, океан, смерть, універсальна пам'ять, об'єкт спостереження /спостерігач, континуум, цілісність.*

Introduction. The name of Polish writer Stanislaw Lem and his novel *Solaris* are widely known all over the world, but during his life he was harshly criticized by lots of sci-fi authors and critics such as Ray Bradbury, Isaak Asimov, Philip K. Dick and others. In 1976 Lem was expelled from the Science Fiction Writers of America. With the passing of the years and Lem's death tempers have calmed and the sci-fi world can appreciate this masterful writer who deservedly ranks among the finest authors of this genre, and who cut through the stale formulas of it. His creative work has attracted attention of a range of scholars, among them Thomas Grob [3], Peter Case [2], Lech Keller [4] and others. The topicality of this research is predetermined by the fact that none of the above-mentioned authors raised the question whether *Solaris* is a classical sci-fi novel or something deeper. Lem asks what would happen if an encounter with intelligent alien life took place on a biological level beyond our comprehension? Lem did not focus on spectacular surface effects like many other sci-fi writers, he tried to penetrate into the psychological depths and it is made real, it takes on the appearance of an external manifestation of the scientists' inner life.

Methodology. The main method of research employed in the given article is close reading, also known as close textual analysis, which investigates the relationship between the internal workings of discourse in order to discover what makes a particular text function persuasively. Close reading may be related to the hermeneutical triangle since three important traits are examined: the author of the text; the audience and the message itself. Close reading attempts to reveal the detailed, often concealed, tools that give a particular text stylistic consistency and rhetorical effect.

Results and discussion. "*The time of cruel miracles was not past,"* thinks Kris Kelvin, the protagonist of Stanislaw Lem's *Solaris.* He spends some time sitting at the shore of the ocean and trying to put his hand into its "water", and watches how the "water" goes around his hand, without touch. The ocean which for such a long time was the object of many studies has rejected any understanding that humans had to offer – or imagined they had to offer, – and Kris, the main character, now has to admit it to himself, even if nobody else around him does. There is no way for the human race to go on thinking that the worlds "out there," in the immense space, are necessarily populated by the intelligent beings that resemble us. The striving for understanding and sympathy, ironically, is depicted in *Solaris* as a very human trait – despite all the wars people wage on each other, all the pain caused and all the talks involving the categories of good and evil.

All of this gets redefined when Kris "meets" the ocean and becomes engaged in what can be viewed as a form of communicating with it – or not. Solaris offers us a vision of relativity where old definitions do not work. After the encounter Kris could not answer any more what was "good" or what was "evil"; for instance: would it have been better if he never saw Hari (Rheya) again? Was it good that he did, and thus had a chance of redemption? Did it matter that she was not the one who died? Which one of the "cruel miracles" should or should not have happened? And here we find another fundamental question that seems to be posited in the book: that of death. Hari (Rheya), who supposedly died a while ago, is not simply a zombie, as it is obvious in the novel: she uses the information about herself which she finds in Kris's mind.

In *The Living Energy Universe*, Schwartz and Russek discuss the possibility of the universal memory. They describe what they call "the *universal living memory process*" [6, p. 68] and provide numerous examples. For instance, a young man who gets the heart of one woman's dead husband, uses the same words and the deceased; water retains information; "*every living cell on the earth, including every living cell in [the] body, should store information concerning everything it comes into contact with"* [6, p. 72]. This resonates with the idea used by Michael Talbot in his *Holographic Universe*: he relies on the findings of David Bohm who argued that "*everything in the universe is part of a continuum"* [1, p. 48].

Solaris provides the readers with multiple questions as far as the ideas of such wholeness are concerned. Humans and a non-human entity, ocean, obviously share information, and many things the crew members on board the station want to forget about, surface, because nothing disappears. This is not something that can be proven, and of course it is not – not by "scientific" methods in use at the moment. It seems that the novel plays with the notion of science, showing the readers some aspects of the concepts that were perhaps overlooked before.

In a way, we do not see much of what we are perhaps used to seeing in a sci-fi novel: the scientists on board the ship almost do not perform any complicated technical experiments. We see Kris doing some calculations, launching the shuttle by pressing a button or two, and then taking a blood sample from Hari – both of which are fairly simple, considering the fact that we are supposedly reading about a complicated space craft; all the technical side of Sartorius's activities are mentioned briefly, in a cursory manner. Snaut (Snow) is dealing with approximately the same level of technical challenges as Kris, plus opening canned meat. Sartorius eventually even blames Kris for not being occupied with science, but attending only to a love "affair" with Hari and lying around in bed all day long. So, a seemingly very "scientific" novel does not really tell us that much about science. Moreover, it violates some of the basic principles of "science" and, perhaps, even of writing a "sci-fi" novel. It can be fair, perhaps, to call Solaris an anti-scientific novel: if by science we are to understand a set of atomistic views about the universe.

The novel opens with rather technical details: moreover, by the exact time, like the great European realist works of the 19th century, thus indicating to the readers that it is a serious work dealing with serious issues (and it truly is: but not the ones we expect). The exact time is a kind of an anchor to the fixed concepts of time and space that exist in the human society. We are not only witnessing the departure of an astronaut, we also know when it happened. Everything is supposedly very measured and "scientific." A rather detailed description of Kris's surroundings follows: "*Inside the narrow cockpit, there was scarcely room to move. I attached the hose to the valve on my space suit and it inflated rapidly*" [5, p. 1]. Nothing distracts us from believing that what we are reading will turn out to be a "technologically" saturated novel, full of scientific details and exciting adventures. Even when Kris arrives at Solaris, we are still under the illusion that the action will pick up – he and his colleagues will go out on a mission, fly planes over the ocean, collect samples, and overall focus on observing the new and – possibly – hostile nature of their environment. Perhaps, they will investigate the death of Gibarian, and the scientific elements will drive the plot of the story. We expect a more "quantitative"

approach, with scientific collecting and analysis of data, so that then the qualitative change may occur; but this never happens. The story is driven by a very different dialectics.

However, all these expectations are soon shattered. Kris does provide the readers with an account of past research done on Solaris. It is generally believed that "*the ocean was actually a living 'creature', and …a rational one"* [5, p. 20]. Kris looks at "*multicolored illustrations, picturesque graphs, analytical summaries and spectral diagrams"* [5, p. 20] and the mentioning of all of these scientifically collected data is there to persuade the readers that they are holding a sci-fi novel in their hands. Lem skillfully tells us about the findings provided by physicists, mathematicians and other professionals, and describes it using the terminology of these sciences: "*The ocean as a source of electric and magnetic impulses and of gravitation expressed itself in a more or less mathematical language"* [5, p. 21]. Only after his conversation with Sartorius does Kris begin to question his own sanity, and from then on the novel takes a turn, because Kris meets Hari (Rheya).

It is symptomatic that Hari's arrival comes after/during Kris's sleep time. Sleep can resemble death, sleep serves here the function of a divide – and a reference to death. Kris wakes up to the other side of death, in a way, as if having gone through its gate (it is worth noting that Hari herself never sleeps: she does not need the divide, being already in all dimensions simultaneously). Kris is now (in some sense) in the times that precede Hari's death. Thus, we see the concept of time totally redefined. We see no "exact timing" of the opening scene: from the moment of Kris's arrival, the time on the station is relative, because it rotates around two "suns" simultaneously, and experiences two days and two nights, which always seem to come very unexpectedly and scare the characters (namely, Kris).

The station is floating over the planet, and thus has no "space" of its own; Lem specifically mentions that even "*Solaris's orbit was unstable*" [5, p. 16]. The ocean does not fit any of the known matrices either *"…Unlike terrestrial organisms, it had not taken hundreds of millions of years to adapt itself to its environment – culminating in the first representatives of a species endowed with reason – but dominated its environment immediately"* [5, p. 19]. Basically, Solaris is an impossibility, an inconceivable space that cannot be adequately depicted or measured, and, by all the laws of physics known to man, should not exist.

The space inside the station is somewhat strange: the rooms are either too empty or too full of rubbish. We have a sense of chaos from only browsing the descriptions: *"I saw a tall locker beside the entrance door. It was half-open, filled with atmosphere suits, laboratory smocks, insulated*

aprons, underclothing, boots for planetary exploration, and aluminum cylinders: portable oxygen gear" [5, p. 13] … *"Everywhere was the same chaos"* [5, p. 13]. Lem gives a lot of details as far as this crammed space is concerned. It almost feels homey, indicating that there are human beings living here, in these quarters. But it also points out that these humans are obviously in distress, since the way they scatter their things around cannot be a sign of comfort and ease. The things Lem describes are partly just regular ones, of everyday use, and partly related to space exploration. But the fact that they are seen in such a mundane environment, in disorder, is already indicating that something is wrong with the potential "scientific" life on the station. "Portable oxygen gear" and "boots for planetary exploration" are not seen as details in a scene that actually deals with any active space exploration. They are lying around as discarded and useless tools of "science" which failed to accomplish its mission.

Solaris (ocean) itself can be read (among other things) as a metaphor of death. The latter is traditionally pictured as the great divide, often as water. It is not accidental that Kris cannot really "touch" the ocean's fluids: how can you touch death, that which is "on the other side?" These meanings are intensified in the case of the ocean by a number of other characteristics. For example, the ocean is described as "incomprehensible". The pilot Berton sees a lot of "*fog*" [5, p. 79] which can be read as a trope for incomprehensibility, underscoring the state of being lost. The ocean is conceptualized as a *"blind" entity* [5, p. 204] which is either threatening or not – and this question is never truly solved.

Science, in the common understanding of nowadays, has become a site of many divisions. As David Bohm puts it, *"the process of division is a way of thinking about things that is convenient and useful mainly in the domain of practical, technical and functional activities*" [1, p. 3]. One of the most fundamental dividing lines in science is that of "the observer/the observed." In the novel, it is Sartorius who represents this "old school" approach, and according to it he keeps separating himself from the "guests" that the team has to deal with. He repeatedly says that Hari is not human, and therefore has nothing to do with all of them and even with Kris. He still is trying to cling to the notion of the observer, with Hari and the ocean being the "observed," and of course he fails miserably. In fact, it is hard to say who in the novel fails and who does not, because it is not a happy ending story; but if deeper understanding of self can be considered a gain, then Kris is definitely ahead of everybody else. Sartorius tries to behave like a real scientist, to stay in his quarters and to conduct experiment after experiment. He has guests, but does not attempt to connect with them the way Kris does with Hari. To Sartorius, the ocean is to be studied and – potentially – even destroyed.

Snaut (Snow) later stresses the idea of observation as the main scientific method to be applied: "*Science is concerned with phenomena rather than causes"* [5, p. 73]. The observer and the observed are polarized, with the observer inevitably claiming the dominant role. The sentence about "phenomena" versus "causes" is very interesting in this context: in a way, causes is what is being offered by the ocean and never truly accepted by the team, and the observation of the phenomena never leads anywhere, because it is the wrong approach. The astronauts imagine that it is the ocean that is the "phenomenon," and is therefore to be observed in this capacity, but instead they are made to deal with the causes they do not even realize exist. There is no way to do research that only occupies itself with "phenomena," the ocean tries to communicate. But "causes" are too much to handle; they belong to the realm of that which is normally labeled "irrational," "inexplicable" and, hopefully, non-existent. They are the karma the astronauts carry – but they do not seriously believe in existence of such things. The scientist is still viewed as someone capable of "objectivity" and "impartiality".

And all this just comes to demonstrate the fact that *Solaris* is not a typical sci-fi novel, but, in some ways, a sabotaging of one. The premises of "science" are obviously violated: the ocean in question was never really "studied" properly because it does not let itself be studied. What we witness, mostly, is the angst that the researchers experience from being unable to learn anything from or about the ocean. The discipline "solaristics" consists more of what is not known that from what is known. The "scientific" work on board the ship is not conducted properly (or at least, not the way we expect it to be). The great mystery is never solved.

The ocean, obviously, possesses some information about the people who come within its reach. It is unpredictable even in terms of its external appearance: it changes quite a bit, as, for example, Berton testifies. "*I noticed the change in the ocean's surface… The waves had almost completely disappeared, and the upper layer of the fluid – or whatever the ocean is made of – was becoming transparent, with murky streaks here and there which gradually dissolved until, finally, it was perfectly clear*" [5, p. 79]. He also witnesses the ocean produce a garden and then a child – exactly the same child Berton saw later at the house of one of the perished astronauts. The ocean reproduces some of the objects/images it finds in human minds, and then tries to master it. The ocean obviously triggers something in humans and makes them face certain phenomena or feelings, often, as it seems, quite traumatic. It looks like they can be either things past or present or even just fantasies. So, the ocean is a kind of a container of information, a large organ that preserves and transforms them.

As Schwartz and Russek say in their book, no information is lost in the world – everything is material, from thought to solid matter, and everything gets preserved. According to them, *"in all dynamic systems, information becomes, and stays alive, and evolves integratively. Systemic memory is universal living memory"* [6, p. 12]. We can assume that the ocean is a site of such memory to be collected, stored and then used. It is like a giant transmission station that exists in space and collects whatever information. It is impossible to observe" such a thing in exactly the same way most phenomena are observed by scientific methods. The observer and the observed have to exist in unity: there is no way to separate them. As Michael Talbot puts it, "*the observer is the observed. The observer is also the measuring device, the experimental results, the laboratory, and the breeze that blows outside the laboratory"* [7, p. 50].

"Science" as viewed by the researchers a-la Sartorius (who is so impeccable that he even continued shaving when the crew was in trouble, and who would not "let himself go" and stop working, considering his ability to be dedicated an unmistakable sign of humanity) is exactly this: the division of the things in the universe into living and non-living. In a way, the ocean of Solaris is death: scientists make it symbolically "dead" by treating it as a non-living being, at first. They still imagine that they can treat it as something separate from themselves, and when it begins to transmit information stored in its depths, are quite upset with this. They are, in a way, punished for disconnect from the ocean and, respectively, from themselves. They do not quite understand that "*everything in the universe is part of a continuum. Despite the apparent separateness of things at the explicate level, everything is a seamless extension of everything else, and ultimately even* the *implicate and explicate orders blend into each other"* [7, p. 48]. The link that unites "the implicate and explicate orders" in the book is Hari.

The story truly picks up with the arrival of Hari. Since her appearance, we are suddenly dealing with a very different kind of a story. I would even go as far as to call the narrative somewhat hysterical: Hari constantly cries, wants to discuss the relationship, and behaves, overall, in a way more fitting for a star of a soap-opera than to anything else. And yet the reader does feel that it all is perfectly justified. Lem courageously plunges into the realm of human relations which are usually messy, and not clean-cut and portioned. If Hari were depicted as more stoic, the story would very much lose credibility. Hari always speaks with ellipses: she does not finish sentences, for example, changes topics and seems to be at a loss: "***I was very frightened, and*** …" [5, p. 9], ***"I… what happened to me***?"[ibid]), ***"I'm not your little anything, I'm not a child. I'm***…." [5, p. 107], ***"I have strange thoughts. I don't know where they come from… They are thoughts …all*** around me" [5, p. 108].

Kris thinks that he loves the new Hari, but it would probably be more feasible to think that he just went through the process of evolution. Kris's love also evolves: what was just a beginning of it on the Earth, reached its full capacity on Solaris, once Kris was left without the usual concepts of time and space. In this timelessness and spacelessness he is able to change and grow. "Science" and "life" for him suddenly become one. What happens between him and Hari, thus, is not a simple melodrama of (non)recognition: it is a process of becoming one with the universe, but the process that is not yet understood. It feels even somewhat forced: as if the ocean is unmerciful enough to impose this on Kris, without letting him arrive at it in any other way. Hari's second "death" from liquid oxygen (another poisoning and another suicide) is a means to make a full circle of traumatic events.

However, she does opt for annihilation at the end. It happens with the help of Sartorius, the "real" scientist who found out a way to target the form of life Hari right now represents. So, at first sight, the "science" wins the game: objectivity takes over, and even Hari, who is a creation that symbolizes the unity and the connection of the elements of the universe, comes to admit its power and potential. On the other hand, the novel ends on a rather unpredictable note. Kris thinks that "*the liquid giant had been the death of hundreds of men"* [5, p. 204]. However, he does not feel that his own story, including his relationship with Hari, is over. *"I was calm: in secret, without really admitting it, I was waiting for something. Her return? How could I have been waiting for that*?" [ibid]. Kris is lamenting the fact *that "human existence should repeat itself like a hackneyed tune, or a record a drunkard keeps playing as he feeds coins into the jukebox*" [5, p. 204]).

Lem's *Solaris* makes us face a number of important questions. It posits itself, seemingly, as a sci-fi novel that invests in describing the scientific process of research and discovery. However, it soon becomes clear that Lem is doing all he can to question the idea of "science" as it exists in the modern mind. Instead, his concepts of human life in relations to science fit much better with the paradigms described by such thinkers as David Bohm, Linda Russek, Gary Schwartz and Michael Talbot. They emphasize, firstly, the unity of the universe. The universe, according to their findings, is not a set of disjointed bodies and events, but a wholeness in the realm of which nothing ends or disappears.

Everything is a living system, they claim, and therefore everything has memory. In this sense, the ocean of Solaris is a perfect example of an entity that would normally be conceptualized as a non-living, but disproves all the findings that humans wish to impose on it. The ocean is "deadly," if we understand death as an entry into non-being, but it does not seem to know anything about non-being. "Visitors" which he produces out of the

memories of the crew members are outside of the life and death dichotomy, they "resurrect" and "die" and then "resurrect" again, questioning the very essence of death. In this respect, the relationship between Hari and Kris is quite remarkable. Hari is Kris's creation, and yet he feels that he is also her creation, especially towards the end. He evolves, and so does his feeling for her.

Conclusions. One of the central issues in the book is that of science. "Science" – or what we know as science – is not at all glorified. On the contrary, Lem questions it, and this questioning is discursively present throughout the novel. Science is not regarded as "objective" and "separate from the researcher." The problem of objectivity is made highly controversial, because the dichotomy of the observer/the observed is destabilized. The crew members of the station are not sure anymore whether they are being observed or whether they are still observing what they perceive to be a scientific phenomenon and the "scientific" methods described in the book are not leading anywhere. Some of the pilots who had the misfortune to fly over the ocean, die, the others go mad. All the scientific research on the ocean turns out to be somewhat irrelevant after all: the fact that we do hear about the studies done does not mean that there is any understanding of what the ocean is. Up to the very end Kris has no idea what happened to him why and whether it will happen again. In a way, he is right: now, that the ocean has his information, anything is to be expected – another Hari, another death which is not death. Hari for him becomes a tool for discovery, and this discovery can, probably, be even called scientific, but it is a kind of science that is connected with the person who administers it – the kind takes into account the wholeness of the universe and its new ethics that arises from it.

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