

Anna Pavlichenko

PUZZLES OF LIFE QUANTUM ENTANGLEMENT

historical novel



Kyiv

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P12

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The events of the novel describe the Ukrainian-Russian war, from the Maidan, during the ATO and the full-scale invasion. The protagonist Lilia is a doctor, a participant of the Maidan and the ATO, who has strange déjà vu feelings and a desire to uncover the mystery of her brain. The second hero, Yurii, is a lawyer, a participant of the Maidan's events, a volunteer, a fighter for justice. They share the same paths, assist the state, but have not crossed paths with each other for a long time.

The heroes are wounded in the ATO zone, return to Kyiv, and get to know each other. After the surgery, Lilia finds out the cause of her déjà vu and recalls the horrific events in her memory. Yura, already her husband, volunteers for the war for the second time and disappears during a combat mission. Lilia is told that he is dead, but she doesn't give up - she feels that he is alive, she believes. Lilia is told that he is dead, but she doesn't give up - she feels that he is alive, she doesn't stop to believe. There are landscapes of Kyiv and Donbas. The storyline is about the connection with the Universe, described through the prism of quantum physics, the long-distance connection between the characters is similar to the eerie entanglement described by Anstein.

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A mysterious connection at a distance or parts of a whole?

Almost a hundred years ago, the brilliant Einstein conducted an experiment with photons. He noticed that two or more objects in a quantum state (any physical system is quantum, including the Universe) interact with each other - these are quantum pairs (or maybe not only photons but also birds, people, satellites interact?) Even when photons are at a distance, they interact. His experiment shows that no matter how far apart photons are in space, they retain the ability to be in the same state. Changes in one system (in the state of one object) will instantly affect the system associated with it (it's like taking twins from the same cell and seeing them play the same game in different rooms). The connection is maintained even after a complex

history of particle movement (after moving the twins to different places, they will suck their fingers the same way – whether in the bath or during a car ride. Mom can be sure that even at a distance they play or cry the same way).

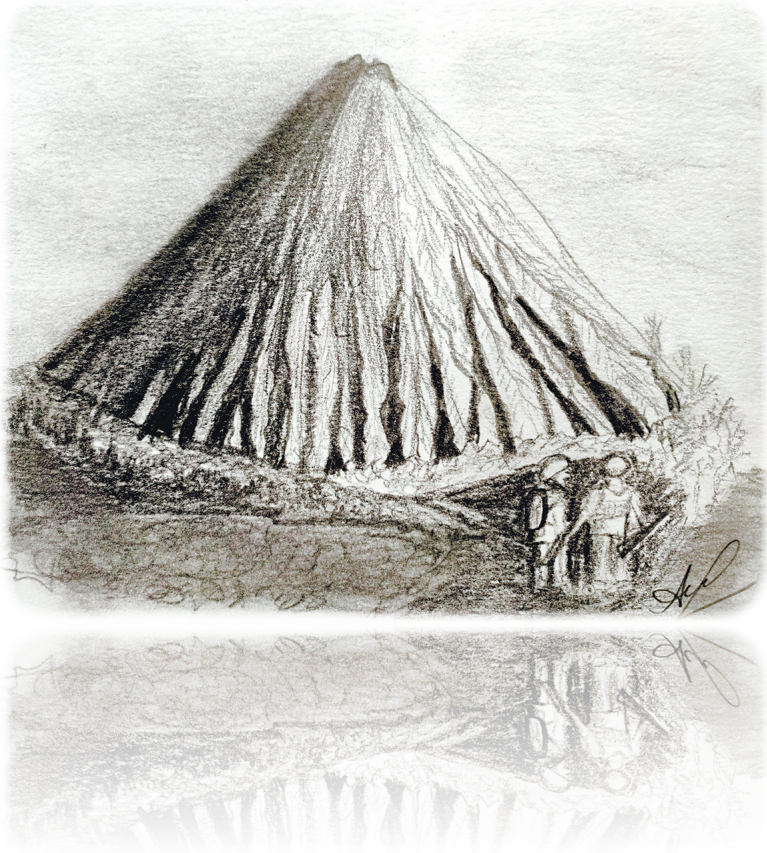
Albert Einstein called this entanglement: if the particles are in a tangled ball, then by «pulling one thread,» we can determine the state of the other. The basis of the ingenious theory of quantum entanglement is that objects are interconnected, able to exchange information at a distance, and at the same time maintain a permanent connection. Einstein called it a spine-chilling interaction at a distance.

But he thought he was wrong, because any transmission of information cannot be faster than the speed of light. He believed it to be contrary to the theory of relativity. He ridiculed his theory himself. But the theory of hidden parameters was taken into account later, and to this day his «entanglement» works in quantum computers and the space industry.

It's a pity, but we don't look at the processes from the outside with the eyes of an observer or a philosopher. Everything that happens is not a single day, person, or date. It is a single entanglement of objects and

their interaction in space and time that fills the Universe.

Thanks to quantum exploration, science is discovering the world every day. Who knows, perhaps the discovery of parallel worlds or the awareness of new eerie interactions awaits us ahead.



Terikon near Bahmut 2015

Part I

Quantum entanglement

Time Machine – destination

It was a hot summer. There is only one desire: coolness. But where to look for it? Perhaps to drink kvass or dive into the river? LAZ (a bus of Lviv Bus Plant) drove in the direction of Dnipro. The heat melted the asphalt, or rather what was left of it, and the corrugations along the road reminded us of the Artemivsk¹ – Debaltseve route. A kaleidoscope of landscapes, like paintings from various eras, followed each other. Along the roadside there is a strip of greenery, behind which is an endless black tilled field of already harvested rye. It was the smell of soil in the air, which came through the window, the disquieting smell of fresh earth... Behind it there is a landscape of incomparable beautiful sunflowers under the blue sky, like the flag of independence. And then there were cornfields with dry, yellowed leaves that rustled

¹ Now it's Bakhmut. – Hereinafter, unless otherwise noted, the editors' note.

in the wind like the whispers of Khrushchev's Thaw informers. Further to the south, the dry sand on the roadside raised dust.

The bus drove into acacia alleys that alternated with poplar alleys. The fluff flew like cotton snow, blinding my eyes and clogging my nose. That fluff reminded Lilia of her childhood - déjà vu... It seemed that she was about to remember everything and find out everything, just so she wouldn't lose the threads. But the large metal gates, painted with toxic blue paint, forbade any memories. They used to cover all the fences and playgrounds of the republic, all the walls, entrances, and much more with this paint, because they ran out of red paint. Only the large metal letters «NPF» showed red, just as bumpy with endless layers of paint. Three big proud letters of the ferroalloy industry. But here, among the forest of poplars and acacias, there were no production facilities. All conditions for a Soviet person to relax were created here. A large basketball court is paved with huge concrete slabs, a hoop without a pocket and unnecessary aesthetics, and a rusty backboard without paint - maximum utility.

Next, there are gazebos, rows of long wooden tables and benches covered with a canopy for eating outdoors. What's more, at these tables on a huge grassy glade you could gather

people to celebrate a wedding! But the paint was washed away by the rains, and the ebony tree no longer resembled a festive dining hall. Absolute silence and sadness lurked at this base.

The bus stopped near a large building, probably the central one. The imposing two-story building was whitewashed with lime over blue paint. There were no curtains on the windows, and darkness peeked through them. A picturesque view of the quiet harbor of the Dnipro opened on the left. A sandy beach was covered with poplar fluff and seeds, with overgrown grass bushes. In the middle of it, on the supports of blue pipes, there were large slate sheds with several showers and locker rooms made of the same blue bumpy metal. The paths were made of concrete.

They were greeted by a gloomy red brick building from the seventies. The windows of the two-story building were covered with once-varnished wooden shutters. The pitiless, hot sun ate away all the colors, adding the colors of black winter dampness to the tree. A round mysterious structure - a hammer and sickle frame - decorated the attic.

The main entrance was covered with a lattice with metal flowers cast from noble pewter. The sign «Cottage of Ferroalloy Workshop No. 1» could be seen above. It was like the

ferroalloy workers were going to come out to meet you and, having changed their overalls into a bathing suit, dive into the water. On the first floor, there was a veranda with long tables and benches for group get-togethers. Next, there is a room with refrigerators and wash-hand stands. The entrance to the gorgeous hall with two granite runs and a balcony leading to the second floor rooms. There was an inscription on the top of the granite wall in bright red, not yet faded paint: «Comrades, the house was built by the shop workers, please take care of this treasure².»

Everything is just like in the best Health Centers of a collapsed state. The balcony railings were cast in pewter with flowers and birds and did not fit into this era with their delicacy. The door to the room was covered with oak sheating board, which had already darkened. The whole room was covered with the same sheating board at a meter from the floor level, and then blue plates similar to plastic were laid out. The bed, as it is characteristic of a Soviet person's bedroom, was an iron bed with spring mattress base, with a striped cotton mattress, but it was wide and spacious. The balcony overlooked the harbor. Apparently,

² «Comrades, the house was built by the the shop workers, please take care of this wealth.»

it used to be the shop foreman's room. Table and chairs are of the same era. Everything is done to the best of their ability by the employees. There was even a «Dnipro» refrigerator, a radio socket, and a white and yellow electrical outlet. The curtain is also blue - it seems that the red colors changed to cold blue after the death of the leader, and the era of the thaw was chilling. On the wall in a frame under glass there is a list of items with an inventory number. The text on paper is printed on a typewriter. The paper itself has yellowed but not faded. But there were no portraits on the list in the room... The doors of the rooms were placed in such a way that you would cross paths with your neighbor in any case. Most rooms are designed for four people.

Shared tables, showers, toilets - everything in the building seemed to be collectively owned. But this is only a common space where Soviet people live. It is impregnated with the idea of collectivity without the right to a private life. The place seemed to exist outside of space and time.

Lilia froze in place, fixing her gaze on the wall, and whispered to herself:

- There is something familiar to me here...

Something was creating the phenomenon of what she had already seen or experienced, but her confused face betrayed that she was

having trouble grasping what was happening. She took a step and looked from her balcony into the far distance at the waves of the Dnipro and the poplars swaying in the wind. She saw an iron playground with peeling paint under the balcony, similar to the one in Soviet children's summer camps. There were iron frames for banners on poles around the area, or perhaps washed-out portraits of Lenin. Time stopped at the moment when her grandmother was still young. The only thing that reminded her of the present was a blue cup on the window frame that smelled like instant coffee. Here, there was no desire to change anything. It didn't matter what day of the week it was, there was only the invariably gray concrete and blue multi-layered paint.

Then a loud whistle sounded and a call was made:

- Let's gather in the lobby!

It was as if someone shoved her by the shoulder and pushed her out of her sleep. She heard her native language in the midst of the Soviet era! The noise and din of children filled everything around.

- Look, it looks like our children's summer camp. «Everyone has their things,» said her colleague Oksana. «Everyone quickly gathered, as if they had come running to the whistle in «Formation» scouts' organization.

- Yes, but it's a pity that the children didn't go to «Formation» for their vacation... It can be read in their eyes,» Lilia said and clutched her coffee cup even tighter.

«Yeah. The looks of adult children,» Oksana looked thoughtfully and stopped her gaze on a boy who was sitting on a bench and not playing.

«We grow up with them, too.» - Lilia's gaze was cold. She sipped her coffee.

- Finish your drink. This is probably the third one today? Maybe it's time for work? Otherwise, you only drink coffee.

- That's why I drink, because I don't have time to sleep.

- I'll be on the second floor. Today we have twenty-three of them.

- This is a good event. Soon they will see home.

The era is not gone. It is here, in these walls, in every detail, untouched by nowadays. Even the latest trinkets dated back to the late eighties. The children's health camp near Nikopol was not affected by the war. It seemed that time did not exist here, or that this space was outside of time, and physicists would describe invisible matter, which is both space and time for us, or perhaps a quantum journey to a parallel world.

It was November

Lilia came out of the department and locked the door with a quadrihedral key, which looked very much like an old window handle. The key's shaft was shaped like a diamond. The door separated the corridor, which was covered with wooden sheathing, from the runway. Lilia's expression changed to that when she had felt *deja vu*. Apparently, there was also something familiar here that she could not find in her memory. The texture of the walls and stairs are the same as in most hospitals that have not been renovated since the eighties. When she passed through the door, she noticed unusual locks, a persistent smell of chlorine, and a very slight trace of chlorpromazine. Lilia returned here every time, continued to conduct her research and interviews with children who were hostage to the disease and this room. She was very young, but even then she tried to look for scientific evidence. Most of all, she wanted to solve the mystery that lies in her