

OVER THE ABYSS

By Alexander Belayev

**Translated from the Russian *by* LEONID
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FOREIGN LANGUAGES PUBLISHING HOUSE

MOSCOW

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Alexander Belayev (1884 – 1942), a notable writer of science fiction with a hard and amazing life story. For years tuberculosis of the spine kept him confined to his bed, yet he was able to enjoy a full and interesting life. He studied law, attended the conservatoire, worked on newspapers and periodicals and was deeply interested in science and technical problems. Belayev produced a big selection of science-fiction books: *The Amphibian* (published by FLPH), *Professor Dowell's Head*, *The Island of Dead Ships*, *The Last Man from Atlantis*, *A Jump into Nothingness*, and others.

I. A MYSTERIOUS SUMMER HOUSE

It was during my walks just outside Simeiz, South Crimea, that the solitary summer house nestling up a steep mountainside caught my attention. No road led up to it and it was fenced off securely on all sides, its one and only gate always closed. No bush- or treetops showed over the fence and all round it there were bare yellowish cliffs with an occasional sickly juniper or tortuous pine-tree here and there.

What an idea to live on that piece of wilderness! Or does anyone? I used to wonder as I prowled round the mysterious summer house.

I never saw anybody leave the place. My curiosity thoroughly roused, I must confess I tried to steal a look inside the fenced-off grounds by climbing up the higher-standing cliffs. But the summer house was so placed that whatever cliff I climbed I could only see a corner of the yard. And it was as bare and uncultivated as were the surrounding's.

However, after a few days spent in observation I managed to catch sight of an elderly woman in black in the yard.

This only added to my curiosity. Any people living there must have some link with the outside world—if only for shopping! I thought.

I made inquiries among the people I knew and finally got wind of a rumour that Professor Wagner lived there. Professor Wagner!

That only served to rivet my attention to the summer house still more. I could give anything to see that remarkable man whose inventions had caused such a sensation. From that day I haunted the place. I had a feeling I was doing something I really ought not to do, but I went on spying on the place for hours at a stretch, in day-time and at night, from my observation post behind a juniper bush.

They say that if a man sticks to his purpose long enough he is bound to succeed in it.

Well, one morning just after dawn I suddenly heard the gate creak. I grew tense and, with bated breath, waited for developments.

The gate opened. A tall rosy-cheeked man with a fair beard and drooping moustache came out and carefully looked around. There could be no doubt, it was Professor Wagner!

Having satisfied himself that there was nobody around, he slowly climbed uphill to a piece of level ground where he started doing what looked to me a very odd exercise. Several boulders of various sizes were lying round. Wagner tried to lift each one in turn, stepping cautiously from one to another. But they were all so big and heavy that even a prize weight-lifter could hardly have moved them.

What a queer pastime, I thought. But the next moment I was so surprised that I could not contain a cry of surprise. It was something utterly unreal: Professor Wagner went up to a huge rock more than a man's height, seized it by a projecting edge and raised it with no more effort than if it had been made of cardboard. Then, stretching out his arm, he started swinging the rock around.

I just did not know what to make of it. Either Wagner possessed superhuman strength—then why couldn't he lift much smaller rocks?—or— I hadn't finished my thought when a new trick of the Professor's had me completely flabbergasted.

Wagner tossed up the rock as one would a pebble and it rose to a height of about sixty feet. Nervously I waited for the crash. But the rock fell rather slowly and I counted full ten seconds before it was a man's height off the ground again. At that moment Wagner stretched out his hand and broke the fall, his arm absolutely steady under the impact.

"Ha-ha!" Wagner laughed in a deep voice and hurled the rock away from him. First it flew parallel to the ground, then suddenly made a sheer drop and burst into pieces with a fearful crash.

"Ha-ha!" Wagner laughed again and made an extraordinary jump. Having reached a height of twelve feet or so, he was flying parallel to the ground in my direction, when, apparently owing to a miscalculation, he began to fall rapidly, just like the rock before him. Had he not fallen on sloping ground it would have been certain death for him. He fell not far from me, on the other side of the juniper bush, groaned, then swore, touching his knee. Then he made an attempt to rise and groaned again.

After some hesitation I decided to reveal my presence and render the Professor first aid.

"Are you injured? Can I help you?" I asked, stepping from behind the bush.

My appearance did not seem to surprise the Professor in the least. At any rate if it did he didn't show it.

"No, thank you," he said calmly. "I can manage." He made one more

attempt to rise, but slumped back, his face contorted with pain. His knee was swelling visibly. It was plain he could not manage without help.

The situation called for prompt action.

"Let's go before pain has drained all the strength out of you," I said and helped him up. He didn't object, though every movement must have been torture. We started off slowly towards the house. I was nearly carrying him and was soon myself almost at the end of my strength under the heavy burden. Nevertheless I felt quite happy, having not only seen Professor Wagner but even made his acquaintance. Now I was looking forward to entering his house. But perhaps when we were at the gate he would thank me and leave me outside? That was what worried me as we approached the high fence. He didn't say anything, however, and we crossed the magic line.

Nor could he really. He seemed to be in great suffering, all but unconscious from pain and much jolting. I was dead tired myself. But before carrying him inside I managed to run an inquisitive eye round the yard.

It was fairly spacious, with a device looking like Maurain's apparatus standing in the middle. On the far side there was a circular hole in the ground, covered with thick glass. Around the hole, metallic arcs radiated at half-yard intervals towards the house and in several other directions.

I had no time to see any more, for the woman in black—the Professor's housekeeper, as I learned later—came running in alarm out of the house to meet us.

II. THE MAGIC CIRCLE

Wagner was in a very poor condition. His breathing was laboured and he was delirious.

Surely that miraculous mechanism, Professor Wagner's brain, hasn't been damaged by the concussion, I thought in anxiety.

In his delirium the patient recited mathematical formulae and groaned from time to time. The housekeeper was quite at a loss what to do and kept repeating:

"What's going to happen? o Lord, what's going to happen?"

I had to give the Professor first aid and stay there to nurse him.

It wasn't until the next morning that Wagner; came to. He opened his eyes and looked at me, fully conscious.

"Thank you..." he said in a weak voice.

I gave him a drink of water and he nodded his appreciation and asked me to leave him. Tired with the past day's anxieties and the sleepless night, I decided to leave the patient alone for a time and go outside to get some fresh morning air. The unfamiliar apparatus standing in the middle of the yard again caught my attention. I went up to it and stretched out my hand.

"Don't go near! Stop!" I heard the housekeeper's frightened voice behind me. And even as I heard it I felt my hand grow suddenly extraordinarily heavy as though it had been loaded with an enormous weight, which pulled me down with such violence that I fell flat on my face. My hand was pinned down to the ground by this invisible weight. With a supreme effort I pulled it free. It was purple and very painful.

The housekeeper stood beside me, shaking her head in dismay.

"Oh, dear, dear. How awkward of you. You'd better not go about the yard at all or you'll get flattened, God forbid."

Without understanding anything I went back indoors and applied a compress to the hand.

On his second waking the Professor looked quite refreshed. Apparently he had an exceptionally vigorous organism.

"What's that?" he asked, pointing to my hand. I explained.

"You've had a narrow escape," he said. I was burning to get an explanation from Wagner but refrained from asking questions so as not to tire him.

That evening, after his bed had been moved up to the window as he had wished, Wagner himself broached the subject in which I was so interested.

"Science studies the elemental forces," he began, "and establishes all kinds of laws, but it' knows precious little about the nature of these forces. Take electricity or gravity. We study their properties and make use of them. But the ultimate mystery of their nature they are highly reluctant to reveal. Hence we can by no means make full use of them. Electricity has proved more amenable, of course. We've harnessed it, we can say. We store it, we transmit it from place to place, we use it as and when required. But gravity is most untractable. We have to humour it, fall in with its moods instead of making it fall in with our needs. If we could regulate its power at our will, accumulate it like electricity, what a mighty

implement it would make! To tame gravity has always been my fondest dream."

"And you have done it!" I exclaimed with a sudden realisation.

"Yes, I have. I discovered a technique by which we can regulate the force of gravity. You've seen my first successes. And what they cost me," Wagner said with a sigh, stroking his injured knee. "As an experiment I reduced the force of gravity in a small area near my place. You saw how easily I lifted that rock. That was done at the expense of having the force of gravity increased in a similar area inside my yard. Your curiosity nearly cost you your life when you approached my 'magic circle'.

"Look," he said, pointing to the window. "See those birds flying this way? Perhaps one of them will enter the increased-gravity zone...."

He went silent and I watched in excitement the approaching flight of the birds. Now they were above the yard....

All of a sudden one of them dropped like a stone. It was not smashed in the ordinary way, it was just smeared on the ground in a patch no thicker than cigarette-paper.

"See?" I shuddered at the thought that the same might have happened to me.

"Yes," he guessed my thought, "you'd have been crushed into a pancake by the weight of your own head." And with a smile he went on:

"Fima, my housekeeper, says my invention's a marvel for keeping stray cats away from the larder. 'Don't kill 'em,' she says, 'just make their paws stick—they won't come again.' But there are other beasts," he said after a pause, "far more harmful and dangerous, armed not with fangs and claws, but with guns and bombs.

"Just imagine what a weapon of defence harnessed gravity could make! A barrier all along state frontiers could be put up that no enemy would be able to cross. Aircraft would drop down as that bird did. What's more, even artillery shells would not be able to pass over. Or it could be done the other way round: deprive an advancing enemy of gravity, make soldiers leap aloft at their slightest move and dangle helplessly in the air.... But that's all child's play compared to what I have achieved. I have discovered a way of reducing the pull of gravity on all the surface of the earth except the poles."

"How can you do that?"

"By making the globe rotate faster—that's all," Professor Wagner said as if he were speaking of a children's top.

"What? Make the globe rotate faster?"

"Yes, and as its speed increases the centrifugal force will grow and all objects on the earth's surface will become lighter. If you don't mind staying with me for a few days—"

"I'd be delighted!"

"I'll begin the experiment as soon as I'm able to get up, and I think it will interest you."

III. "IT'S GOING ROUND"

In a few days Professor Wagner was up and about, though limping a bit. He was spending long hours in his underground laboratory in a corner of the yard, giving me the freedom of his library. He never invited me down into the lab.

One day I was sitting in the library when Wagner strode in, very excited, shouting from the doorway:

"It's going round! I've set the apparatus in motion, now we'll see what happens."

I expected something extraordinary. But hours went by, then the day was over and nothing had happened.

"You wait," the Professor said, smiling into his drooping moustache, "a centrifugal force is directly proportional to the square of the angular velocity, you know. And the earth is a sizeable top — not easy to accelerate."

As I was getting out of bed the next morning I had a feeling I was somehow lighter than usual. As a test I lifted a chair. It, too, felt much lighter. So the centrifugal force was working! I went out on the verandah and settled down to read in the shade. But soon I noticed that the shade was travelling too fast. What could that mean? Was the sun moving faster than before?

"So you have noticed?" I heard Wagner say from where he'd been watching me. "The earth is rotating faster, day and night are becoming shorter."

"But where will all this take us?" I said, confused.

"We'll live and see."

That day the sun went down earlier than usual by two hours.

"I imagine what a stir the event's produced in the whole world!" I said to the Professor. "I'd just like to know...."

"You can find out about it in my study—there's a radio set there," said Wagner.

I hurried into the study and satisfied myself that the world's population was indeed in a state of great commotion.

But that was only the beginning. The earth went on accelerating and the days grew shorter and shorter.

"All objects on the equator have lost one-fortieth of their weight by now," Wagner told me when the day and night lasted only four hours.

"Why on the equator?"

"Because the earth's pull is the weakest there while the radius of rotation longest—hence the centrifugal force is the greatest."

Scientists had already realised the danger this involved. An exodus had begun from equatorial regions to higher latitudes where the centrifugal force was smaller. So far reduced weight was proving beneficial though: locomotives could pull enormous trains, a motor-cycle engine was enough to power an air liner—at greater speeds too. People became lighter and stronger. With each day I felt more buoyant. An extraordinarily pleasant sensation!

Soon, however, the radio began reporting the first disasters. Derailments were on the increase wherever there were bends or inclines, though with little loss of life, for coaches remained intact even falling from considerable heights. The winds grew to hurricane force, raising clouds of dust which never settled. Severe floods struck the world's maritime belts.

When the angular velocity had increased seventeenfold, objects and people on the equator completely lost their weight.

That night the radio brought terrible news: there were cases in Equatorial Africa and America of people falling upwards under the pull of the centrifugal force, which kept on increasing. And soon after that more frightening news from the equator: the threat of suffocation.

"The centrifugal force is tearing the envelope of air off the globe—the earth's attraction can no longer hold it in place," the Professor explained calmly.

"But... but then we too will suffocate?" I asked in agitation.

He shrugged.

"We're well provided against any eventuality."

"But why did you start it? This is a real world catastrophe, the destruction of civilisation...."

Wagner remained unperturbed.

"You will learn later why I started it."

"Surely not just for the sake of another experiment?..."

"I don't understand your agitation," he said. "And what if it were just for an experiment? Let's not reason in a circle. When a hurricane or an erupting volcano kills people by the thousand it never enters anybody's head to blame them. Just consider this as another natural calamity."

I was not satisfied by the reply. Moreover, a feeling of ill will towards the man stirred in me for the first time.

One must be a fiend, with no touch of pity, to sacrifice the lives of millions for a scientific experiment, I thought.

My ill will towards Wagner grew at the rate I myself felt worse, and no wonder: those terrible reports about the world going to pieces, the way the days and nights flitted by at increasing speed were enough to drive one mad. I hardly slept at all and was a bundle of nerves. I had to move about taking utmost precautions. The slightest muscle contraction would shoot me head first against the ceiling, though I was little the worse for it. Things were rapidly losing weight and becoming quite unmanageable. Pieces of heavy furniture would glide away at the slightest touch.

Tap water flowed slowly, the stream visibly bending out of true. Bodily movements became convulsive; arms and legs with almost no weight to them jerked about like a string puppet's. The body's "motors"—the muscles—were much too powerful for its reduced weight. Nor could they get attuned to it, unable to keep up with the rate of change.

Fima, the housekeeper, was as exasperated as myself. Cooking became a feat of jugglery, with pots and pans flying about and herself making awkward dashes for them, jumping and dancing the while.

Wagner alone was in excellent spirits and even laughed at us.

I only ventured outside having stuffed my pockets with stones, lest I should "fall into the sky". I watched the sea growing shallower, the water being driven westwards where it was apparently flooding the coast.... On top of it all I was suffering from fits of dizziness and suffocation. The air was growing rare. The gale-force wind that had been blowing from the east seemed to be dropping. But so was the temperature of the air.

The air continued growing rarer ... the end was drawing near.... I was so miserable that I began to consider what kind of death I should choose: to fall into the sky or wait till I was suffocated.

The latter was the worse of the two but I would be able to see what would happen to the earth in the end.

No, better put an end to it all at once, I thought as a fresh fit of choking came over me, and I started unloading my pockets.

Somebody's hand stopped me.

"Wait," I heard Wagner's voice; it was barely audible in that rarefied atmosphere. "It's time we went underground."

He slipped his arm through mine, nodded to the housekeeper, who stood on the verandah, panting, and we all headed for the big round "window" in the ground. I had no will of my own and walked as if in a trance. Wagner opened the heavy door leading to the underground laboratory and pushed me in. Losing conscience, I fell softly on the stone floor.

IV. UPSIDE DOWN

I don't know how long I lay unconscious. My first sensation was that I was breathing fresh air. I opened my eyes and was very surprised to see an electric bulb fitted into the middle of the floor, not far from where I was lying.

"Don't be surprised," I heard Professor Wagner's voice. "The floor will soon turn ceiling. How do you feel?"

"Much better, thank you."

"Well, up with you then," he said, taking me by the hand. I flew up to the skylight and then sank back, very slowly.

"Come, I'll show you round my underground quarters," said Wagner.

There were three rooms altogether: two of them with artificial lighting and a third, bigger one, with a glass ceiling or floor—I'm not sure which. The trouble was that at the time we were experiencing the state of weightlessness.

This tended to make our round of the rooms quite an exhausting affair. We spun and whirled, clutching at and pushing off the furniture, leaping and hitting the tables, sometimes hanging helplessly in mid air and

stretching our hands out to each other. A few inches would separate us but we would be utterly powerless to bridge them until some ingenious trick broke the balance. The things we pushed floated about with us. A chair soared in the middle of the room, glasses with water in them lay on their sides with only a little of the liquid escaping round the rim.

Then I noticed a door leading into the fourth room, out of which a whirring noise was coming.

But Wagner would not let me enter. Apparently it housed the mechanism accelerating the earth's rotation.

Soon, however, our "space flight" was over and we descended on to the glass ceiling, which was to be our floor henceforward. We didn't have to move the things because they had already moved and the electric bulb was now overhead, lighting the room throughout the short nights.

Wagner had indeed seen to everything. We were amply supplied with bottled oxygen and had plenty of canned food and water. So that's why the housekeeper did no shopping, I thought. Now that we had moved to the ceiling we found walking was quite easy, though, relatively speaking, we walked feet up. But man gets used to anything. I was taking it fairly well. When I looked down at my feet I saw the sky beneath me through the thick translucent glass and I felt as though I were standing on a round mirror reflecting the sky above.

Sometimes it reflected unusual or fearsome things.

The housekeeper said she had to go to the house for the butter, which she had forgotten.

"But you can't," I told her. "You'll fall down— I meant to say up, dash it, it's all such a muddle now."

"I'll hold on to the brackets in the ground— the Professor's taught me how. When we were still heads up I learned 'walking on my hands' in one of the rooms where there were brackets in the ceiling."

Professor Wagner had really and truly seen to everything.

I didn't expect such bravery from a woman. To risk her life "walking on her hands" above infinite space so that we should have some butter! "All the same it's very risky," I said. "Far less than you think," Professor Wagner demurred, "Our weight is still insignificant—it just started increasing from zero, you see—and very little muscle power is required to retain our hold. Besides, I'm going with her—I've left my notebook behind."

"But there's no air outside." "We'll have compressed air helmets." And

so, dressed like deep-sea divers, they started on their way. The double door shut behind them. Then I heard the bang of the outer door.

Lying on the floor, my face pressed to the thick glass, I watched their progress in alarm. Outside, two globular-helmeted figures were rapidly "walking on their hands" towards the house, clutching at the brackets in the ground, their legs in the air. It was difficult to imagine a weirder sight!

It does look fairly easy, I thought. Still, she's a remarkable woman. But what if she feels dizzy? Meanwhile Wagner and his housekeeper went up the steps in the same manner and disappeared inside the house.

Presently they were out again.

They were already halfway when something happened that sent cold shivers down my spine. The housekeeper had dropped the jar of butter and, in an effort to catch it, lost hold of the bracket and started falling into the abyss....

Wagner made an attempt to save her: he suddenly payed out a rope bound to his waist and, hooking it on to the bracket, rushed after the housekeeper. The unfortunate woman was falling rather slowly, and as Wagner had managed to accelerate his fall by a vigorous push he soon caught up with her. He was stretching out his arm for her but the centrifugal force had made her deviate a little. Again she was out of reach, the distance between the two increasing. Wagner hung on to the rope, now fully payed out, and began slowly ascending from the abyss of the sky back to the earth....

I saw the unfortunate woman wave her arms ... dwindle quickly. Then the night dropped like a curtain on this death scene....

I shuddered as I imagined what she felt... What would become of her? Her corpse, not decomposing in the coldness of space, would go on falling for ever unless a passing planet attracted it.

I was so engrossed in my thoughts that I didn't notice Wagner had come in and sunk next to me.

"A beautiful death," he said calmly.

I clenched my teeth together, not trusting myself to speak. Hatred for the man welled up in me again.

I contemplated with horror the abyss that spread underneath me. For the first time I realised with amazing clearness that the sky was no blue expanse overhead but an abyss ... and that we live in that sky stuck to a speck, the earth, and ought really to be called skylings, not earthlings. Miserable skylings! The earth's pull had apparently a hold not only on our

bodies, but on our minds as well, fettering them, making them earth-bound. Now the bond had snapped. I became aware of the transience of earthly existence. Man's mind was born together with the earth in the abyss of the sky, in the abyss of Infinite space, and there it would flicker out....

While I was thinking extraordinary things, were happening in front of me.... Stones tore away from the earth and fell upwards.... Presently whole rocks were tearing off.... Day and night were changing quicker and quicker.. .. The sun dashed across the sky-abyss and it was night, and the stars rushed past at the same frantic speed, then the sun again, then the stars again.... In a period of sunlight I saw the fence fall and reveal the horizon. I saw the dry bed of the sea and the ravaged countryside. I knew that the end of the world was at hand.....

But there were still people on the earth.... Sounds came from the loudspeaker of our radio....

The earth was laid bare almost to the very poles. There was destruction everywhere.... That was the only surviving radio station—on Wrangel Island. It was sending out its signal, waiting for a reply, but none came.... The radio waves sped through dead emptiness.... The earth was silent, the sky was silent.

Days and nights came in such quick succession that everything blurred.... The sun flying across the sky drew a fiery line against the dark background: together with the last shreds of atmosphere the earth had lost its azure canopy.... The moon was growing smaller as it drew away from an earth which was no longer able to attract it....

I felt the plate glass in the floor bulge and shudder.... Soon it would give in and I would fall into the abyss....

Who is that muttering next to me? Ah, Professor Wagner.

I raised myself with difficulty: the earth's crazy speed had made my body leaden. I was breathing heavily....

"You," I spat out. "Why did you have to do it? You have murdered mankind, you have destroyed life on earth.... You will answer for it! You will immediately reduce the earth's speed or else—"

But the Professor only shook his head.

"Speak up!" I shouted, balling my hands into fists.

"There is nothing I can do... I must have made a mistake in my calculations."

"Then you will pay for this mistake!" I shouted and, beside myself with rage, fell on Wagner and started throttling him.... At that moment I felt the floor give way, then the glass burst and I hurtled into the abyss, my hands still closed on Wagner's throat....

V. A NEW TEACHING AID

In front of me, Professor Wagner's smiling face. Bewildered, I looked at him, then around.

Early morning. The azure canopy of sky. The blue sea in the distance. Two white butterflies fluttering near the verandah added to the peace of the scene. The housekeeper went past us, a plate with a big lump of butter on it in her hand....

"What is it? What does it all mean?" I asked the Professor.

He smiled into his long moustache.

"I must apologise," he said, "for having, without your permission or even without the pleasure of meeting you before, used your person in an experiment of mine. If you know of me, as you apparently do, you are perhaps aware that for years I've been working on the problem of how one man can cope with the immensity of modern knowledge. Personally, for instance, I've succeeded in having each half of my brain work independently. And I've done away with sleep and tiredness."

"I have read about that," I said.

Wagner nodded.

"Good. But not everybody can do that. So I decided to employ hypnosis as a teaching aid. After all, conventional teaching also involves a certain amount of hypnosis. When I went out for my walk early this morning I noticed you—behind the juniper bush. It wasn't the first time you were stationed there, eh?" he asked with a humorous flicker in his eyes.

I was confused.

"Well, I thought I'd punish you a little for your curiosity by subjecting you to hypnosis...."

"What? Was all this—"

"Just hypnosis—from the moment you saw me. But it all was real for you, wasn't it? And surely you will not forget the experience. No less than the practical lesson about the laws of gravity and centrifugal force. You

proved a rather high-strung student though and by the end of the session became quite agitated...."

"But how long did it last?"

Professor Wagner glanced at his watch.

"Two minutes, not more. A fairly productive technique, don't you think?"

"But wait," I exclaimed, "what about the plate-glass window and those brackets in the ground? ..." I pointed with my hand—and was struck dumb—the yard stretched in front of us, bare of anything.

"So that, too, was ... hypnosis?"

"That's right. But frankly, you didn't find my physics lesson boring, did you? Fima," he called, "is the coffee ready? Let's go and have breakfast."

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