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ON THE MOON

I

I woke up and, still lying in bed, pondered the dream I'd just had: I was swimming, and since it's winter now it felt especially pleasant to imagine summer swimming.

Time to get up!

I stretched, lifted myself up a bit... So easy! It was easy to sit, easy to stand. What was going on? Could I still be dreaming? I felt especially light, as if I were standing in water up to my neck: my feet barely touched the floor.

But where was the water? I didn't see any. I waved my hands, and I sensed no resistance.

Was I still asleep? I rubbed my eyes, but everything stayed the same.

Strange!

Nonetheless, I had to get dressed.

I moved the chairs, opened the cupboards, got out my clothes, picked up various things, and – nothing made any sense!

Have I gotten stronger? Why is everything so weightless? Why could I pick up objects I couldn't even budge before?

No! These were not my legs, not my arms, not my body!

Usually they were so heavy, and everything took them so much effort...

Where had I acquired such might in my arms and legs?

Or maybe some kind of power was pulling me and everything else upward, and making my work easier that way? But if so, what a strong pull! Just a little more, it seemed to me, and I'd float up to the ceiling.

Why was it I leapt instead of walking? Something was pulling me in the opposite direction to gravity; it tensed my muscles, forced me to take a jump.

I couldn't resist the temptation – I jumped...

It seemed that I rose up fairly slowly and landed just as slowly.

I jumped harder and took a look around the room from a fair distance up... Ouch! Hit my head on the ceiling... The rooms are high, I hadn't expected to hit it. I'd have to be more careful.

My shout woke up my roommate, though: I saw him start tossing and turning, and after a little while he jumped out of bed. I won't describe his amazement, just like my own. I observed the same kind of spectacle I had acted out myself, without noticing it, a few minutes before. It gave me great pleasure to see my friend's eyes bugging out, his funny poses and the unnatural liveliness of his movements. His strange exclamations, very like my own, amused me.

I waited for my friend the physicist to recover from his surprise, then I asked him to resolve my question: what on earth had happened – had our strength increased, or did our weight decrease?

Both suggestions were equally astounding, but there's nothing a person won't start to view with indifference once he gets used to it. My friend and I hadn't gotten that far yet, but we already felt a desire to figure out the answer.

My friend, who was accustomed to analysis, soon made sense of the mass of phenomena that had overwhelmed and confused my mind.

"We can test our muscle strength on the dynamometer, with the spring weights," he said, "and find out whether it has increased or not. Here, I'll press my feet against the wall and pull on the lower hook of the spring. See – five poods:[1] my strength hasn't increased. You can do the same, and prove to yourself that you haven't turned into a fairy-tale hero like Ilya Muromets."

"It's hard to agree," I objected. "The facts contradict you. How is it that I can lift the edge of this bookcase, which has to weigh at least fifty poods? At first I thought it must be empty, but I opened it and saw that every book was still in place... Can you explain, by the way, how it is that I can jump twenty arshins high!?"[2]

"You aren't lifting heavy weights, jumping high and feeling light because your own strength increased – we've already disproved that hypothesis with the dynamometer – but because gravity is lower, and you can prove that to yourself with the same spring weights. We can even find out how much lower it is..."

With these words he lifted the first weight he found, a twelve-pounder, and hung it on the dynamometer.

"Look!" he continued, pointing at the scale. "A twelve-pound weight turns out to weigh two pounds. That means gravity has weakened by a factor of six."

After thinking for a minute, he continued, "That's just the gravity on the surface of the Moon, due to its small volume and the low density of its composition."

"So are we on the Moon now?" I laughed.

"If we are on the Moon," the physicist laughed, in the same joking tone, "that's not a huge misfortune, since we can repeat a miracle like that, given that it's possible, in the opposite direction – that is, we'll be able to go back where we came from."

"Wait, enough playing games... But what if we weigh something on an ordinary cross-beam scale! Will we see a reduction in weight?"

1. pood – a pre-Revolutionary Russian measure, approximately 16.4 kilograms to one pood.
2. arshin – a pre-Revolutionary Russian measure, approximately 71 centimeters.

"No, because the weight of the thing will be reduced by the same amount as the weight you put in the other cup of the scales, since balance is not violated, regardless of the decrease in gravity."

"Yes, I see."

Nevertheless I still tried to snap a stick, hoping to discover an increase in my strength. I didn't succeed, by the way, though the stick wasn't thick and I had already bent it yesterday.

"You're so stubborn! Give it up!" said my friend the physicist. "Instead, think about how the whole world must be disturbed by these changes..."

"You're right," I said, throwing down the stick. "I had forgotten about everything. I forgot about the existence of humanity, with which I feel a passionate desire to share my thoughts, just as you do..."

"Has anything happened to our friends? Have there been any other major changes?"

I opened my mouth and yanked aside the curtain (they were all drawn at night to block the moonlight that kept us from sleeping), to exchange a few words with our neighbor, but I jumped back on the double. Oh horror! The sky was blacker than the blackest ink!

Where was the city? Where were all the people?

It was some kind of wild, unimaginable, brightly sunlit place!

Could we really have been taken away to some desert planet?

All that stayed in my thoughts. I couldn't say anything, I just mooed something incoherently.

My friend was about to rush over to me, thinking that I must be sick, but I gestured towards the window. He leaned to look out and also fell silent.

If we didn't fall down in a faint, it was only thanks to the low gravity, which kept too much blood from flowing to our hearts.

We looked at each other.

The curtains on the windows were still drawn; the thing that had struck us wasn't visible to our eyes. The ordinary look of the room and the familiar things in it calmed us down even more.

We drew together with a certain timidity and lifted only the edge of the little curtain first, then lifted the whole thing and then, finally, made up our minds to go out of the house to observe the sky, black as mourning, and our surroundings.

Even though our thoughts were preoccupied by the stroll we were about to take, we were still noticing certain things. So, as we walked through the spacious and high-ceilinged rooms, we had to move our large muscles with extreme care, otherwise our soles would slide uselessly on the floor – without the risk of falling, however, the way there is on wet snow or on frozen ground. When we did this our bodies jumped noticeably. When we wanted to put ourselves into rapid horizontal motion, to start moving we had to lean forward noticeably, the way a horse leans to pull an overloaded wagon. But it only seemed that way – in fact all our movements were extremely light... Going downstairs from one step to the next – how boring! Moving step by step – how slow! Soon we got rid of all those ceremonious habits, which suited the Earth but were ridiculous here. We learned to move by leaping; we started going up and down stairs ten or more at a time, like the most reckless schoolboys; or sometimes we'd jump the whole length of the staircase or right out the window. In a word, circumstances forced us to turn into leaping animals like grasshoppers or frogs.

Thus, after running around the house a bit, we jumped outside and galloped off towards one of the nearest mountains.

The Sun was blinding and looked a bit bluish. Shading our eyes with our hands against the Sun and the brilliant reflected light from the surroundings, we could see the stars and planets, also for the most part bluish. None of them were twinkling, which made them look like silver-headed nails hammered into the black firmament.

Ah, and there was the Moon – in its last quarter! Well, it couldn't fail to surprise us, since its width seemed three or four times greater than the diameter of the Moon we had seen before. And it shone brighter than by day on Earth, when the Moon shows up like a white puff of cloud. Silence... clear weather... a cloudless sky... There were no plants and no animals.. A desert with a black sky and a blue, dead

Sun. No lake, no stream, and not a drop of water! Even the horizon wasn't any paler – that would have indicated the presence of vapors, but it was just as dark as the zenith!

There was none of the wind that rustles the grass and tosses the tops of the trees on Earth... There was no chirping of crickets... No sign of any birds, or colorful butterflies! Just mountains and more mountains, horrible, high mountains, whose peaks didn't gleam with snow. Not a flake of snow anywhere! There were the valleys, plains, plateaus... How many rocks were scattered there... Black and white, large and small, but all sharp, shining, not rounded, not softened by a wave, since no sea ever rolled here, ever played with them with a cheerful sound, ever labored over them!

But there was a completely smooth place, though rippled: you couldn't see a single pebble, only black cracks crawling in all directions, like snakes... Hard ground – stony... No soft black soil: no sand and no clay.

A gloomy picture! Even the mountains were bare, shamelessly unclothed, since we didn't see the light veil, the transparent bluish smoke that the air casts over earthly mountains and distant objects... Severe, strikingly precise landscapes! And the shadows! Oh, what dark shadows! And what sharp transitions from shade to light! There were none of the soft tones that we're so used to and that can be produced only by an atmosphere. Even the Sahara – even that would seem a paradise in comparison with what we saw here. We missed its scorpions, the locusts, the hot sand lifted by the dry wind, not to mention the occasional sparse vegetation and groves of fig trees... We had to think about returning. The ground was cold and exuded cold, so that our feet were chilling, while the Sun baked us. Overall, we felt an unpleasant sensation of cold. It was like when a person comes in from the cold to warm up in front of a blazing fireplace and can't get warm, because it's too cold in the room: his skin feels pleasant waves of warmth that can't overcome the chill.

On the way back we warmed ourselves by leaping as lightly as deer over piles of stones two sazhens high...[3] There was granite, porphyry, syenite, quartz crystals and various pieces of transparent and opaque quartz and flint, all of igneous origin. Later, though, we noticed traces of neptunic activity.

We were back in the house!

Inside you feel good: the temperature's more even. That put us in the mood to start trying new experiments and to discuss everything we had seen and noticed. Clearly, we were on some other planet. This planet had no air, nor any other kind of atmosphere.

If there had been gas, then the stars would have twinkled; if there had been air, the sky would have been blue and there would have been a blue veil on the distant mountains. But how was it that we could breathe and hear each other? We couldn't understand it. A multitude of phenomena made it clear to us that there was no air or any kind of gas at all: for example, we couldn't light a cigar and in our haste we spoiled a lot of matches. We could also compress a sealed rubber bag without the slightest force, which wouldn't have been the case if there had been any kind of gas inside it. Scientists have indicated this lack of gasses on the Moon.

"Could it be that we're on the Moon?"

"Have you noticed that from here the Sun doesn't seem any bigger or any smaller than from the Earth? Such a phenomenon can be observed only from the Earth or from its satellite, since these heavenly bodies are located almost the same distance from the Sun. From other planets the Sun must appear either smaller or larger: so, from Jupiter the visible diameter of the Sun is five times smaller, and from Mars, one and a half times smaller, but from Venus, on the other hand, one and a half times greater. On Venus the Sun burns twice as brightly, but on Mars, only half as brightly. And that's just the difference from the two planets closest to the Earth! On Jupiter, for example, the Sun gives twenty-five times less heat than on the Earth. We see nothing

3. sazhen – a pre-Revolutionary Russian measure, approximately 2.13 meters.

like that difference here, even though measuring it would be entirely possible thanks to the store of instruments for measuring carbon and other things."

"Yes, we're on the Moon: everything points to that!"

"Even the size of the clouded moon we saw suggests that – it's obviously the planet we left, not of our own volition. Too bad we can't examine its spots now and definitively define our own location. We'll wait for night time..."

"How can you say that Earth and the Moon are at the same distance from the Sun?" I objected to my friend. "I thought the difference was quite significant! Why, as far as I know, they are three hundred sixty thousand versts apart!"

"I'm saying they're *almost* at the same distance, since those three hundred sixty thousand versts comprise only one four-hundredth of the entire distance to the Sun," objected the physicist. "A four-hundredth can be disregarded."

II

How tired I was, and not so much physically as mentally! I felt irresistibly drawn to sleep... What did the clock say? We got up at six, now it was five... eleven hours had passed. At the same time, judging by the shadows, the Sun had hardly moved: there the shadow from the steep mountain had barely moved towards the house, and even now it didn't quite reach, while over there the shadow from the weathervane was still touching the same stone...

This was one more proof that we were on the Moon.

In fact, its rotation around its axis is so slow... Here a day should last around fifteen of our days, or three hundred and sixty hours, and a night should last just as long. It's not entirely comfortable... The sun would interfere with your sleep! I remember, I experienced the same thing when I had to live several weeks in the summer in polar countries: the Sun never set on the horizon, and it got really tiresome! Here the Sun moves slowly, but in the same order; there it moves quickly, and every twenty-four hours it makes a circle low above the horizon...

Here and there you could use one and the same solution: close the shutters.

But was the clock right? Why was there such a disagreement between my wristwatch and the clock on the wall? My wristwatch said five, but the one on the wall showed just ten… Which one was right? Why was the wall clock's pendulum swinging so lazily?

Obviously, that clock was slow!

My wristwatch couldn't be wrong, since it didn't have a pendulum swung by weight, but the tension of a steel spring, which was the same on the Moon as it was on Earth.

You could check that by measuring your pulse. Mine was seventy beats per minute… Now it was seventy-five. A bit faster, but that could be due to the nervous excitement from the unusual setting and strong impressions.

Anyway, there was still one more way to check the time: at night we would see the Earth, which turns once every twenty-four hours. That's the best, the least erroneous clock!

Regardless of the sleepiness that had overcome both of us, my physicist couldn't bear not to fix the wall clock. I saw him lifting the long pendulum, measuring it exactly and shortening it to one sixth or thereabouts. The honorable clock turned into a little tick-tock. But here it wasn't a tick-tock, for the shortened pendulum behaved gravely, though not so gravely as the long one had. Thanks to this metamorphosis the wall clock started to agree with my wristwatch.

At last we went to bed and covered up with our light blankets, which seemed weightless here.

We hardly needed to use our pillows and mattresses. Here, it seemed, you could sleep even on bare boards.

I couldn't get rid of the thought that it was still too early to go to bed. Oh, this Sun! This time! You were both standing still, like all time on the Moon!

My comrade stopped answering me, and I fell asleep too.

A jolly waking… cheerfulness and a wolf's appetite… Until now our excitement had displaced our usual appetite.

I was thirsty! I pulled out the cork… But what's this – the water was boiling! Only slightly, but it was boiling. I touched the decanter with my hand. I didn't want to burn myself… No, the water was merely warm. It was unpleasant to drink water like that!

"What do you say, my physicist?"

"There's a complete vacuum here, that's why the water's boiling, it's not prevented by the pressure of Earth's atmosphere. Let it boil a bit more: don't close the stopper! In a vacuum boiling ends up by freezing....But we won't let it get to freezing… That's enough! Pour some water in the glass, and put the stopper in, otherwise a lot will boil away."

Liquid poured slowly on the Moon!

The water calmed down in the decanter, but in the glass it continued its lifeless boiling – though the longer it went on, the more weakly.

The water left in the glass turned into ice, but the ice still evaporated and shrank in mass.

How would we have lunch now?

We could eat the bread and other more or less solid food freely, though it quickly dried up in a box that wasn't hermetically sealed: the bread turned into rock, the fruits shrank and also got pretty hard. On the other hand, their skins still retained some moisture.

"Oh, this habit of eating something hot! How can we manage it? You can't make a fire here: there's no wood, no coal, even the matches don't burn!"

"Can't we use the Sun for this? You know, they bake eggs in the hot sand of the Sahara!"

We fixed our pots and pans and other vessels so that their lids closed tightly and firmly. We filled everything with what was needed, according to the rules of the culinary arts, and put it all in a pile in the sun. Then we gathered all the mirrors in the house and set them up so they reflected the Sun's light onto the pots and pans.

Before even an hour had passed, we could dine on foods that were well boiled and fried.

And what can I say! Have you heard of Mouchot?[4] His perfected solar delicacies were far behind ours! Boasting and bragging? Call it that if you like... You can blame these self-satisfied words on our ravenous appetites, which would have made any kind of vile stuff seem delightful.

Only one thing was bad: we had to hurry. I admit it, we stuffed ourselves and choked. You'll understand this if I say that the soup boiled and got cold not only in the bowls, but even in our mouths, our throats and digestive tracts; the moment we got distracted – look, instead of soup there was a lump of ice...

It's a wonder our digestive systems stayed in one piece! The pressure of the steam stretched them out a great deal...

In any case, we were satisfied and fairly calm. We didn't understand how it was we could live without air, and how it was we ourselves, our house, garden, and the stores of food and drink in the pantries and cellars had been transferred from Earth to the Moon. We were even struck by doubt, and we thought: isn't this a dream, a daydream or a demonic delusion? And along with all that we got used to our situation and related to it partly with curiosity, partly with indifference: what we couldn't explain didn't surprise us, and the danger of dying of hunger, alone and miserable, didn't even enter our minds.

You'll learn the reason for our impossible optimism at the end of our adventures.

We wanted to take a stroll after eating... I didn't dare sleep a lot: I was afraid of suffering a stroke.

I distracted my friend, too.

We were in a spacious yard, with gymnastics equipment in its center, and on its sides a fence and outbuildings.

Why was this rock here? A person could trip and fall on it. In the yard the ground was ordinary earthly soil, soft. Out with it, over the fence! Be confident! Don't be frightened by the size! And there we lifted a stone of sixty poods by our mutual efforts and tossed it over

4. Augustin Mouchot (1825-1911), French inventor of a boiler that used solar power to heat water to produce energy.

the fence. We heard it land with a dull thud on the stony ground of the Moon. The sound reached us not by way of the air, but under the ground: the blow was carried by the ground's vibration, then by our bodies into the fine bones of our ears. By this path we could often hear the blows we had struck.

"Could that be the way we hear each other?"

"Hardly! The sound couldn't resonate the way it would in the air."

The ease of our movements awakened a most powerful desire to climb and jump.

The sweet time of childhood! I remember how I would get up on the roof and trees, just like the cats or birds. That was pleasant...

And the competitive leaps across the tape and over ditches! And running for prizes! I loved that passionately...

Shouldn't I remember the old days? I had little strength, especially in my arms. I jumped and ran fairly well, but I had trouble climbing a rope or a pole.

I used to dream of great physical strength: I would pay back my enemies and reward my friends! A child and a wild savage are the same Now those dreams of muscular strength seemed funny to me... All the same my desires, so ardent in my childhood, had become real here: it was as if my powers were increased sixfold thanks to the Moon's puny gravity.

Besides that, here I didn't need to overcome the weight of my own body, which increased the effects of my strength even more. What was a fence for me here? No more than a threshold or a footstool that I could step over on Earth. And there, as if to prove this thought, we sailed upward and we flew over the fence without a running start. Then we jumped up and even leapt over the shed, but for that we needed a running start. And how pleasant it was to run: you didn't feel your legs beneath you. Off we went... who could beat the other? At a gallop!

Every time our heels hit the ground we flew a few sazhens, especially horizontally. Wait! The whole yard, five hundred sazhens, in one minute: the speed of a race horse...

Your "giant steps" don't allow you to make such leaps!

We made measurements: at a gallop, even a fairly gentle one, we rose about four arshins above the ground; we moved along the ground five sazhens or more, depending on the speed of our pace.

"Time for some gymnastics!"

Hardly tensing our muscles, and even, for our own amusement, using only our left hands, we climbed up the rope to the platform.

Strange: four sazhens above the ground! It kept seeming as if we were on the clumsy Earth! Our heads were spinning…

With a sinking heart I was the first to dare to jump down. I'm flying… Ouch! I hurt my heel a bit!

I should have warned my friend about that, but I slyly encouraged him to jump. I lifted my head and shouted to him, "Jump, it's easy – you won't hurt yourself!"

"You're urging me for nothing: I know very well that jumping from here is the same as a two-arshin jump on the Earth. Of course you'll feel it a bit in your heels!"

My friend flew down too. A slow flight… especially at first. The whole thing lasted about five seconds.

In that much time you can think of a lot of things.

"So what do you think, my physicist?"

"My heart is beating – that's all."

"To the garden! To climb the trees, to run through the alleys!"

"Why haven't the leaves dried out there?"

Fresh green… protection from the Sun. Tall lindens and birches! Like squirrels, we leapt and climbed on the slender branches, and they didn't break. But of course – here we weren't any heavier than fat turkeys!

We glided above the shrubbery and between the trees, and our movements recalled flight. Oh, it was fun! How easy it was to keep your balance here! If you tipped on a branch, ready to fall, the pull downwards was so weak, the tip off balance so slow, that the slightest movement of an arm or leg was enough to restore it.

To the open spaces! The huge yard and garden seemed like a cage… At first we ran over the flat area. We came upon shallow trenches, up

to ten sazhens across. We flew across them at a run, like birds. But the climb had started; at first it was gradual, then steeper and steeper. What an incline! I was afraid I'd run out of breath.

There was no need to fear: we went upward freely, with broad and rapid strides up the slope. The mountain was high – even the easy Moon exhausted us. We sat down. Why was it so soft here? Had the stones been softened?

I picked up a big rock and struck it against another; sparks scattered.

"We're rested. Time to go back…"

"How far is the house?"

"Not far now, about two hundred sazhens."

"Can you throw a rock that far?"

"I don't know, I'll try!"

We each picked up a medium-sized sharp-cornered stone… Who could throw it farther? My stone went over our residence. And a good thing. Following its trajectory, I was afraid it would break a window.

"And yours? Yours went even farther!"

Shooting here would be interesting: bullets and cannonballs ought to fly for hundreds of versts horizontally and vertically.

"But would gunpowder work here?"

"Explosive materials in a vacuum ought to express themselves with even greater force than in an atmosphere, since the air only interferes with their expansion. As far as oxygen is concerned, they don't need it, because they already contain the necessary amount."

III

We came home.

"I'll sprinkle some gunpowder on the windowsill in the light of the Sun," I said. "Use a magnifying glass to focus light on it… See – fire… an explosion, even though it's a silent one." The familiar scent, which dissipated in a moment.

"You can fire a shot. Just don't forget to put on a firing cap: the magnifying glass and the Sun will replace the blow of the hammer."

"Let's set the rifle up vertically, so we can look for the bullet somewhere nearby after the shot..."

Fire, a faint sound, a slight shaking of the ground.

"Where's the wad?" I exclaimed. "It should be right here, somewhere nearby, though it won't be smoking."

"The wad flew away with the bullet and will hardly have fallen behind it, since it's only the atmosphere on Earth that prevents it from flying off after the lead. Here even eiderdown would fall or fly upward as fast as a rock... You take that piece of fluff sticking out of the pillow, and I'll take an iron ball bearing: you can throw your fluff and you'll hit your mark, even if it's far away, just as easily as I can with the ball bearing. I can throw a ball of this size about two hundred sazhens; you can throw a piece of fluff the same distance. True, you won't kill anyone with it, and as you throw it you won't even feel that you're throwing anything. Let's throw our projectiles with all our strength, which is about the same for both of us, and aim at the same target: that red granite over there..."

We watched the piece of fluff move slightly ahead of the iron ball, as if drawn by a strong whirlwind...

"But what's this: three minutes have passed since we shot, but the bullet hasn't come back?"

"Wait two more minutes, and it will surely come back," the physicist answered.

In fact, after about the amount of time he said, we felt a light shaking of the ground and saw the casing jump not far away.

"Where's the bullet? It can't be the shred of oakum that made the ground shake?" I asked in surprise.

"Probably it was heated to the melting point by the blow and spattered in tiny drops in every direction."

We looked around and in fact we did find a few miniscule drops that were apparently the remaining fragments of the bullet.

"The bullet flew for so long! What sort of height could it have reached?" I asked.

"About seventy versts up. That height is due to the low gravity and the absence of atmospheric interference."

My mind and body were exhausted and demanded a rest. The Moon was all very well, but the outsized leaps were making themselves felt. As a result of the long distance of our flights we didn't always land on our feet as they ended, and we got some bruises. During four or six seconds of flight we could not only examine our surroundings from a fair height, but also complete certain movements with our arms and legs; however, we didn't manage to tumble at will in space. Then we learned to give our bodies the initial and the tumbling movements simultaneously; in those cases we could flip over in space up to three times. It is curious to experience that movement, interesting also to see it from the side. Thus, for a long time I watched the movement of my physicist, who carried out a lot of movement experiments with no support, without the ground under his feet. It would take a whole book to describe them.

We slept about eight hours.

It was getting warmer. The Sun had risen higher and was baking more weakly, covering a smaller area of the body, but the ground had warmed up and no longer gave off such cold; in general, the effect of the Sun and the ground was warm, almost hot.

It was time, however, to take steps to protect ourselves, since it had already become clear to us that even before midday arrived we would be burnt to a crisp.

What could we do?

We had various plans.

"We could live for a few days in the cellar, but I can't guarantee that in the evening, about two hundred and fifty hours from now, the heat won't penetrate there, since the cellar isn't that deep. Besides, we'll get bored in the absence of any kind of comfort and in the enclosed space."

Let's say that suffering boredom and discomfort is easier than being cooked.

But wouldn't it be better to choose one of the deeper crevices? We'd creep into it and spend the rest of the day and part of the night there in pleasant coolness.

That would be much more cheerful and poetic. Or else – a cellar!

Necessity will drive a person into such places!

And so, the crevice. The stronger the Sun burned, the deeper we would go down. By the way, a depth of several sazhens is sufficient.

We would take along umbrellas, provisions in sealed boxes and casks; we would put on fur coats, since they could come in handy in either excessive heat or excessive cold; besides, here they wouldn't weigh on our shoulders.

A few more hours passed, during which we managed to eat something, take a rest and talk a bit more about gymnastics on the Moon and what kinds of wonders earthly acrobats could perform here. We couldn't linger any more: it was hellishly hot. In any case, outside, in the well-lit places, the stony ground was heated to the point where we had to strap thick wooden boards to the soles of our shoes.

In our haste we dropped some glass and clay vessels, but they didn't break – the gravity was so weak.

I almost forgot to mention the fate of our horse, who had been carried here along with us. When we wanted to harness the unfortunate animal to the wagon, he somehow broke loose from our hands and at first raced off faster than the wind, bucking and running into things; then, unaware of the power of inertia and unable to avoid a rocky mass in his way, he shattered against it. The meat and blood froze at first and then dried out.

And I should mention the flies. They couldn't fly, but only jumped, at least half an arshin...

And so, we took along everything essential, with immense loads on our shoulders, which amused us considerably, because everything we were carrying felt empty and thin. We closed the doors, windows and shutters of the house, so they would heat up less and would suffer less

from the high temperature, and we set off to look for a suitable crevice or cave.

While we were searching we were struck by the sharp transitions in temperature: places that the Sun had been heating for a long time exuded the heat of a red-hot oven, so we tried to pass them as quickly as possible. We rested and freshened up somewhere in the shade cast by a boulder or a cliff – and we cooled down so well that if we had lingered we could have made good use of our fur coats. But these places couldn't be depended on either: the Sun would move to the other side and light up the place where now there was shadow and cold. We knew this and searched for a crevice where the Sun would cast its light, but only for a short time that would not heat up the stones.

There was a crevice with walls almost plumb-straight. We could see only the beginning of the walls – it was black and appeared bottomless. We went around the narrow part and found there a gentle slope, which led, apparently, to hell itself. We took a few steps without mishap, but the dark thickened, and nothing could be seen ahead of us; going farther seemed terrifying, and also risky... We remembered that we had brought along an electric flashlight: candles and torches were impossible here... The light turned on and in an instant lit up a crevice about twenty sazhens deep; the slope turned out to be comfortable.

So that's your bottomless crevice, that's your hell! We were disappointed by such pettiness.

Its darkness was explained, in the first place, by the fact that it lay in the shade, and because of its narrowness and depth the rays reflected by the illuminated surroundings and high mountains did not penetrate there; in the second place, by the fact that it was not illuminated from above by the atmosphere, as it would have been on Earth, where for that reason you can't find such thick darkness down any well.

In proportion to how far down we went, sometimes grabbing the walls, the temperature went down, but it wasn't less than fifteen degrees Celsius. Apparently that was the average temperature of the latitude where we were. We choose a comfortable, even spot, spread out our fur coats and arranged ourselves comfortably.

But what was this? Had night come? Covering the lamp with one hand, we looked at the scrap of dark sky and the multitude of stars, shining fairly brightly above our heads.

However, the chronometer showed that not much time had passed, and the Sun couldn't have set unexpectedly.

Oh no! An awkward movement broke the flashlight bulb, although the carbon filament continued to glow even brighter: if we were on Earth, it would have gone dull immediately, burnt out in the air.

I touched it curiously; it broke – and everything was cast into darkness. We couldn't see each other, our outlines were only barely noticeable at the height of the opening of the crevice, and the long narrow stripe of the black sky lit up with an even greater quantity of stars.

I couldn't believe it was midday. I couldn't bear it: with difficulty I found the extra flashlight, turned on its electric current and went upward... It was lighter and warmer... The light blinded me; it was as if the electric lamp had burned out.

Yes, it was daytime, and the Sun and shadows were just where they were before.

It was hot! Back as quickly as possible.

IV

We slept like logs from having nothing to do. Our lair didn't get warm.

Sometimes we came out of it, searched out a shady spot, and observed the movements of the Sun, stars, planets, and of our big Moon, which, if you compared its size to your pathetic Moon, was just like an apple compared to a cherry.

The Sun moved almost at the same rate as the stars and lagged behind them hardly noticeably, which you can notice from the Earth as well.

The moon stood entirely motionless and wasn't visible from our crevice, which we very much regretted, since from the darkness we could have observed it with as much success as at night, which was still far away. We should have chosen another crevice, from which we could have seen the moon, but it was too late now!

Midday was approaching; the shadows stopped growing shorter; the moon had the form of a narrow sickle, paler and paler, in proportion as the Sun moved closer to it.

The Moon is an apple, the Sun a cherry; if the cherry didn't ever cross paths with the apple there wouldn't be a solar eclipse.

On the Moon this comprises a frequent and grandiose phenomenon, while on Earth it is rare and nothing much: a little spot of shadow, the size of a pinhead (albeit sometimes several versts long, but what is that, if not a pinhead compared with Earth's magnitude?). It traces a stripe on the planet, moving if one is fortunate from city to city and lingering in each of them for several minutes. Here the shadow covers either the whole Moon, or in the majority of cases a significant part of its surface, so that the complete darkness lasts for several hours...

The sickle grew even narrower and barely visible alongside the Sun...

The sickle became completely invisible.

We crawled out of our crevice and looked at the Sun through a dark glass...

Now it looked as though someone had squashed an invisible gigantic finger into the star's shining mass from one side.

Now only half the Sun was visible.

Finally its last particle vanished, and everything was cast into gloom. An enormous shadow ran over and covered us.

But the blindness quickly lifted: we could see the moon and a multitude of stars.

This wasn't that other moon like a sickle; this one had the form of a dark circle, surrounded by a magnificent scarlet glow, especially bright, but paler on the side where the remnant of the Sun had just disappeared.

Yes, I saw the colors of sunset, which we used to admire from the Earth.

And our surroundings were bathed in scarlet, as if in blood…

Thousands of people were looking at us with their naked eyes and through telescopes, observing the total lunar eclipse…

Familiar eyes! Could you see us?

While we were grieving here, the red wreath grew more even and beautiful. Now it lay evenly around the whole circle of the moon; this was the midpoint of the eclipse. Now one side, opposite to where the Sun had disappeared, was getting paler and lighter… Now it was getting brighter and brighter and taking on the look of a diamond set in a red ring…

The diamond turned into a bit of Sun – and the ring became invisible… Night passed over into day – and our blindness passed: the former picture appeared before our eyes… We started talking animatedly.

I said earlier, "We picked a shady spot and made observations," but you, my reader, might well ask: "How could you observe the Sun from a shady spot?"

I would answer, "Not all the shady spots are cold and not all the lit spots are red-hot. In fact, the temperature of the ground depends mainly on how long the Sun has been heating that place. There are expanses that have only been lit by the Sun for a few hours, but were in shadow until then. Understandably, their temperature not only can't be high, it's even extremely low. Where cliffs and steep mountains cast shadows, there you find expanses that are still cold, though they're lit up, so that you can see the Sun from them. It's true that sometimes they're not close by, and before you can get to them you get pretty heated up – even an umbrella doesn't help."

We noticed the multitude of rocks in our crevice and so, for our own comfort and in part for the exercise, we decided to haul those that hadn't yet warmed up in sufficient quantity to the surface, so as to cover the space that was open from all sides with rocks and thus protect our bodies from the heat.

No sooner said than done…

That way, we could always go out onto the surface and, resting in the middle of the mass of stones, triumphantly make our observations.

Let the rocks get heated through!

We can haul out new ones, since there are so many down below; we have at our disposal plenty of strength, increased sixfold thanks to the Moon.

We executed this plan after the solar eclipse, which we had not even been certain would take place.

Besides this job, right after the eclipse we set to work establishing the latitude of our location on the Moon. This was not hard to do, keeping in mind the epoch of the solstice (which we could determine thanks to the eclipse that had taken place) and the height of the Sun. The latitude of our location turned out to be forty degrees north, meaning that we were not located on the equator of the Moon.

And so, midday passed – seven Earth days after the rising of the Sun, which we had not witnessed. In actual fact, the chronometer showed that the time of our stay on the Moon was so far equal to five Earth days. Therefore, we had appeared on the Moon early in the Moon's morning, some time after its forty-seventh hour. That explains why, when we woke up, we found the ground very cold: it hadn't had time to heat up, and it was terribly chilled by the previous extended fifteen-day night.

We slept and woke, and every time we saw more and more new stars above us. They were always in the same pattern, familiar from the Earth, always the same stars: only the narrow hole in which we were settled didn't allow us to see a great quantity of them at once, and they didn't twinkle against the black field, but passed by twenty-eight times more slowly.

There was Jupiter; here its satellites were visible to the naked eye, and we observed their eclipses. Jupiter disappeared. The North Star rolled out. Poor thing! It played no important role here. Only the Moon alone would never glance into our crevice,

even if we waited a thousand years for it. It wouldn't come out, because it was eternally immobile. It could be animated only by the movements of our bodies on this planet; then it could sink, rise and move through the sky... We would return to this question again...

You can't sleep all the time!

We got down to making plans.

"At night we'll come out of the crevice, not right after the Sun sets, when the ground is heated almost to the utmost, but after a few dozen hours. We'll visit our residence too, to see what's going on there. Has the Sun gone and broken anything? Then we'll travel for a while by moonlight. We'll enjoy the view of the moon here to our hearts' content. Until now we've seen it looking like a white cloud; at night we'll see it in its full beauty, in its full glory and from all sides, since it rotates rapidly and will show its whole self in no more than twenty-four hours, which is an insignificant part of the lunar day."

Our large moon – the Earth – has phases, just like the Moon, which we had looked at previously from afar, full of dreams and curiosity.

At our present location the new moon, or rather the new Earth, appeared at midday; the first quarter as the sun set; the full moon at midnight, and the last quarter at sunrise.

We were located in a place where the nights and even the days were always moonlit. That was not so bad, but only as long as we were in the hemisphere visible from Earth. As soon as we passed into the other hemisphere, the one invisible from Earth, we would immediately lose our nighttime light. We'd be deprived of it as long as we were in that unfortunate, yet so mysterious, hemisphere. It's mysterious for the Earth, since Earth never sees it, and therefore it intrigues the scientists very much; it's unfortunate because its residents, if there are any, are deprived of both the nocturnal light source and the magnificent view.

In point of fact, are there any inhabitants on the Moon? What are they like? Do they resemble us? Until now we hadn't met any, and it would be fairly hard to meet them, since we had been sitting almost

in one place and spending much more time on gymnastics then on selenography. That unknown half was especially interesting, with its black skies eternally covered at night by a mass of stars, for the most part tiny, easy to view by telescope, since their gentle gleam was neither disturbed by the multiple refractions of the atmosphere, nor violated by the crude light of the enormous moon.

Could there be a hollow there where gasses could gather, and liquids, and a lunar population? This occupied our conversations, which passed the time as we waited for night and sunset. We waited with impatience. It wasn't too tedious. We didn't forget to experiment with vegetable oil, an idea the physicist had brought up before.

In fact, we managed to collect drops of an enormous size. Drops of oil that fell from a horizontal surface would attain the size of apples, while drops from a sharp edge were significantly smaller, and oil flowed through an opening two and a half times more slowly than on Earth under identical conditions. The phenomena of transpiration took place on the Moon with sixfold strength. Thus, the meniscus of oil at the edges of a vessel rose six times higher above the level of the oil in the center.

Oil in a shot glass had the form almost of a depressed sphere...

We didn't forget about our sinful bellies either. Every six to ten hours or so we fortified ourselves with food and drink.

We had a samovar with us with a lid that screwed on firmly, and we often sipped a strong brew of the Chinese herb.

Of course, we couldn't put the samovar on in the usual way, since air was needed for the combustion of coals and kindling. We simply carried it out into the sun and surrounded it with especially hot little pebbles. It would heat up quickly, without boiling. Hot water poured strongly from the open spout, driven by the pressure of the steam, which was not counterbalanced by the weight of the atmosphere.

It wasn't especially pleasant to drink this kind of tea because of the possibility of getting badly burned, for the water went in all directions like exploding gunpowder.

Therefore, after putting tea into the samovar ahead of time, we would let it heat up a lot at first, then wait for it to cool down after we removed the hot stones, and finally we would drink the prepared tea without burning our lips. But even this relatively cool tea poured out with noticeable force and boiled weakly in our mugs and in our mouths, like seltzer water.

V

Soon the sun would set.

We watched the Sun touching the peak of one mountain. On Earth we would watch this phenomenon with our naked eyes, but here that was impossible, for there was no atmosphere, nor any water vapor, and so the Sun lost none of its bluishness, nor its power of heat and light. You could only take a quick passing glance at it without a dark glass; it was nothing like our scarlet Sun that is weak when it rises and sets!

It sank, but slowly. Half an hour had already passed since it first touched the horizon, and only half the Sun was hidden.

In St. Petersburg or Moscow the sunset lasts no more than three to five minutes. In tropical countries it's about two minutes, and only at the poles can it continue for several hours.

Finally the last particle of the Sun was extinguished behind the mountains, where it looked like a bright star.

But there was no sunset glow. Instead of a glow we saw around us a multitude of mountain peaks and other elevated parts of our surroundings lit up with bright reflected light.

This light was entirely sufficient to keep us from sinking into darkness for several hours, even if there had been no moon.

One distant peak continued to glow for thirty hours, like a streetlamp.

But then it went out too.

Only the moon and stars made light for us, and the power of illumination of the stars is negligible. Right after sunset, and even a while after, the reflected sunlight outweighed the light of the moon.

Now, when the last mountain cone had gone dark, the Moon – lord of the night – sat in state over our moon.

Let's turn our gaze toward it.

Its surface is fifteen times larger than the surface of the Moon from the Earth, compared to which, as I already said, it's like a cherry to an apple.

The power of its light is fifty or sixty times brighter than the Moon with which we are familiar.

We could read without straining; it seemed that this wasn't night, but some fantastic kind of day.

Its radiance didn't let us see either the lights of the zodiac or the smaller stars without special screens.

What a sight! Hello, Earth! Our hearts beat wearily, neither bitterly nor sweetly. Recollections burst into our souls…

How dear and mysterious now was that formerly disdained, everyday Earth! It looked to us like a picture covered with blue glass. That glass was the ocean of air around the Earth.

We saw Africa and part of Asia, the Sahara, the Gobi, Arabia! Lands of drought and cloudless skies! There were no blots on you: you are always open to the moon-dwellers' gaze. Only when the planet rotates around its axis does it bear these deserts away.

Meanwhile, those formless shreds and stripes were the clouds.

The dry land seemed dirty yellow or dirty green.

The seas and oceans were dark, but their shades were different, depending, probably, on the degree of their disturbance and calm. Over there, perhaps, the whitecaps were plying the backs of the waves so that the sea was whitish. The waters were covered here and there with clouds, but not all the clouds were snow-white, though there were few grey ones: it must have been that they were covered by fine layers above consisting of icy crystalline dust.

The two diametrical ends of the planet were especially brilliant: those were the polar snows and ices.

The northern whiteness was cleaner and had a larger surface than the southern one.

If the clouds had not moved, it would have been difficult to tell them apart from the snow. By the way, for the most part the snows lie deeper down in the ocean of air, and therefore the blue color that covers them is darker than the same tinge over the clouds.

We saw snowy spangles of smaller size scattered over the whole planet, even at the equator – those were mountain tops, sometimes so high that the cap of snow never leaves them, even in tropical countries.

There were the Alps gleaming!

There were the heights of the Caucasus!

There was the range of the Himalayas!

The snow spots were more constant than the clouds, but they too (the snows) change, disappear and appear once again with the seasons...

With a telescope we could make out all these details... We looked in admiration!

It was the first quarter: the dark half of the Earth, illuminated by the weak moon, could be made out with great difficulty and was far darker than the dark (ashen) part of the Moon when seen from the Earth.

We wanted to eat. But before we went back down into the crevice, we wanted to find out whether the ground was still hot. We came down from the stone layer we had made, already renewed several times, and found ourselves in an impossibly overheated sauna. The heat quickly penetrated through our soles... We retreated in haste: the ground wouldn't cool down at all any time soon.

We ate lunch in the crevice, whose edges no longer glowed, but a terrible multitude of stars was visible.

Every two or three hours we came out to look at the moon – Earth.

We could have examined it entirely in about twenty hours, if we hadn't been prevented by the cloudiness of your planet. A few places were stubbornly covered by clouds and made us lose patience, though we hoped to see them later, and in fact we did observe them as soon as the weather cleared there.

We hid for five days in the bowels of the Moon, and if we came out then it was only to places nearby and for a short time.

The ground was cooling, and by the end of five earth days, or towards midnight Moon time, it was cool enough that we decided to undertake our journey on the Moon, through its valleys and mountains. It seemed that we hadn't yet been in any low-lying areas.

Those darkish, enormous and low expanses of the Moon are usually called seas, although that's entirely incorrect, since there's no water there. Would we find traces of neptunic activity in those "seas" and other low areas – traces of water, air and organic life, which in the opinion of some scientists had disappeared from the Moon long ago? There is a hypothesis that all this existed on the Moon once, if it doesn't exist now, somewhere in crevices and abysses: there was water and air, but they were sucked away, they were consumed over the course of centuries by its soil, uniting with it chemically; there were organisms – some kind of plant life of a simple order, some kinds of shellfish, because where there's water and air, there you find slime, and slime is the beginning of organic life, at least of the lowest kind.

As far as my friend the physicist was concerned, he thought, and with good reason for it, that there had never been life on the Moon, nor water, nor air. If there were water, if there were air, then it would have been at such a high temperature that no kind of organic life would be possible.

Let readers forgive me for expressing here the personal opinion of my friend the physicist, which is not proven by anything.

Once we completed our voyage around the world, then we'd see who was right. And so, taking up our loads, which had grown considerably lighter due to the large quantity we had eaten and drunk, we abandoned the hospitable crevice and headed beneath the moon, which stood in one and the same place in the dark firmament, back to our residence, which we quickly found.

The wooden shutters and other parts of the house and its service buildings, made of the same material, had fallen apart and their surfaces had charred and peeled away, exposed to the Sun's prolonged action. In the yard we found shards of the water barrel blown apart by steam pressure, since we had carelessly stoppered it and left it in the

hot sun. There were no traces of water, of course: it had evaporated without leaving any behind. By the porch we found slivers of glass – this from the lamp, whose frame had been made of metal with a low melting temperature: it had obviously melted, and the glass panes had fallen. We found less damage inside the house: the thick stone walls had protected it. Everything in the cellar was still in good shape.

Taking the essential things from the cellar, so as not to die of hunger and thirst, we set off on an extended trip towards the Moon's pole and into the other hemisphere, which had not yet been seen by any human being.

"Shouldn't we follow the Sun westward?" suggested the physicist, "altering our course a bit towards one of the poles? Then we can kill two birds with one stone: the first bird is to reach the pole and the dark side; the second bird is to escape the excessive cold, since if we don't lag behind the Sun we can run through places the Sun has warmed for a certain time – therefore, through places with an unchanging temperature. We can even change temperature on demand, to the extent we need to – if we catch up to the Sun, we can increase it; if we hang back, we can decrease it. This is especially good if you keep in mind that we'll be approaching the pole, whose average temperature is low."

"Oh come on, is that possible?" I remarked, in reaction to the physicist's strange theories.

"Entirely possible," he answered. "Just take into account the ease of running on the Moon and the apparently slow movement of the Sun. In actual fact, the greatest lunar circle is about ten thousand versts in length. This length has to be covered, if we don't want to fall behind the Sun, in thirty days, or seven hundred hours, to express myself in earthly language. That means, in an hour we have to cover fourteen and a half versts."

"Fourteen and a half versts per hour on the Moon!" I exclaimed. "I regard that figure with nothing but disdain."

"Well, there you go."

"We'll run twice as far without even trying!" I continued, remembering our mutual gymnastic exercises. "And then every twelve hours we can sleep for just as long…"

"Different latitudes," the physicist explained. "The closer we get to the pole, the less distance, and since we'll head precisely in that direction, then we can run more and more slowly without falling behind the Sun. However, the cold of the polar countries won't allow us to do that: as we approach the pole, in order not to freeze, we'll have to move closer to the Sun, that is, run through places that have been exposed to extended illumination by the Sun, even though they're polar. The polar Sun hangs low over the horizon, and therefore the ground is heated incomparably less, so even at sunset the ground is merely warm."

The closer we get to the pole, the nearer we must be to the sunset, to keep a constant temperature.

"Westward, westward!"

We glided like shadows, like phantoms, silently touching the pleasantly warming ground with our feet. The moon was almost full and therefore shone exceedingly brightly, presenting an enchanting picture, veiled by blue glass that seemed grow thicker towards the edges, since it gets darker the closer it is to the edge. On the edges themselves you couldn't make out either dry land, or water, or cloud formations.

Now we were seeing the hemisphere that's rich in dry land; in twelve hours it would be the opposite, the half rich in water – almost nothing but the Pacific Ocean. It reflects the sun's rays poorly, and therefore if it weren't for the ice and clouds, which gleamed brightly, the moon wouldn't have been as bright as it was now.

We easily ran up onto an elevation and even more easily down from it. From time to time we were bathed in shadow, from which more stars were visible. For now we encountered only low hills. But even the highest mountains would present no obstacles, since here the temperature of a place didn't depend on its elevation: the mountaintops were just as warm and free of snow as the low valleys… Uneven places,

protuberances, abysses on the Moon were not frightening. We leapt across uneven places and abysses as wide as ten or fifteen sazhens; if they were very wide and inaccessible, then we tried to run around on one side or we stuck to the slopes and protuberances with the help of thin cords, sharp hooked sticks and shoes with cleats.

Remember our low weight, which didn't require cables for support – and it will all make sense to you.

"Why aren't we heading for the equator? After all, we haven't been there," I remarked.

"Nothing is stopping us from going there," the physicist agreed.

And we immediately changed our course.

We ran exceedingly fast, and therefore the ground got warmer and warmer; finally it became impossible to run because of the heat, for we had come to the parts that were more heated by the Sun.

"What would happen," I asked, "if we ran, regardless of the heat, at this speed and in this direction – towards the west?"

"After about seven earth days we would see first the sunlit mountaintops and then the Sun itself, rising in the west."

"But surely the Sun wouldn't rise where it usually sets!" I was dubious.

"It's true, and if we were folkloric salamanders, protected against fire, we could let our own eyes persuade us of this phenomenon."

"What happens then? The Sun just appears and then disappears, or does it rise in the usual way?"

"As long as we run along the equator, let's say, faster than fourteen and a half versts, the Sun will keep moving from west to east, where it will set. But we just have to stop, and it will immediately start moving in the usual way and, after we forced it to rise in the west, it will once again disappear behind that horizon."

"But what if we ran neither faster, nor slower than fourteen and a half versts per hour, what would happen then?" I went on asking.

"Then, as in the time of Joshua, the Sun would stop in the sky and day or night would never end."

"Can you play this sort of trick on Earth too?" I persisted to my physicist.

"Yes, but only if you're in shape to run, ride or fly over the Earth at a minimum speed of one thousand five hundred and forty versts per hour."

"What? Fifteen times faster than a blizzard or a hurricane? No, I won't try that... that is, I forgot – I wouldn't try it!"

"That's right! What's possible here, and even easy, is entirely unthinkable over there on that Earth," and the physicist pointed at the moon in the sky.

So we reasoned, sitting down on the stones, for we couldn't run any more due to the heat, which I already mentioned.

Worn out, we soon fell asleep.

We were awakened by a significant chill. Leaping up cheerfully and jumping up five arshins or so, we once again ran off towards the west, tending towards the equator.

You'll remember that we had determined the latitude of our cabin as forty degrees, and therefore there was a fair distance left to the equator. But don't think that a degree of latitude is the same on the Moon as on Earth. Don't forget that the Moon's size is proportionally smaller than the Earth, as a cherry is to an apple. Therefore, a degree of Moon latitude is no more than thirty versts, while on Earth it is a hundred and forty.

We became convinced, however, that we were approaching the equator by the fact that the temperature of the deep crevasses, which represented the average temperature, gradually increased and, after reaching fifty degrees Réaumur, stayed at that level. Then it even began to decrease, indicating that we had passed into the other hemisphere.

We determined our location more exactly by astronomical means.

But before we crossed the equator, we encountered many mountains and dry "seas."

The form of lunar mountains is perfectly familiar to inhabitants of the Earth. For the most part they are round mountains with craters in the center.

The crater was not always empty, and did not always turn out to be a recent crater: sometimes a whole other mountain rose in the center with its own indentation, which turned out to be a newer crater, but very rarely an active one – with lava inside, glowing dull red on the very bottom.

Was it not these volcanoes that in the past had tossed up most of the rocks we often found? I can't imagine they came from anywhere else.

Out of curiosity, we intentionally ran past the volcanoes, right along their very edges, and twice as we glanced into their craters we saw waves of gleaming lava.

Once we even noticed an enormous, high sheaf of light above the summit of one mountain, most likely formed of stones heated until they glowed: the tremor from their fall reached our feet, which were so light here.

Whether in consequence of the lack of oxygen on the Moon, or for other reasons, we only came across unoxidized minerals, most often aluminum.

The low, even spaces, the dry "seas" in some places, despite the physicist's assurances, were covered with clear, though small signs of neptunic activity. We liked that kind of depression, slightly dusty to the touch of our feet; but we ran so fast that the dust remained behind and dissipated at once, since it was not raised by the wind and didn't blow into our eyes and noses. We liked the "seas" because we had pounded our heels on the rocky places, and for us they stood in place of soft carpets or grass. This sedimentary layer could not hamper our pace because of its thinness, which did not exceed a few inches.

The physicist pointed something out to me in the distance, and I saw to our right something like a bonfire that sent red sparks flying in all directions. The sparks traced out red arcs.

We tacitly agreed to make a hook in our path, so we could find an explanation for this phenomenon.

When we ran up to the place we saw scattered pieces of more or less molten iron. The small pieces had already managed to cool, the large ones were still red.

"This is meteoric iron," said the physicist, picking up one of the cooled fragments of the aerolite. "The very same kind of pieces fall on the Earth," he continued. "I've seen them more than once in museums. Only the name of these heavenly stones, or rather bodies, is incorrect. The name meteorite is especially inappropriate here on the Moon, where there's no atmosphere. They aren't even visible here until they hit the granite ground and get hot as the energy of their motion is converted into heat. On Earth they're visible almost the moment they enter the atmosphere, since they're heated by the friction of the air."

After running across the equator, we decided to turn back towards the north pole.

The cliffs and mounds of stones were amazing.

Their forms and positions were quite bold. We had never seen anything like them on Earth.

If we imagined them there, I mean on your planet, they would inevitably collapse with a terrible crash. Here the capricious forms could be explained by the low gravity, which couldn't pull them down.

We ran and ran, moving closer and closer to the pole. The temperature in the crevices grew lower and lower. On the surface we didn't sense that, because we were gradually catching up to the Sun. Soon we were due to see its miraculous rise in the west.

We didn't run fast; there was no need.

We had stopped going down into the crevices to sleep, because we didn't want cold; instead we rested and ate where we stopped.

We also dozed off as we were walking, giving ourselves over to disconnected daydreams; there's no reason to be surprised at that, knowing that similar phenomena have been observed on Earth. They're all the more possible here, where standing takes little more energy than it takes to lie there (speaking in terms of weight).

VI

The moon sank lower and lower, illuminating us and the lunar landscape more weakly and then more strongly, depending on which side was turned towards us – the watery one or the land one, or on how much of its atmosphere was full of clouds.

There came a time when it touched the horizon and began to sink behind it – that meant we had reached the other hemisphere, invisible from Earth.

About four hours later it disappeared completely, and we saw only the heights that it still illuminated. But they too went dim. The darkness was remarkable. A multitude of stars! You can see that many on Earth only with a decent telescope.

Their lifelessness, however, is unpleasant; their motionlessness is far from the motionlessness of the blue sky of tropical countries.

And the black background was so oppressive!

What was that, giving off such a strong light in the distance?

Half an hour later we found that it was the mountain peaks. More and more such peaks were beginning to glow.

We had to run up the mountain. Half of it was lit up. There was the Sun! But while we ran up, the peak had already had time to grow dark, and the Sun was no longer visible from it.

Apparently, this was the line of sunset.

We set off more quickly. We flew like arrows from the bow.

We could have hurried less than that: all the same we would see the Sun rising in the west, even if we ran only 5 versts per hour, that is, if we didn't run at all – what kind of a run is that! – but walked.

But we couldn't help rushing.

And there, O miracle!

The rising star gleamed in the west. Its size quickly increased... A whole slice of the Sun was visible... The whole Sun! It rose, grew separate from the horizon... Higher and higher!

However, that was only for us, because we were running; the mountaintops left behind us were going dark one by one.

If we hadn't looked at those unmoving shadows, the illusion would have been complete.

"Enough, we're tired!" the physicist cried jokingly to the Sun. "You can go off and rest."

We sat down and waited for the moment when the Sun, setting in the ordinary way, would disappear before our eyes.

"*Finità la commedia!*"

We turned over and fell soundly asleep.

When we woke up we chased down the Sun again, just for the sake of warmth and light, without rushing, and we no longer let it out of our sight. It would rise and then sink, but it was constantly in the sky and warmed us without ceasing. We would fall asleep when the Sun was fairly high. As we woke up the laggard Sun would be crawling towards setting, but we would tame it in time and force it to rise again. We were approaching the pole!

Here the Sun was so low and the shadows so enormous that, as we ran across them, we got properly chilled. In general, the contrast in temperature was striking. Some elevated places were heated up to the point where we couldn't even approach. We couldn't run through other places, which had been lying in the shade for fifteen days or more (earth time), without the risk of getting rheumatism. Don't forget that here the Sun, even though it was lying on the horizon, heated the rock surfaces no more weakly, but rather twice as strongly, as the Sun on Earth when it stands directly overhead. Of course, this can't be so in Earth's polar countries, because in the first place the power of the Sun's rays is almost entirely absorbed by the thickness of the atmosphere. In the second place, they don't shine on you so stubbornly at the pole: every twenty four hours the Sun and its light go around any rock in a circle, though they never let it out of sight.

You'll say, "But what about heat conductivity? Shouldn't the heat pass from a rock or mountain into the cold, stony ground?" I'll reply, "Sometimes it does seep away, when the ground forms one whole with the main mass, but many granite massifs are simply cast onto the ground, regardless of their size, and only touch it or some other massif

at three or four points. Through these points the heat passes extremely slowly, or better – imperceptibly. But the mass keeps heating up more and more; the rate of radiation of the rays is so slow."

We had trouble, though, not with these heated stones, but with the very chilled valleys that were lying in shadow. They interfered with our approach to the pole because the closer we came to it the more extensive and impenetrable the shadowed spaces were.

If only the seasons of the year were more noticeable here – but there were hardly any seasons: in summer the Sun doesn't rise higher than five degrees at the pole, while on Earth it rises five times higher.

And anyway, how long would we have to wait for summer, which would, most likely, allow us more or less to reach the pole?

And so, moving along in the same direction after the Sun and tracing a circle or, more accurately, a spiral on the Moon, we once again moved farther from the point that's frozen in places with hot rocks scattered over it.

We didn't want to freeze or to burn up either! We moved farther and farther... It was hotter and hotter... We were forced to move away from the Sun. We were forced to lag behind it, to keep from being roasted. We ran in the dark, decorated at first by a few shining peaks of mountain ranges. But then they were already gone. It was easier to run: we'd already eaten and drunk a lot.

Soon the moon, which we had forced to move in the sky, would appear.

There it was.

We greet you, o dear Earth!

We were glad to see it, no joke.

And how could we not be! We had been separated from it for so long!

Many more hours passed. Though we'd never seen those places and mountains, they didn't attract our curiosity and they seemed monotonous. We were tired of everything – all these wonders! Our hearts were breaking, our hearts were aching. The view that was so splendid but inaccessible from Earth only exacerbated the pain of

recollections, the sores of unrecoverable losses. It would have been good at least to reach our residence as quickly as possible! We couldn't sleep! But what awaited us there, in the house? Well-known but inanimate objects, able to prick and lacerate our hearts even more.

From where did this longing arise? Before we had barely felt it. Hadn't it been overshadowed then by our interest in the surroundings, which hadn't yet had time to bore us – by the novelty?

Home as fast as possible, so at least we couldn't see those dead stars and that sky, black as mourning!

Our residence had to be close by. It was here, we'd established it with astronomical observations, but despite indubitable indices we not only couldn't find the familiar yard – we didn't recognize even a single familiar view, a single mountain, which ought to have been familiar to us.

We walked along and searched for it.

Was it here, or there!? It was nowhere.

We sat down in despair and fell asleep.

The cold woke us up.

We restored ourselves with some food; there wasn't much left.

We'd have to save ourselves from the cold by running.

As if on purpose, we didn't come across a single suitable crevice where we could shelter from the cold.

Again we ran after the Sun. Running like slaves, chained to a chariot! Running forever!

Oh, far from forever. We had only enough food left for one meal.

What then?

The meal was eaten, the last meal!

Sleep closed our eyes. The cold forced us to huddle together like brothers embracing.

And where were all those crevices that kept showing up when we didn't need them?

We didn't sleep for long: the cold, still more powerful, woke us. Unceremonious and merciless! It hadn't let us sleep for even three hours. Hadn't let us get a good rest.

Powerless, weakened by longing, hunger and the advancing cold, we couldn't run with our previous speed.

We were freezing!

Sleep started to overcome me first – and the physicist supported his friend, and then sleep started in on him – and I supported him against sleep, deadly sleep. The physicist had taught me to understand the meaning of this terrible, final drowsiness.

We held each other up and gave each other strength. As I recall now, we didn't even think of abandoning each other and thus postponing the hour of our own deaths.

The physicist was falling asleep and raving about the Earth; I hugged him, trying to warm his body with my own.

I was overcome by tempting daydreams: about a warm bed, about the fire in a hearth, food and wine... I was surrounded by my own family... They were taking care of me, feeling sorry for me... They were taking me...

Daydreams, daydreams! The blue sky, snow on the neighbors' roofs... A bird flew by... Faces, familiar faces... A doctor... What was he saying?

"Lethargy, extended sleep, a dangerous situation... Significant weight loss... He's gotten much thinner... But he'll be all right! His breathing has improved... His responsiveness is returning... The crisis is passed."

Everyone around was happy, despite their tear-stained faces...

To make this brief, I had slept a diseased sleep and now I was awake: I lay down on the Earth and woke up on the Earth; my body remained here, while my thoughts flew off to the Moon.

Nevertheless I raved for a long time: I asked about the physicist, spoke about the Moon, was surprised that my friends had come to

be near me. I confused the earthly with the heavenly: first I imagined myself on Earth, then I was back on the Moon.

The doctor ordered them not to argue with me and irritate me... They were afraid I'd go crazy.

Very slowly I returned to consciousness and even more slowly regained my health.

It goes without saying that the physicist was very surprised when, after I got better, I told him this whole story. He advised me to write it down and supplement it with some explanations.

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