

# CONTENTS

Animal Consciousness .....	3
Israeli magpie .....	3
Birds .....	6
Australian magpie .....	7
Kookaburra .....	8
Cockatoo .....	14
Australian magpie (2) .....	20
Our Tookie-Cookie .....	24
Humor .....	29
Penguins .....	31
Magellanic Penguins .....	34
Dingo .....	38
Dolphins .....	40
Life and Consciousness .....	46
Observations on the Traditions .....	63
India .....	64
Central Asia .....	68
Venezuela .....	71
Israel .....	73
China .....	75

## Acknowledgements.

I am infinitely grateful

to Ludmila Milman for taking care of me and her advices,

to Vladimir Milman for his help in translating the article “Life and Consciousness” into English, and Michael Sonin for translating into English articles “Animal Consciousness” and “Observations on the Traditions...”

to Yonatan Milman, my grandson, for his excellent help in proofreading the Hebrew chapter,

to Tatyana Petrova for her help with files,

to Elena Vladimirkaya for her advices, support and help in selecting of material, especially for a chapter “Life and Consciousness”,

to Jan Rauchwerger for his help in all aesthetic matters,

and to all my friends who read these stories and expressed their opinion, and to their children who read the Hebrew story.

# Animal Consciousness

## (Eyewitness Account)

A year ago, when I turned 80, I wrote the essay “I Am 80 Today”. One of its sections, “Life and Consciousness”, describes my opinion that consciousness accompanies any life, that any life must have consciousness, that life virtually equals consciousness. However, the question arises: what is consciousness? What do I mean when I say this word?

In fact, when we say the word “consciousness”, we mean conscious actions. And we need to define what a conscious action is. What I mean by a conscious action is an action that entails a clear previously established goal that this action should achieve — a plan of action is conceived in advance, and the action follows this previously conceived plan.

This sounds philosophical, so I will start with an example of a conscious action of a certain bird. I actually observed this just two weeks ago. I was sitting in a parked car waiting for my wife Lyuda. In the middle of the street there was a median with grass and palm trees about every 10 meters. A smallish (but not small) bird flew onto this grass with a large piece of dry bread, a crust. I think it was an **Israeli magpie**.



It was sitting on the grass, breaking off pieces and eating them. Another similar bird flew up. It looked like they knew each other. The owner of the crust was clearly not going to share. The owner was letting the second bird watch it eat. It was also holding the crust to its side, not allowing the other bird to stand in front of the crust. After standing for a while, the second bird did not take any aggressive steps. It suddenly flew off and sat behind a palm tree about five meters away. It began to intensively dig something there but was doing it in a way that did not let the first bird see what it was digging, just its tail and the legs intensively tossing the soil. The first bird was clearly intrigued — it stopped breaking off pieces of the crust and watched what the second bird was doing. Failing to figure it out, curiosity got the best of it — abandoning the crust, it flew over to join its mate behind the palm tree and have a look. As soon as it landed there, the digging bird took off, grabbed the abandoned crust, and flew away with it to another place (deceived).

To sum it up, we have observed a conscious action of this second bird. It had a goal (to take possession of the crust) and an action plan to achieve this goal. The plan was successful, it worked.

(Warning! I wrote about conscious action very confidently. However, perhaps I am assessing it from the point of view of our human civilization, whereas birds see and perceive it completely differently. This question mark should be everywhere. We may misunderstand the goal, misunderstand the priorities of a particular animal. But forgive me if I ignore all this. We have to start somewhere and continue.)

I will try to draw one more conclusion, but this is already speculation. I think that among this group of birds it is unacceptable (“improper”) to grab bread out of the beak, but it is acceptable to take a piece left unattended. It is within “their” rules.

After this introductory example, I will describe the purpose of the stories I will be telling. We are surrounded by the world of animals, very different species of animals. Each of them has its own consciousness, its own “civilization”, that is, a set of rules of behavior, goals, and interactions. We humans do not know them. We look down on everyone and measure everyone by our own yardstick. Of course, it is very difficult to understand the goals and forms of behavior of completely different species. To do this, one needs to collect a lot of examples of behavior in different conditions. I urge everyone who has come across examples of behavior between any animals to describe it, to give their eyewitness testimony. Once enough examples are collected, we can understand other civilizations living among us. Of course, many of us have pets, such as dogs. However, a pet dog typically tries to adapt and understand you, not the other way around. What interests me is how they interact with each other, not with us. I am interested in their civilization, not their familiarity with ours and ability to adapt to it.

I will now continue talking about birds but will later talk about dolphins and wild dogs — dingo. My family had an encounter with a dingo. However, I will not go beyond mammals. For me, it is complete darkness beyond that, total incomprehension. Although even further out, I have come across trees that I understand a little.

One tree species, in the Amazon jungle, knew how to “walk” (moved about five meters over the period of a year; the purpose of this movement was clear). Another species of huge trees built itself based on other trees, which it ate. This was in Cambodia. But why this was done, like some of its other actions, was, let us say, incomprehensible to me. Because what came to mind was already too incredible. I described them in the same section, “Life and

Consciousness", of the same story, "I Am 80 Today". I will not return to this here.

## Birds

I will continue with another story about the same species of birds, but now it will be the Australian magpie.



In August 1988, we spent eight weeks in Canberra, Australia (that is, from mid-July to mid-September). Australia is an absolutely incredible world of birds, especially parrots. Judge for yourself.



This is not some bird park. This is a wild place, about 100 meters from the ocean and eight kilometers from an asphalt road. You take a country road to drive up here. Our car was the only one in this place. Some other car drove up later. You don't really see any birds when you arrive. But pulling out some bread is enough to sense movement in the trees. After standing for 5–10 minutes with your hand stretched out with bread, dozens and dozens of birds appear around you.

There are parrots of five or six different species. The ones sitting on Lyuda are of the same species, and this is no coincidence. This happened every time we went there. The species of parrots that first worked up the courage to flock from the trees and fly up to the bread/Lyuda will occupy this premium space. The rest will be picking up the crumbs on the ground. By the way, even more than bread, these parrots love grapes. You get a sense that they get drunk from them. Of course, the fact that they are not afraid of this huge “monster” — a human — and know that it poses no danger, indicates a certain level of intelligence.

But now I am talking about a very intelligent bird, and once again we have come to the magpie, this time the Australian magpie. We were renting a small house on the outskirts of Canberra. There were always birds in the small area in front of the entrance. Although there were fewer parrots in this place. There were a lot of them on the university campus. Of course, our children, nine-year-old Anat and 11-year-old Emanuel, fed the birds a little. There was even some kind of a small feeder on the ground a couple of meters from the entrance. We had already been living there for a while, and the birds were also used to us, although they scattered when we walked past them. Once, fairly early in the morning, there was a small knock on the door. We were all downstairs already, not far from the entrance. Lyuda went to open the door. Our front door opened into an entrance hall, about two by two meters, which led

into the living room through an open entryway. Lyuda opened the door and saw no one. She then looked down and saw a bird standing by the entrance! It was the bird who knocked on the door! We were all nearby but standing in the living room. Lyuda moved away. And the bird slowly, in no haste, came in and made a circle around the entrance hall. It was obvious that the bird was terribly nervous. It even relieved itself a little on the floor along the way, out of fear. But it made this journey and went back to the porch. None of us moved. The bird breathed a sigh of relief (this was my interpretation, but it was an obvious one). It then glanced at us again and jumped off the porch. The feat was over. It went to the feeder. And we realized that it showed all the birds that were watching from all sides that this was its place now. The bird claimed it and was now the master. And from that point on, all the other birds waited for it to finish its meal and move away from the feeder. And then the other birds could eat too.

Once again, we see a clearly set goal, a complex and risky plan, and its rigorous implementation. What can we learn from this story about this civilization, the civilization of Australian magpies? I will later return to the Australian magpies of a slightly different type. They will surprise us again. But for now, I will move on to another Australian bird,

## Kookaburra



This is a completely unusual bird, perhaps the most intellectual and intelligent bird in existence.

I will start with a description of our acquaintance.

As I mentioned above, in 1988, we spent some time in Australia. One day we went to a Canberra city park for a picnic. We were sitting at a table with the children. The food was on the table. I noticed some bird on a tree branch next to the table. It was completely unattractive in appearance. No bright colors. And there was absolutely no inkling that it was trying to grab any food from us (we once had an incident of this sort when a bird watching us suddenly swooped down and grabbed a huge piece of cheese from us). The pose of this bird conveyed curiosity. It was enjoying watching the family picnic. Very strange that it did not occur to me then. Perhaps this was because its eyes were large, human-like, not the dots that many birds have. But I had not yet noticed that at the time. After watching for a little while, and having noticed my interest in it, the bird flew away.

Somehow, it remained in my memory. After a long time, more than a year later, already back in Israel, there was an ornithology professor (bird expert) at one of the parties. And I immediately remembered this strange, seemingly unremarkable bird. I asked him. Mind you, I was feeling very awkward because there was nothing I could tell about the bird. Well, it was some kind of bird that I could not describe and whose name I did not know. So I just said that a certain bird caught my interest. That was enough for him. He immediately said that it was kookaburra, an extremely intelligent bird about which we still know very little. It leads a social life, it even knows its nephews and visits them. That is, it was simply the bird's intellectual disposition that caught my attention.

The Aboriginal people just love it when this bird settles near their village. In the morning it screams something like koo-ka-ba-ra, which is where its name comes from. The Aboriginal people call it kookaburra laughter. We have never heard a single sound coming from it. Kookaburra eats meat. It eradicates snakes in the area where it lives. It eats them. The hunting method is as follows. It grabs the snake near the head (as people try to do), then soars into the air and throws the snake onto rocks. If this does not kill the snake the first time around, the kookaburra repeats. Its reaction speed is surreal. We saw it once. And it outmaneuvers the snake.

After 1988, we made short visits to Australia a couple more times, but we never encountered kookaburras. In 2002, we came to Canberra again for two months. All this time, our balcony was full of different birds, mostly cockatoos. I will write about this later. But the kookaburra did not appear until 10–12 days before our departure. One early morning, say at 7 a.m., Lyuda came out of the bedroom into the living room, walked up to the balcony, and called me: "Vitaly, there is a new bird on the tree across from us". Naturally, I immediately jumped up to have a look and saw the kookaburra. I started rushing about and grabbed the camera, afraid to miss it, afraid that it would fly away. Very slowly I opened the balcony door and began to take pictures while standing in the doorway. Kookaburra was sitting and looking at me. Then it took off and landed right on the balcony railing, facing me. The gesture was obviously an invitation to take pictures. I took a few more pictures. It would turn in different directions. Then, looking at me, it started to open and close its mouth! This was another obvious universal sign — it was now time to feed it. We happened to have slices of raw meat, the best food for kookaburra. Lyuda quickly brought a bowl of this meat. Lyuda took a slice of meat and was about to put it on the railing. Kookaburra reached out to take the meat straight from Lyuda's hands. But Lyuda got scared and pulled her hand away. That was it — never again did the kookaburra try

to take meat from her hands. It patiently waited for Lyuda to put the meat on the railing.



Later Lyuda gave the kookaburra the bowl with meat, and it ate straight from the bowl.



Such was this idyllic scene, right from the first minute of acquaintance! For a month and a half we fed the cockatoos (I will tell you later what that came to), but they were still afraid to let us closer than about a meter. The complete lack of fear in kookaburra was simply evidence of its understanding that there was no danger.

Finally, the kookaburra was full. How do you think the bird showed this and expressed its gratitude? Have a look:



It turned its back to us to demonstrate its friendship, to show that it was not afraid of us. We were inches away. By the way, during all this time, all the other birds — the cockatoos and others — looked on from the trees, they did not dare to approach the kookaburra. An exception took place the next day. And this is a new remarkable story. You can see it in the video:



The next day, the kookaburra showed up at exactly the same time as on the first occasion. It immediately sat down on the railing, and the feeding process began. However, two things happened.

The first event was a clash that took place between the kookaburra and the Australian magpie who had been feeding on our balcony for a month and considered the balcony its turf. And suddenly its food was being taken away! It turned out that the magpie also liked to eat meat, something I was not aware of before this incident. And we used to feed it with bread, which the cockatoos also ate. Although the cockatoos liked seeds.



I will talk about this separately, later, in the story about this wonderful bird, also of great intelligence. But still not quite the kookaburra. The kookaburra just brushed it off. Now for the second event. Our kookaburra finished its meal and flew away. But twenty minutes later another kookaburra flew over, a little one. I think our adult kookaburra gave our address to its nephew.



For some reason, I do not think this was its child. The next day we took pleasure in the company of the kookaburra. Notice the delicate dialogue between Lyuda and the kookaburra.

After that, we flew off for a week to the tropical zone for a brief scientific visit. A week later, we returned for two days and then flew out of Australia. During the week we were away, we were worried

whether the kookaburra would return, whether it would wait for a week. It waited. In the morning, at the same time, it flew up to check if we had returned.



This is already the farewell breakfast. We flew away that morning. I wonder how long it kept flying by to see if we were back. Note its eyes. You can compare later when I show you the cockatoo. The cockatoo's eyes are dots, whereas the kookaburra's eyes have human-like structure.

I am moving on to the story about the

## Cockatoo



In the photo on the left, the cockatoo is agitated and tense. You can see this by its raised crest. In the photo on the right, it is eating calmly.

Here is a strange thing. On Wikipedia, I read that these cockatoos live about 40 years. However, back in 1988, we visited the cockatoo circus with our young children Anat and Emanuel. There we were told that they live over 100 years, and that they keep getting smarter all the time. In confirmation, they demonstrated the capabilities of cockatoos of different ages. At first there were the 30-year-olds, then the 40- to 50-year-olds; after them, cockatoos about 60, 70, and finally 80 years of age. And indeed, the level increased to an absolutely incredible degree of complexity and, in fact, also performance. For some reason, I have more faith in the people who interacted with them.

Cockatoos live and move around in flocks. I have seen flocks of, I think, up to a hundred birds. When they fly, they make terribly loud screams. Moreover, those screams are very ugly, a kind of guttural croaking. They are individualists and egoists (according to our observations).



They took a while to appear on our balcony. Their standard food is seeds or bread. We would leave some on the balcony, and gradually they began to wait for the treats. They usually flew over in large numbers, but a couple of them became our regular guests. In order for them not to quarrel, we poured several heaps of seeds, but there were times when one of them tried to take over more than one heap. Battles of intrigue were played out in front of us. But overall, they got along relatively well.



They sometimes ate as in the photo on the left, but more often as in the one on the right, that is, looking in opposite directions so as not to fight. Once, after they were already in the habit of eating regularly on our balcony for some time, there was a knock on the window early in the morning. I have to explain the layout of the rooms. We had a living room with a balcony where all the events with the birds took place. From this living room there was a door to another room with one window adjacent to the balcony. However, this window had shutters that were always closed. The birds could never see us in this room! But somehow they knew that we slept there. And they knocked on our window: "It's morning already, where is our breakfast?" Lyuda got up and went to give them seeds so that they would let us get some more sleep. That's how smart these birds were. They figured out where to find us and knocked on the window if we were late.

I once observed a strange story in the life of cockatoos, which I have not been able to decipher. An adult cockatoo was sitting on the edge of our railing, pressed against the wall. A smaller cockatoo, probably her baby, snuggled up to her. The young of these birds grow quickly and they are close to adult birds in size. He was obviously whimpering. He was muttering, asking his mom for something. (By the way, I am assigning the gender completely arbitrarily here — this one is male and that one is female. I do not know and cannot distinguish gender in birds.) The adult cockatoo, the mom, occasionally responded. This was an absolutely typical scene of a mom and a whimpering baby, just like humans. It went on for a long time, and I do not know how it ended, because I left the balcony, and when I returned, they were not there. I was very curious what the child could have been asking from his mother. There was plenty of food around on the balcony. So, the cockatoo “shall not live by bread alone”.

Sometime toward the end of our stay in Canberra, we learned that we could buy special treats for cockatoos in stores. Something they love. It is a certain concentrated mix of different types of nuts, possibly slightly sweetened, attached to a plastic stick. Naturally, we bought some.



In the small photo you can see this stick, but almost all the food from it has already been eaten. This stick has a hook to tie it to a tree. We meant for the cockatoos to sit on the branches and feast

on it. However, the very first cockatoo that flew up, after tinkering for a minute, managed to remove it from the tree and appropriated it.



We tied it a second time and tried very hard to make it difficult (in my view, impossible) to remove, but I was mistaken. In the top right photo, you can see the cockatoo trying to get to the bar, and the photo on the left shows the cockatoo ruminating about the task. I don't know how, but after a while this entire edible bar was in its hands (that is, its feet).

And then on the third attempt, I decided to tie it to the back of a chair. You can see this in the photo below. And you see the cockatoo taking the most suitable spot. I will explain. It could not sit on top of the back of the chair, as the chair would tip over (one of the cockatoos tried it). Sitting on the other side was "dangerous", as its back would be facing us.



Sitting on the seat of the chair was also dangerous since it couldn't take off quickly. So the only spot is occupied by this cockatoo. In the adjacent photo, you can see the cockatoo trying to reach for the sweets. A large group of other cockatoos is watching the attempts of the first cockatoo.



And now the denouement. The first cockatoo managed to break off pieces of the delicacy with its foot. However, it did not immediately put the second piece in its mouth and kept it in its foot. At that point, the cockatoo sitting next to it snatched this piece from its foot and quickly stuffed it into its own mouth. I have it filmed on video.

After this drama, that very first cockatoo could no longer stand it. It sat down on the seat of the chair, and after a bit of work, managed to tear off the entire bar from the chair and flew away with it. We didn't want to come closer and never learned how the bird tore it off. Perhaps their beak could bite through the rope we used to tie this bar.

In the story about kookaburra, I promised to come back to another bird, the

Australian magpie,

which I already wrote about. This magpie here is a little different from the one I wrote about from our visit to Canberra in 1988. Note the white patch on the head of both magpies. The one I'm talking about now has the slightly larger white patch.



These birds sing well and were spectacular at catching on the fly pieces of bread that Lyuda loved to throw for them. Only very recently I learned that in 2017 this bird won the Bird of the Year 2017 online competition. And here is what was written about its victory: "It resembles a magpie in appearance and is known for its many-voiced morning singing. But more recognizable than its voice are this bird's swift swooping attacks on suspiciously approaching subjects, especially during the incubation period". We have certainly observed both of these traits. Because of them, my wife nicknamed one of the two birds of this type that visited us regularly, a songstress, and also a sniper. In the mornings, when it sang invitingly, waiting for food (at the time when the cockatoos knocked on the window), Lyuda would say: "the songstress has come". But when she threw bread for the bird, the same songstress would become a sniper. Actually, it was one of the two such birds that had these talents — I don't know if it was a female or a male.



We already understand that wishing to claim its spot on this balcony and with us, this magpie also thought about entering our room. But it didn't have the courage. It stood for a while at the entrance from the balcony into the room. But it only worked up the courage to eat while standing on the doorstep. On the other hand, it offered its own friendship test. It turned around and stood with its back to us, as the kookaburra did. But in this case, we were at a much farther distance from the bird. I included its photo, with its back to us, above.

And now the story of the fight between the kookaburra and our songstress, which I mentioned in the story about the kookaburra.



What the photo depicts is already the finale (it is not in the video, if you managed to open and view it).

As I already described in the story about the kookaburra, on the first day when it flew over, it ate peacefully and flew away. All the birds that usually spent the morning on our balcony watched this from a tree. I wasn't really expecting a conflict, because we fed them bread and seeds, and the kookaburra meat.

However, I did not know that the magpie also likes meat, and even much more than the bread which we fed it. On the second day of kookaburra's visits, the magpie could no longer stand it. It apparently believed that the kookaburra was just flying by and would not take its place on this balcony in the future. And there it was for the second day in a row. The kookaburra was turning into a permanent member of this community and taking meat away from the magpie. So, while the kookaburra was eating meat and all the birds were respectfully sitting on the tree and watching, our magpie flew up and sat on the balcony railing, but about a meter or one and a half from the kookaburra. And it sang its battle song, a very beautiful one. I think I recorded it. But that video only shows the second short song between the two attack attempts. After that the magpie began to approach the kookaburra. Zero attention from

kookaburra as it continues to eat calmly. When the magpie approached to the distance of a peck, the kookaburra made a lightning movement with its head in the magpie's direction, and the magpie flew away in fright. Incidentally, all of this was recorded on video in full. The magpie sat on the other side of the balcony and watched the calm dining of the kookaburra. This is reflected in the photo above. I think she sang another song, but Lyuda does not remember this. When the kookaburra flew away, we tried to calm and feed the songstress. I should note that a kookaburra is smaller than a magpie and much smaller than a cockatoo. But the mind determines the status for birds too.

## Our Tookie-Cookie

About 20 years ago, a parrot lived with us for a whole year. It was a gift from one of Anat's friends. However, Anat did not find much time to communicate with him. And Lyuda took it upon herself to care for him. His appreciation and love are reflected in the photo on the left, and his favorite position is in the one on the right.



As a result, the only family member to whom the parrot did not like to come was Anat. He loved Emanuel and played certain games with me.



He quickly realized that I did not like him sitting on frames of paintings. To that end, he would sit on some frame at the far end of the room. He looked at me and waited. I could not get to him. Our ritual was as follows. I would take a long stick and walk toward him. As I approached, he would fly to another painting across the room. This would continue several times, but not too many. He correctly understood that enough was enough and found himself something else to do. For example, he might sit on a frame without a painting in it, specially prepared for him. We got this parrot when he was about a month old. His scientific name is cockatiel and he is also known as weiro bird or quarrion. This is a branch of the cockatoo family that originates from Australia.

In a very short time, Lyuda taught him to speak perfectly. By the way, it was a male. The female's behavior is completely different, and they usually don't speak. Back to the main theme of my entire story, the consciousness of this bird, our Tookie-Cookie understood what he was saying. For example, "Good morning" (in Hebrew, "boker tov"; in reality, "boker, boker, boker tov") was only spoken in the morning. When I phoned from the United States, after a while I could hear someone next to Lyuda saying: "enough, Lyuda, enough" (in Hebrew, "maspik, Lyuda, maspik"). That was our Tookie-Cookie reckoning that he was not being paid due attention. Lyuda taught him to sing.



This is Lyuda Giving a Lesson

This was perhaps the most startling part. He whistled *The Magic Flute* by Mozart spectacularly. Our friends and acquaintances would come to listen. For some reason I thought that the famous song from the movie “*The Bridge on the River Kwai*”, whistled in the movie by the colonel, would be very easy for him to memorize and perform. But it turned out to be difficult. However, the parrot tried very hard — he rehearsed it many times on his own. Somewhere in the middle of the musical piece, he would break into Mozart. But he would often start over. Eventually, he was able to whistle it, but it was an effort. That’s the kind of genius Tookie-Cookie was. Unfortunately, one night at 11 p.m., Lyuda went out onto the back balcony with him on her shoulder, stumbled, and he flew out into the darkness. He kept flying over us for a long time, but then flew somewhere else. This was during our Israeli winter, but that night happened to be cold, below +10 degrees Celsius. We don’t know what happened to him. Our huge mistake was that we never showed him our house from the outside. And even if he survived that first night, he could not figure out where to return.

We were told that if we brought our parrot company, he would stop talking to us. They would be busy with each other. This is why I would not know what his behavior is like in the company of parrots like him. However, we put up a mirror for him. At first, it was in his

cage. The parrot would peer in from the other side to see the companion, but quickly realized that it was he himself in the mirror. But still, he often approached it and talked to himself, as in the photo:



Another story about birds that I want to mention happened in India. We were staying overnight on the university campus, and when it was already dark outside, we decided to go for a walk outside the campus gates. We were walking along the alley toward the exit and could not talk. The trees along the alley were full of birds that made incredible noise. Their chirping was so intense that it was impossible to talk. We walked for about five minutes outside the gate and then walked back. We were walking along the alley and the silence buzzed in our ears. Absolute silence. The birds went to sleep. They had been making incredible noise, but suddenly, as if by order, they fell silent at once.

Suddenly, I recall another amazing story involving birds. It happened in the mid-sixties. Once again, I was at a conference in Central Asia, in Uzbekistan, in one of the big cities. This place was surrounded by a mountainous terrain, and a mathematician acquaintance of mine took a group of two or three of us for a drive

in his car around the countryside outside the city. We were driving along a straight road through hills and mountains. The road had been cut through them, so every 100 or 150 meters there were vertical earthy cliffs on both sides of the car, the remains of a cut hill. We were driving at a speed of about 100 kilometers per hour. And every time we drove through these passages, a flock of birds would fly over from the cliff on one side to the opposite one, right in front of our car. Just as we were passing through, right in front of the windshield of the car. It was obviously a game, perhaps even a competition between the birds to see who would fly off later and closer to the car. This is how kids played in my childhood on the roads in the villages. A deadly game. My wife recounted to me how she participated in these games. And one bird didn't make it, and we struck it down. It was a real pity. But it was too late to slow down — the birds would fly off right in front of the car when we were already in this narrow passage. Playing with death (or a competition to the death?).

Does this signify consciousness? I think YES, and a high-level one. By the way, these were small birds, similar to sparrows.

And the last story in this section.

My friend, professor of medicine Elena (Lena) Vladimirskaia, told me an interesting story about the common raven, another extremely intelligent bird.



This is a story of revenge. Perhaps (I'm even sure of this) revenge is a sure sign of consciousness. Lena had a female friend who lived in the same building and had a very beautiful cat. One morning, this cat was found dead near the building entrance. It was pecked to death by birds — ravens — who were still flying around. The cat could not escape in time. One of the neighbors recounted that two days earlier he had seen this cat in a tree ravaging a raven's nest. I have also heard of other similar cases.

While on the subject of revenge as a derivative of consciousness, I would also like to discuss another human-like manifestation of consciousness,

## Humor,

and how it relates to consciousness, its role in consciousness. Pause to think if you can answer the question of what humor is. Is it a derivative of consciousness? I must honestly say that I thought about this question for a very long time. And my realization was unexpected. I suddenly realized that humor is akin to mimicry. Mimicry is a well-known phenomenon. It is animals' adaptation against their enemies. It is manifested in different ways. Some, such as chameleons, change their color and become almost invisible to their enemies. Others make sounds that their enemies fear. Animals adapt to defend themselves against enemies by

pretending to be someone/something else if they cannot defeat them. Is this a manifestation of consciousness? I do not know. Zoologists prefer to think of this as a “reflex”, something lower than consciousness, but I would classify it as consciousness.

And now on to humor. Humor is a defensive reaction against “friends”, in contrast to mimicry, which serves this function against “enemies”. I think hearing this for the first time is puzzling. So let's start with an example. This is a very “Russian” example. A group of friends is celebrating something and drinking copiously. All is well and everyone is happy. But then a dispute arises, which between drunk people quickly turns into a fight. The outcome can even be tragic (you can find cases like that at any police station). However, if one of those present just tells a good funny joke, ideally related to the reason for the fight, everyone bursts out laughing, and the fight is over. I think a lot of people have been in such situations early in life. So humor restores calmness in spontaneous conflicts. This is a very important quality, undoubtedly related to consciousness. Conflicts are related to consciousness, and humor that extinguishes them all the more so.

I tried and failed to see what I would consider humor in the animal world. Apparently, you need to be too deep inside that world. However, let's move “up” and consider various human societies. For example, the independent city-states of Ancient Greece. Each of these cities, like every state today, had its own social consciousness. And just how did they try to settle their differences peacefully? Through the Olympic Games, through sports. That is, the Games played the role of “humor” between the city-states.

Whether you agree with this interpretation or not, it shows how varied the manifestation of this phenomenon, which in the human society is called “humor”, can be.

I will end this digression from the main storyline with a reference. When I first perceived the above-described quality of humor, I considered it a discovery. Of course, this looks like a philosophical question, and so I got in touch with my former student, Roy Wagner, who earned his PhD in mathematics under my supervision, but later changed his profession to philosophy, and was now a professor of philosophy in Zurich. Roy quickly found a reference for me to a very thick book on humor that had a page or two on this idea. So philosophers accept this, but attach very little importance to it, and study mainly the styles and properties of humor in different ethnic groups. Perhaps this is the correct path to eventually understand humor in animals.

Back to the animal world:

### Still Birds but Penguins

In 2006, we visited Melbourne and an oceanfront penguin sanctuary near Melbourne.



By the way, despite a very hot day, being on the ocean shore after dark feels very cold, and to see the penguins you need to be there in the dark. We were warned of this and had blankets. The place from which we took pictures has wooden benches, and many

spectators wait for darkness. The birds that we see in the photo disappear, and as soon as it gets dark, penguins begin to emerge from the foam of the waves. It is a very entertaining sight. They hide in the incoming wave, and then quickly run into the bushes, which begin exactly where the photo ends. Their height is approximately 33 cm (but their body length is 43 cm). This is the smallest species of penguin. So, wave after wave throws groups of penguins ashore. This continues late into the night. Having run into the bushes, the penguins begin to climb up the trail. The trail quickly becomes a track along which they walk to their burrow homes. In the photo we see them walking in groups along this track.



Extending from the shore inland along the penguin track, there is a wooden suspension path built for us, the spectators. So, having watched enough of their exodus from the ocean, we walk along this wooden path and observe the penguins walking. The penguin town is everywhere around us. Branching from the main track are smaller tracks that turn into tiny ones. Penguin burrows are everywhere along these tracks and trails. And there are small heads of children popping out everywhere, waiting for their family with food. You know, of course, that penguins carry food in their belly. They open their mouths, their young put their mouths in mom's (or dad's) mouth, and mom regurgitates the fish. So the penguins are carrying a load and it is difficult for them to walk. This is why, after walking some distance, they stop and rest. It is

incredibly amusing how they stop all of a sudden and all together. They freeze, each in its own position, as if by order. Not a movement for some time, as if caught by an “order” that came from some place unknown. And then suddenly they start moving, all together. When one of them reaches its trail, it turns onto it, and there is a sense that the penguin is taking its leave of the rest, who continue to walk along the main track. Of course, as in any society, there is no equality. Some live close to the ocean and in good thickets, while others have to walk to a place very far away that is also a bad one.

I want to describe one scene, possibly a tragic one. Right next to us, but down on the penguin track (we were standing on the wooden suspension bridge above), there were two baby penguins. They nearly matched an adult penguin in size, but their “fur” was different. Their burrow was nearby, and they teetered between standing near it and running out onto the track. They were constantly squeaking — I think they were crying. They were obviously very hungry. And they ran to every passing group of penguins asking for food. They were coming onto them with their mouths open. But the adult penguins would steer away, walk around them, and continue along to their children. Only once did one mother take pity on them and let each take something from her mouth. This was not at all enough for the little ones, and they continued to beg for food from the following groups. We approached a nearby attendant and drew her attention to this pair. She told us that their family might still come, and that some stay in the ocean for more than a day if their hunt was unsuccessful. But she made a note of them to help after a while. She told us that they keep an eye on these things. For some reason, I did not feel assured, but we left hopeful.

And now a question. Was the one penguin sharing food with others’ babies a conscious act?

We will now leap to the penguins of Argentina, the so-called

## Magellanic Penguins

In the winter 2010, we traveled on the Celebrity Infinity cruise ship around South America. Two weeks, a fantastic trip. We started in Santiago, rounded South America through the Strait of Magellan, stopped in some nearly deserted place in Argentina, and traveled an hour by bus to the penguin town. The road was a good one, a highway, so this was probably 100 kilometers south of the port. The place is one of the national parks of Argentina. Park staff estimate that this place, a real town, is home to about two million penguins. From what we have seen, this appears to be a correct estimate.

As in Melbourne, we first walked for a long time along a wooden path, built slightly above the ground so as not to interfere with the penguins passing under it. Although at some point it ended, and we could walk on the ground. There were penguins walking everywhere among us — they would walk to the ocean for food and return with food to their burrows, where the children were waiting for them. There were burrows all around, and there were baby penguins standing near them.



Here are the penguins walking to and from the ocean.



And here you see “social inequality”. The family on the left lives in ideal conditions: the burrow is shielded with trees from the attacks of birds of prey from above, and incidentally it is very close to the ocean, where they have to go for food. The photo on the right shows a completely marginal family: their burrow is open to any predator, and the children must hide in the burrow very quickly in case of danger. They are easy prey. And the location is far from the ocean.



In the photo on the left there is a family again. Their place is quite good, but not the best. There are bushes around, and the ocean is

not far away. Note that the cubs are always behind their mother. The adult penguin has a reddish patch over its nose, which the cubs do not have. The photo on the right shows a general view of their town, stretching very far into the distance. By the way, we have seen families with three cubs.



This is their seashore where they come to the water for food and leave the water to go "home". They also spend a long time standing on the shore, and you get a feeling that they are communicating with each other in some way. The photo below is larger and offers a better view of some details of their behavior.



As I bid farewell to the birds in my narrative, I want to show their legendary huddles:



And a closer-up view of another huddle (these are not penguins):



This is on the islands roughly opposite the penguin town.

## Dingo



We crossed paths with the dingo in the center of Australia, at Ayers Rock (called Uluru by the Aboriginal people).



What you see in the picture is 348 meters high, 3.6 kilometers long, and 2.4 kilometers at its widest point. And for tens of kilometers around is flat Earth! This is a wild place, sacred to the Aboriginal people. 15 kilometers away there is a purpose-built cultural center that offers the opportunity to stay overnight to visit this Monolith. Another 450 kilometers away is the small town of Alice Springs, where you can travel by plane. It is exactly 2,000 kilometers south of the city of Darwin, which is on the coast of Australia. 25 kilometers toward Darwin, the Southern Tropic (Tropic of

Capricorn) passes along the highway. My family and I drove up to have our picture taken on this line.



To get a feel for this place, I will mention that at the point where this highway leaves Alice Springs heading toward Darwin, there is a huge sign: 1,000 kilometers to the next gas station (halfway to Darwin). Such was this place back in 1988.

Back to the dingo. We were driven to Ayers Rock with a minibus tour. And then they “forgot” to pick us up! Just like that, and we were there with two children who were still very young at the time. I don’t wish to call up this memory and write about it, but I understood what kind of people England populated Australia with. We couldn’t believe it, and just waited another hour or two, without water or anything. Everything was on the bus. The last tours ended by noon, and there were only a couple of such late tours remaining. Eventually, we approached a police officer, who was also due to leave. Amazed and incensed, he used a radiotelephone to find this vile driver. This is how we got picked up from that place. But before we did, we encountered a dingo. We were lucky that we stayed behind and there were only another five or six people around. We were standing near the Rock, and this small group of people was about 10 meters away. And there was a little yellow dog with these

people, running between them. A very cute little dog. Just a little pet dog that came with these people. I was watching it in delight, while the dog was glancing at me. And suddenly I realized that it was a dingo! I have read that they pretend to be pet dogs, looking for something to snatch. There are cases known of babies being grabbed and carried away into the desert. There is even a movie about it. So I figured it out. Perhaps my gaze had changed, because the dingo immediately realized that it had been discovered. Its gaze changed — instantly it turned into a wild beast, one that I would have been afraid to run into. It rushed to the Rock to run around us along the top and ran off into the flat desert plain covered with yellowish sunburnt grass. Just a few meters from the Rock you could no longer make it out. It seems to me that this group of people that the dingo was running between never realized what happened.

An amazing level of pretense performed with artistry, and then a brutal beast escaping possible pursuit. Undoubtedly conscious behavior! Conscious mimicry. Although this, of course, is not quite mimicry.

### About Dolphins and Also a Little About Whales

I'll start with whales because this will be brief. I have only had one observation of conscious behavior of whales, and I have also observed a whale circus where one could argue "consciousness" versus "training". Although perhaps good training simply involves understanding the consciousness of the animal and how to communicate with it.

I think it was the summer of 2002. The Pacific Institute for the Mathematical Sciences in Vancouver (PIMS) had a special summer semester where I was one of the directors. Sometime in August, we took a short vacation and went to a small place on the

ocean shore. This was a place from where many small tourist boats went out to the ocean every day to watch whales. You could observe various types of whales at this location. And we were lucky indeed — we saw two types of whales. Since there are a lot of boats, they go to different places and tell each other on the radio if they suddenly see whales. This greatly increases the likelihood of success. In the beginning we saw whales producing spouts. We sailed very close to them. They feed on plankton and are very large in size. Their spouts are magnificent, and we thoroughly enjoyed them. And then a radio message came in that there were killer whales somewhere not far away. It is difficult to catch sight of them, as they move quickly over great distances. This was lucky, and we immediately sailed there at full speed. When we arrived at the site, we did indeed see a couple of whales in the distance, which broke the surface and then dived back in. That was it, we didn't see anything else. We were all huddling on the deck, looking in all directions. And there was nothing. A long time passed, maybe 10 or 15 minutes, perhaps even longer. We felt that our luck ran out just about before it started. And suddenly (!!) just meters from our boat, I think less than five meters, two huge whales simultaneously broke the surface and soared into the air. As in the photo, but only in parallel, together, perfectly coordinated, in the same (identical) position. They were the size of our boat; it seemed to me that they were bigger than 10 meters. Although I have read that this is their maximum size.



Having this whopper next to us was even scary. After splashing water on us, they dived slightly against the line of our motion. I was even afraid of a collision, but they were moving much faster than us. Their tails were going calmly into the water, and I even managed to take a photo of them. Unfortunately, the time of digital photography was yet to come, and I do not know how to find these images now. So I borrowed them from the internet (thanks).



We kept waiting for a long time, looking around. But having demonstrated themselves, they swam so far that it was impossible to see where they surfaced next. It is quite obvious that this simultaneous “flight” in the air was performed for our benefit. It was a conscious demonstration. We thank them for that.

Two years ago, we visited the Canary Islands. Our cruise stopped at the island of Tenerife and we visited Loro Park to see a whale show on that island. The whales tried very hard and everything was fine. Toward the end of the show, the trainer gave the whale the freedom to have some fun. I don't remember what he called it. At the entrance we were given light plastic raincoats. The whale began to swim in a circle of a huge aquarium and used its tail to douse us with water. I thought I was sitting far enough away that the water would not reach me. But it doused us from head to toe. What I noted for myself was that the whale clearly enjoyed this exercise. It performed the other tricks because it had to. But now

the whale was working with all its heart, with full enthusiasm. And when the whale was given a signal to stop, it made one more round and doused us with water again. I wonder if this was revenge for being forced to work, or humor?

I am moving on to the dolphin stories.

I first encountered dolphins in person around 1964–1965. I was at the first organized mathematical school in Katsiveli, Crimea. This place had the Institute of Oceanology of the Soviet Academy of Sciences. Its director was an expert, very famous in Russia, in seas and oceans, primarily dealing with weather conditions, squalls, and storms. To study waves, there was a large pool in the form of a thick ring at the site. The walls were glass, and one could be inside and observe, for example, the waves that were specially created from the inside. This was the time when rumors began to circulate that the Americans were training dolphins for use in military operations. Russia was not to be left behind. So, it was decided to conduct experiments on dolphins in this ring pool. We, the mathematicians of this school, transported dolphins in trucks from the sea to this pool. Several friends and I were transporting the first three dolphins. It turned out that the truck had nails sticking out and one dolphin was injured. We poured water on them from above while driving. They are very sensitive to the sun. They were unwell. But they tried harder than us not to injure us accidentally with their sharp teeth. There was no resistance, only help from the dolphins. And their gaze was understanding and kind. Once we dropped the first three into the pool, and they started swimming in a circle, the wounded dolphin could not swim alone, so the other two supported it from the sides. The three of them were swimming together. Once the other dolphins were brought in, they would switch and lead this injured dolphin, always in pairs, from two sides. Such was their intelligence, their mutual support. The story ended tragically. All

dolphins, one by one, eventually perished. Everything was unfit for the experiment.

Our second very close encounter with dolphins was a happy one. In 2002, we visited New Zealand. We spent nearly all of our time in Wellington but made a few short trips in the area. One of them was to the South Island. It is less developed, and its southern part is truly wild. This island has one fjord, that is, a long, narrow, winding inlet from the sea into the interior of the mainland (as in Norway). It was discovered recently and is not easily accessible. However, a tunnel was bored leading to the beginning of the fjord, where a tiny pier was built for a few small tourist boats. The inlet into this small harbor was fenced off with a net from large fish. So we took a tour on one of these boats. There were many buses, and many boats were going into the fjord one after another. We would reach the mouth of the fjord where it connected to the ocean and then sail back along the other shore. There were lots of interesting living creatures of all kinds, both on the shore and in the water, along the way. Several dolphins were swimming around. And then the following happened. Three or four dolphins began to guide our boat. And only our boat had these maritime pilots! I don't know whether to call it luck. The people on all the other boats were looking at our boat. On them, all the people were standing on one side to see the dolphins guiding our boat. We were the only ones who had difficulty seeing them, and we were crowding the bow to look down.

So three dolphins were swimming in front of the bow of the boat the whole time (it seemed to me that there were more of them in the beginning). The boat would change its speed, but this did not affect the distance between the dolphins and the boat. Sometimes the boat would stop so that we could see other marine animals resting on the shore. The dolphins would then swim around and wait for us. During this time, they played around the boat. And then

once again they accompanied the boat in front of the bow. I was looking at a dolphin from above. One of the dolphins, who was swimming directly in front of the bow of the boat, was swimming half sideways with one eye looking at me. Maybe not only at me, but I saw its gaze. It seemed to me that the dolphin was grinning. The other two dolphins were usually swimming along the sides, at some distance. Finally, we approached the bay from which we had sailed out. Ahead of us was the net. About 50 meters before reaching the net, the dolphins rushed forward and simultaneously all three jumped out of the water, completely, high above, even at a great distance above the water, and turned in different directions. Just like they do it in a water show. But these were wild dolphins who lived in the ocean. So who could have trained them, besides their own consciousness?! All the boats were watching this. I see in this not just an attempt at contact, but a request for contact. Meanwhile, we humans are preoccupied only with our little problems.

\*\*\*\*\*

The next piece is, essentially, an excerpt, a chapter, from my essay "I am 80 to-day". This is the only story with pieces offantasy, but the fantasy I believe. The main story of this collection "Animal Consciousness" is actually my attempt to confirm these fantasies at the animal level. I would also like to state that all my knowledge on the life of cells I used inside is from my discussions with my friend, Professor of Medicine Elena (Lena) Vladimirkaya.

# LIFE and CONSCIOUSNESS

Whatever I had chance to recently read on cells leads me to the following (conjectural) principle:

**LIFE = CONSCIOUSNESS**

(i.e., there is no living object that does not have its own understanding/consciousness).

Of course, consciousness of a specific form of life may be drastically different from what our consciousness may imagine. A lot of parameters influence it. Say, the period (timing) of the life (from possible minutes till hundreds of years, or even much longer); the level of independence (from being a cell of multicellular body, or a life in a large community, to relatively individual life); the level of dependence on other kind of living being; the form and way of multiplying themselves, i.e., reproduction; and many-many other parameters.

But consciousness may also "get elevated" growing into a "consciousness of a city" or "consciousness of a country", also, a consciousness of some group of individuals. (During my time in Israel I observed that the consciousness of the Department of Mathematics of Hebrew University in Jerusalem is very different from the consciousness of its many individual members; when the same person represents the Department, this person is ready to do things, much less honest, than I could ever expect from the same person individually.)

Then among others, a very important kind of consciousness to consider is the "consciousness of the species", or sub-nations of the species (we can easily observe this kind of consciousness among humans). That is, consciousness may be changing its "societal" levels down to the level of cells, microbes, viruses and, perhaps, even lower.

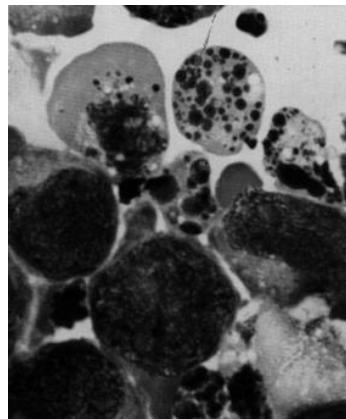
I plan to offer some examples, but I will first demonstrate one case of miraculous cleverness of a cell within multicellular living

being.

One of the most fantastic discoveries made some 25/30 years ago was the discovery of APOPTOSIS. Again, all of my knowledge about it comes from our discussions with Lena. So, apoptosis is the program inside a cell which is activated to kill it. That is, a cell may receive an order to die! This, of course, is a necessity based on survival "instincts" of a multicellular body, e.g., such is a protection from a quick cancer related death, which will most likely occur, if cells are allowed to perform uncontrollable divisions. In fact, the regulation of how cell dies should be very strict. Fantastic thing is that such program is, actually, permanently activated in cell, it is always ready to act. The only way for a cell to continue living is in performing certain job, which it is supposed to keep performing. Then the action of apoptosis is being delayed up until the cell is performing something else.

By the way, there are two types of cell death. One, this is a long-known necrosis. In the event of such death, the membrane is destroyed at a very early stage in the process, and is always associated with external stimulation. Usually a large number of cells are involved in this process at the same time (we observe pus in this case).

The second type of death is apoptosis. In this case, the membrane is destroyed at the very end of the process, when all of its contents are, as it were, packed into the so-called apoptotic bodies that do not irritate the environment and most often the process is genetically determined. This is how apoptotic bodies look like in a cell.



Although it can be caused by some danger from the outside. For example, if a cell does not want to let in a virus that will multiply in it and will be a mortal danger to other cells.

I will now illustrate how clever a cell is by demonstrating some of its actions. Sure thing, I will simplify the reality. My apologies for this. So, on its surface a cell has numerous receptors, they may account, probably, for hundreds of thousand, but also may count below hundred. To help us see the picture, let's imagine a cell rescaled to the size of a town like Ramat-Hasharon is (I lived in it recently). Then the receptors would be some structures of the size around 3 to 5 floors on its side surface. (Let's remember that cells are 3-dimensional, not 2-dimensional, like we may percept a city on the surface of Earth.) Then let's imagine a molecule approaching the cell. It contains some information and, maybe, in it is an order for the cell to carry out some action. It may enter the cell ONLY through these constructions-receptors (whether this is a physical intrusion, or some message is being carried in). Relative size of the molecule in this chosen scaling would be as a person.

Not every receptor is ready to accept every molecule-messenger - receptors are molecule-specific. And there may be no receptors at all on a given cell for some molecules. So, these ones are not allowed in and, so, they do not carry any deliverable to this cell information. But let's assume, that there is a receptor, and a molecule arrived to the receptor that is suitable for it. Now the

receptor should carry a decision to let it in (molecule or information).

Stop! not so quickly. One single receptor will NEVER carry a decision. It will either call a similar receptor located not far, so, that this receptor may move to it, to the original receptor, or it will create near by the same kind of a receptor (double itself). Now, these two receptors will jointly carry the decision.

Again, Stop! Not so quickly. Such a schema is for some "simple" decisions. If the molecule carries such a crucial order as to start the apoptosis, then two receptors will not be considered good enough. Depending on the form of apoptosis there will be needed at least three receptors, but may be even 6 of them. Speaking roughly, there are two types of apoptosis: a slow one, which will last many hours, and which may be stopped and reverse during its development, and another one, very quick, immediate apoptosis, which after its start cannot be stopped. The first, the slow one, is initiated inside the cell. It is exactly like this, the inside the cell order to die, to commit suicide, due to something wrong that happened in the cell (the risk of uncontrollable division is the highest danger for the body, in which this cell is an integral part). This is a very interesting process, which I will explain, again, in a very simplified way. There is certain gene in the cell that "observes" the scene. If it is noted that something is wrong it immediately stops all activity of the cell letting it to repair the system and return to normality. If this does not happen during some period, this gene (experts call it: the "night guard") activates the family of genes (which I will call "jury", as it plays this role), all together 16 such genes, 10 of them are always pro-apoptosis (let's associate with them "+" sign), and 6 are against apoptosis (I will associate with them "-" sign). These genes produce some molecules that are involved in some activities that end in joining these molecules into pairs. There may be pairs of (+,+), or (+,-), or (-,-) types, although, some may remain single. Now, happens computing of "votes", through which the "lonely" (not paired) molecules are not being

computed (they "did not come to vote"), just as well as the "indecisive" (+,-) pairs don't(it is abstained vote), while, of course, (+,+) is being "voted" for, and (-,-) against the apoptosis. The majority decides the fate of the cell. (If I am asked regarding what happens, if there is an equality; well, I don't know! But I suspect it is the same as no apoptosis vote). There may be noticed more substantial problem: the a priory prevailing of the pro-apoptosis molecules, one may think, may mean the predetermined the pro-apoptosis decision. However, there is another parameter involved. These genes (16 genes of the "jury") produce molecules with different ability to join another molecule from this family. Every of them has regions responsible for the ability to join another molecule. Among 6 of anti-apoptosis ("-" sign), 4 have 4 such regions, and the remaining two - 3 regions. However, among 10 molecules of pro-apoptosis ("+" sign) only three have 3 regions (no molecule has 4 regions!), one more - 2 such regions, and remaining 6 have each only one such region!! So, they have very weak ability to co-join. And this creates the balance!

If the apoptosis is chosen, the other gene is activated, and a very interesting next step starts: the real gene-"killer" is activated, which does the job (also very interesting). However (!!), there are some proteins that may block the action of the killer. For the whole body of cells this is a very bad sign, since in this case the "unleashed" cell will start uncontrollable division (cancer). I will drop this part now. But what will happen, if the made choice was against the apoptosis? Then the cell continues performing its job, the one it should be doing and was doing, when it was stopped, and everything then looks normal, yet, our major "judge", the "night guard" may restart the process and call again for the above described family of 16 for making one more "vote", if something, still, worries it.

The picture below is not to be read and studied. Just to see the level of complexity of the signaling pathways that ultimately induce apoptosis. In many of these locations, it can be paused in various

ways. This scheme is taken from the book of Professor E.B.Vladimirskaya (in Russian) “Механизмы кроветворения в норме и при онкогематологических заболеваниях.” Lambert Academic Publishing, 2018, стр.224, and it is necessary to finish a couple of years of the medical faculty to understand this properly. Although you can get an amateurish idea. The book is easy to read.



(the title of this picture: Signal paths of apoptosis).

Quick apoptosis also may be stopped, but on a very preliminary stage of its development, the stage, when the order just came in. I am not sure whether this is also programmed in the incoming order that the cell receives from the outside. So, not having any scientific justification, I will call such quick apoptosis "(a)-apoptosis", while the unconditional order to die - "(b)-apoptosis". Maybe you have already guessed what I am going to say now. I don't know whether this is, indeed, so, and/or maybe it is already known to be true, but I think that for an (a)-apoptosis to start it is enough to have the decision made by the only 3 receptors. But for a quick (b)-apoptosis 6 receptors are called to jointly decide!

And in any case, wouldn't you agree that cells act in much more clever way, than we, the humans, do?

I think I should feel pity for you, if you, still, don't note

"consciousness" in such behavior.

I will provide some additional information later. But now I would like to change "the scale" of our discussion and discuss "consciousness"/"thinking" of some huge living objects that even someone very much "pro"- my general philosophy may not expect. I will talk about trees. Of course, in general trees are to such an extent different species that we are unable to recognize their traces of "thinking" or "consciousness". But there are two very different kinds of trees that both make these signs readable for us. I personally had chance to observe both of these kinds, one in the jungle of Amazon, and another - in Cambodia. Perhaps, there are many more, but I had observed only these two.

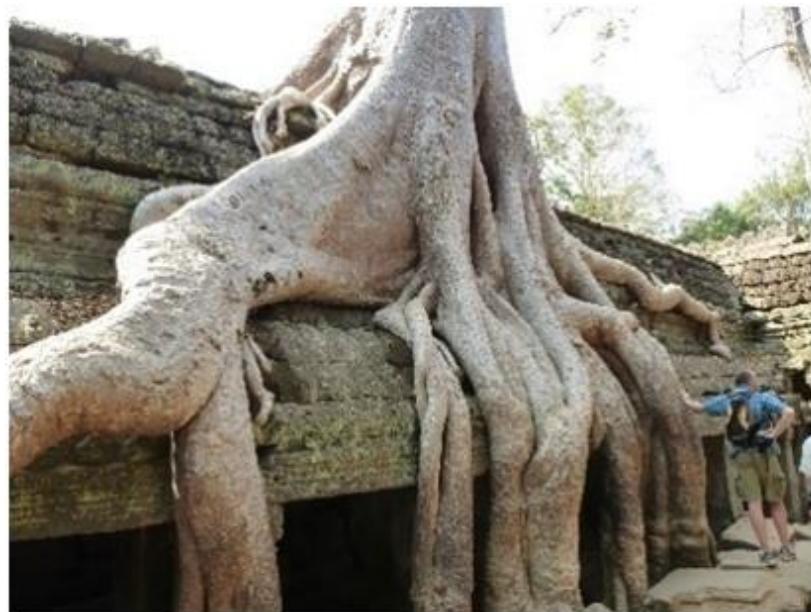
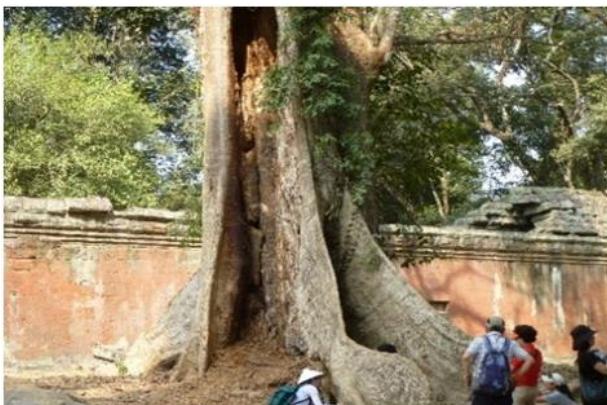
One of these kinds is a "walking tree". These are the trees that move (walk) along Earth surface. Not quickly, around, say, 5 meters per year. Whoever did not know this and does not believe me, search Google for "walking tree" and see hundreds of pictures, including those that show the very process of this "walk". By the way, these are very big and high into the sky reaching trees with large trunks. Around 2 meters from the ground, such trunk is being divided into lots of "branches" going down. One may think of them as roots that hang a couple of meters above Earth level. So, to move in specific direction, a tree sends from its trunk above Earth new roots in the chosen direction, and, when these roots firmly settle inside the soil, some roots from the opposite side, the no more needed ones, die, and, hence, the whole trunk (thus, the tree) shifts in that direction. Think, what kind of coordination there should be in place so that the trunk remains stable and "looking up", not falling! And where is that "brain", which regulates this? So, our belief that a brain is absolutely needed to "compute" and decide how to perform some clever action is wrong. This may be done without it. Making a choice of direction, in which to move, may be easier to explain. I read that, perhaps, the tree needs more sun. These trees live in tropical jungle of South America. At least I saw them there, and the direction it chose to move in was obvious. From

what I saw, it looked like it was trying to escape falling into a deep ravine, perhaps, the result of the recent rain season.



The second kind of "thinking trees" we met in Cambodia, this was the so called giant Strangling Trees. These are huge, tremendously big trees, living around thousand years or more, which completely covered, fully destroyed the old cities of Cambodia. It was believed here that without any war the whole citadels and residencies of very powerful kings were suddenly left, and the nation went to build the new citadels somewhere else. These trees "eat" other trees. I witnessed this. The process starts with what looks like not dangerous lianas use the trunks of the other trees for a support, and climb around them and up. When such a "liana" firmly establishes itself around a neighboring trunk, it starts joining with other "lianas" turning into one formation that becomes another trunk around the trunk of this tree's "dinner-tree".

Gradually, it is all over the "dinner-tree", and it strangles and eats it. I think that at the previous stages of its growth it used to receive its food from the tree it invaded. I have photos of all the stages of this process. But these giant trees had also destroyed the buildings and huge structures in a more complicated way. I have difficulties to explain this in writing, though (see photos: on the top left photo you can see another eaten tree).



If we started to accept this point of view on some other, then us, forms of life possessing consciousness and knowing how to

"think" making conscious decisions, then having this view in mind we are ready to zoom out and widen the scale of living objects.

I'm returning to us, humans within the world of animals. It is very well known that we are not independent in our surviving needs. Our stomach is full of micro-organic living objects, our microflora. It is very much needed for digesting food, and in many other processes (say, creating some vitamins we need).

Also some of our own cells, like cells in blood, have semi-independent life. Our microflora does not know about our existence, it lives its own life and has its own consciousness. We may influence its existence by regulating our food, water and possibly some other supplies. We also "defend" it from changing conditions outside our body. It lives in very stable conditions. But it also may influence our life developing some sicknesses, or extracting some products, which may strongly influence our mood and behavior. We want to live in harmony with it, but we do not always understand how to do this (well, rather it is very seldom that we understand this).

Now, some curious "measurology" (I created this word joining "measuring" and "astrology", because, of course, the measuring I present does not prove anything, but, I hope, you will find it curious). Let's compare data on microbes from our microflora with respect to us, humans, being the place of their living, with the data on us with respect to Earth, our place of living. The size of individual typical microbe is smaller, than the size of a typical individual person, almost exactly the same as our size is smaller, than the size of Earth! So, we live on Earth with the same space as "they" live inside us. (One may start to worry about differences in the size of populations; however, there are billions of different types of living forms on the surface of Earth, as well as millions, if not more, types of microbes living inside us).

[Computation: the typical microbe is 1/10 size of our typical cell of the body which is around 1 micron =  $10^{-6}$  of a meter, one

over a million, i.e., for a microbe it is  $10^{-7}$  of one meter. Our side is around 1,7 of a meter. So, by increasing it  $10^7$  times we will have 17.000 km. But the diameter of Earth is close to 13.000 km. The microflora of whales or elephants has even much more space inside their hosts for living, than these animals have on Earth.]

And now about living periods, the timing of our life. I mean how many generations of "our" microbes change inside us during our life. An average microbe divides every 20 to 30 minutes. Of course, for some it may take longer. And our own cells living much longer life; say, erythrocytes live around 90 days, but then they die, not divide. So, we have around 3 (or, say 2,5) generations per hour, and around 70 per day. Therefore, in one year inside of us there passed around 25.550 generations, and for 80 years (it is my 80-th anniversary now) we have around 2.044.000, roughly 2 million generations! To how many years of our presence on Earth this could be compared? Truly, this question doesn't make any sense from any point of view. However, I am interested in the psychological factor - the "feeling of time" of our species compare to what could be "reasonably" considered "the feeling of time" for microbes inside of us.

For instance, the notion of "generation" is different for us, than for microbes, who are "dying" (better to say, disappearing), when creating the next generation. While, if to consider for the length of time of one "generation" simply our life expectancy, i.e., this time around - 80 years, we could say that it would take 160 million years for humans to live on Earth for as many generations as our microflora changed inside of us. However, if a "generation period" is around 25 years (the expectation of age of the first child born), then the figure would be around 50 million years. Figures are relatively comparable. In any case, the life of our microflora inside of us by some objective parameters may be considered "comparably about the same", as our life on Earth, or at least, acceptably similar.

Why do I discuss this? To state that the life on Earth may have

its own consciousness. Moreover, it should have it! Of course, it should be a huge intellectual power, so great that we cannot comprehend it from our very low intelligence. (Can a microbe inside us understand our existence?) This approach helps to answer many wildly open questions about life. But it also creates very many new questions. I engage now in briefly looking through some number of problems it would solve. And then I will list some questions it creates; some of them really worry me.

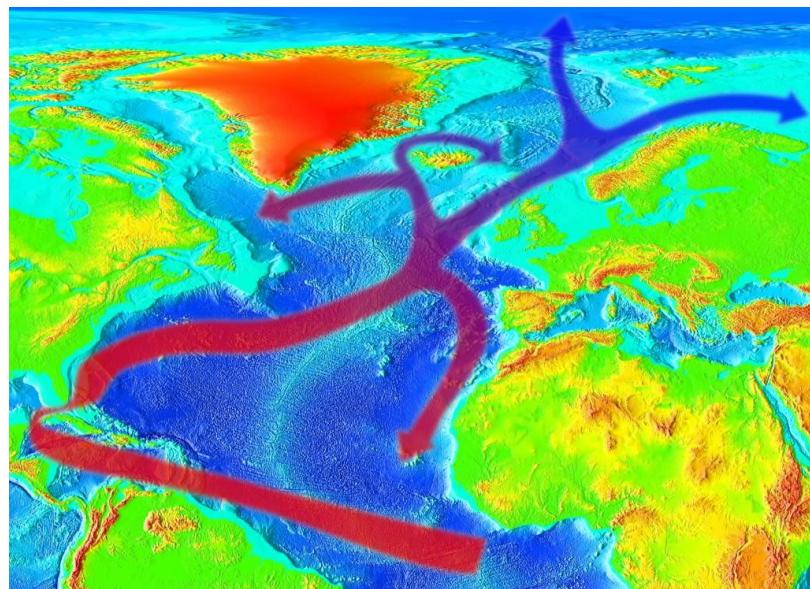
It seems obvious to me that even, if a microbe from our microflora would know that it lives inside highly intelligent body, it would be not able to establish a contact with us. At the same time, our micro/nano sciences are moving ahead very quickly, and, it looks like we would be able to establish contact with our microflora, and even with an individual microbe. The same, a human being and even all our humanity, I think, is unable to establish a contact with the super-intelligence of the life on Earth (assuming my conjecture is correct, and it exists). However, I think that superintelligence may establish such contacts. I, actually, think it observes us (as a whole) and helps. For example, we like to complain how unstable our weather became recently (actually, only very slightly unstable). As to me, I had been always on the opposite side, surprised regarding how our living conditions on Earth ARE STABLE.

Once in France (I forgot the year) suddenly from the North had broken winds, and they rushed through Paris and down to Mediterranean regions. This started with no warning, and went through with the speed above 200km per hour. Old huge trees had fallen down. People could not go out. Everything happened within a very short period of time, but forests and parks along the route of the winds suffered significant damage, often were completely destroyed. We tried to come to IHES in Bures-sur-Yvette - it stays in the park, and we could not enter. It was impossible to pass through the fallen trees. Never before and after the event I had encountered such a destruction; on top of this the whole damage

was done in a very short time. The question is: how come this happened only once? Why not every year, many times per year? The difference in temperatures between, say, Norway and Algeria is 20-30 degrees C most of the summer. So, where are those terrible winds that should be expected acting in order to equal these temperatures?

I always have this feeling that weather is under some strange control. And not only the weather. Say, twice, when Russia was under deadly attacks and people were sure it will fall, in 1812 by Napoleon and 1941 by Hitler, Moscow (and Russia) was saved by enormously cold weather. It is usually much cooler in Moscow, than in Western Europe, but those years it was especially cold, unbelievable even for Russia.

Or consider the Gulf Stream in Atlantic Ocean. How such a miracle, the warm huge "river" inside the Ocean that moves tremendous amount of warm water from Mexican Gulf to the North of Europe started?



Science may explain why it is stable, and why it exists. But not how it started. This happened around 15 - 20 thousand years ago and warmed the Europe. Ice fields retreated from Europe to

provide the space for humans to develop and grow our intelligence.

So, I would think, the stable weather is one of the proofs of higher intelligence control.

And now the main point. How new species appear? How we, humans, appeared on Earth? Darwin!? Undoubtedly, natural selection and all the developed forms of Darwinism, do, indeed, influence development of species, "polish" and "perfect" their appearance and adjust them to the World conditions. But these processes don't create new forms, the completely different from those existing forms of living things, the new species! The probability of such creation through some "random events" is 0 (zero!); it is so small that trillions of years would not be enough to succeed, while our Universe exists only some (not quite established, yet) number of billions years. To state that it could happen randomly is the same kind of nonsense, as to state that randomly joining some blocks (even assuming such blocks do already exist) one may build a modern laptop. What an idiot would suggest this? But humans are much more sophisticated and very precisely acting creatures that accurately coordinate their activities.

So, the only possibility that comes to mind is that some higher intelligence created some (originally rough) copy of us, and then let the methods described in Darwinism to polish us and improve. (So, there is a room for Darwinism, too.)

Yes, it looks more like the standard religious "creation by God", than by the methods of "scientific Darwinism". However, I see creation standing infinitely far from being based on religious explanations. For example, I don't think that, if we pray, anyone will hear our praises and requests, and/or will pay any attention to them. I, actually, think that thousands years back our prophets, maybe, had understanding of this, and, as the outcome, was born genius idea of the single God. Yes, our Earth has a single life system, meaning a single superintelligence. But, as passing through the "middle ages", through the periods of our human intelligence falling, the only thing that was offering a hope of

preserving intelligence was the great idea of a single super-intelligence that was primitively turned into the notion of God dwelling almost in human form (thus, bringing the better level of acceptance by primitive people).

I will call this single intelligence the "Creator", as it created us and the other living forms on Earth.

But NOT Earth itself! And not all other objects outside Earth, or, at least, outside its neighborhood.

And what about the life in other places of the Universe? For me this is a very easy question. I think, the same mechanism creates conscious systems on every suitably located planet around any star. And then this conscious (=living) system (=object) will create life of its own "microflora", i.e. living things on its territory. So, such living planets (or life on the planets) should be everywhere. We don't know about them similar to how our microflora does not know about other microflora.

Also, note, our microflora cannot feel that we, sometimes, try to help it. Indeed, remember the timing of life for microbes: around 20 min. It means that from the moment my doctor will tell me that I should help my microflora and take some specific tablets to the moment I, assuming to be a good patient and doing things quickly, take these tablets, a few days will anyway pass, i.e. 100 - 200 generations of microbes will be gone (!).

How similar should we expect it be, the life on other planets to our life on Earth? Well, how much differs life on different continents of our Earth? Say, how much differ souvenirs we buy in India and in Russia? They are different, not similar. However, serious stuff, like, say, cellphones, although produced in Korea, Japan or US, are quite similar.

Why is this important? Because I would expect these super intelligent systems on planets to be in contact with each other, so that to exchange important ideas. Souvenirs reflect taste and local understanding of beauty, and this may be circumstantially very different for different intelligence. But the essence of important

discoveries is of common interest. So, animal life may be looking very differently, while the top achievements, although may slightly differ, are similar (compare Australian mammals, kangaroos and other marsupials with North American and Euro Asian mammals). Top achievements of life, like human being, should be very similar. We are very well done!

A question that seriously bothers me in this schema is, why we, the humans, were created? And why now? The major difference between us and many other species is NOT a level of our intelligence. It is quite likely that some dolphins are not less clever, than us (or, perhaps, elephants?), and definitely many birds have a better built brain: it is much smaller, than the brain of us, humans, but it is known to do fantastic things and has fantastic active memories.

The main difference between us and any other life object on Earth is the ability to build, to construct. The language is also crucially important, but it on its own could be developed within application of the Darwin Theory methods of evolution, these would be enough.

But the combination:

- i) legs to walk
- ii) hands to build
- iii) the structures of "production of sounds" for developing of speech, and, of course,
- iv) high intelligence,  
is unique and it is created only now!

So, why such species (as us) appeared only now?

Also scientific and technological developments are not uniform in time. After some very significant step made and, sometimes, even a real jump, we observe a long period of stagnation. To be able to absorb the jump.

What does surprise me in this? During the last 30 - 40 years the progress non-stop accelerates, while before that we observed the progress, to which there had been attached periods to absorb

it, to get used to. But now we already have no time for absorption.

It looks like "someone" is in a hurry.

My questions now are: what for are we created? why such a hurry?

There are two directions of thinking along these lines. One is with worries regarding the danger to come. Perhaps, our Earth's life-system, this super-intelligence, needs our technological abilities, our help in saving ourselves and Earth's life.

The other direction is optimistic, and starts with the question: How is being created a new planet with a life-system on it ("living planet")? Here's one scenario. Some already existing life-systems may take care of reproduction that will create life on a suitable planet that is not, yet, made alive. Such planet may be located around some star on a not too big distance from, say, our Sun.

Let's for the sake of argument say the distance to such planet is below two light years from us. We may assume that reasonably soon there will be discovered the way of travelling in Cosmos with the speed of, say, 1/20 of the speed of light. Humans work on this right now. Then through us our Earth will be able to send to such planet its own life system, Earth's life system, that will arrive there in around 40 years. Presumably, some other living planets in the same neighborhood will do the same. Our cosmic ships with our messengers will meet on that planet and, mixing genes, there will be formed new life-system based on the life-systems of all the arriving ships. This way the new life-system will start on the targeted planet. Of course, in order to achieve this, the living creatures will need to work very hard for a very long time (long from our perspective). Many generations will pass before the planet will be filled with life of all arrived forms. The mixture of different genetics will help creating new stable forms, and gradually it will become the new alive system, new intelligence with its own interests and life.

(And who cares now about such "small" detail as compatibility of different genetic, let me remind you that spermatozoids of one

person come to a completely different person and are not being killed there; some well-known mechanisms stop non-compatibility effects; but discussion of this will take me to a few more pages of miracles).

So, perhaps, we, humans, will play role of "spermatozoids" on our living planet, on our Earth!

PS. To imagine the size of events, let us again compare "the birth of a new living planet" with the birth of a human child. It takes 270 days for a child to be born which means, perhaps, many hundreds or a thousand of generations (divisions) of cells, which in the end build our body. Similarly, from the start of the process of creating life on the new planet, many hundreds of generations of arriving astronauts should pass, i.e., tens of thousands of our years! Very slow (for us, humans) process, but very short for the life-system on the planet that is getting ready to exist for over half billion years.

Vitali Milman, Summer of 2019.

## Observations on the Traditions and Character Traits of Some Cultures (Travel Notes)

In this essay, I am going to recount some of the stories that happened to me in different countries. Of course, these are fragmentary observations that do not create a complete picture, and I really hope they are not offensive to anyone. By analogy with the preceding section, I see these observations as observations about the consciousness of nations, as opposed to the consciousness of individuals. However, these are just "eyewitness accounts" lacking any credible conclusions. Of course, we only notice and register those examples that are very different from the "consciousness" of the ethnic groups with which we are used to living. (As they say, "familiar air has no smell".) Also, perhaps these

examples are not typical and do not reflect the particular traits of the social “consciousness”. At the end, I will provide an example from the ancient history of China, from which I think we have a lot to learn.

## India

I will start with a story that my friend Dr. Grigory Skurkovich told me. He visited India, even before emigrating to Israel, with a group of Soviet tourists sometime around 1971–1972. They stayed in the houses in which the employees of the Soviet embassy lived. The houses had a garden and there was an Indian man who took care of it — he worked in the garden. The residents of these houses were very pleased with his work. He had a big family, and when they learned how low his salary was, they decided to double it. So they put together a matching amount from their own funds. They joyfully informed him of this, and he was infinitely grateful. The next day they saw some stranger working in their garden, while their gardener lay down under the palm tree and looked on. They asked the gardener who this man was, and the gardener replied that he hired this man to do the work. Since they doubled his salary, he could pay a salary to this man! There it was — a minimalist approach. Mind you, the salary was very small, even for the employees of the Soviet embassy, who, as we all know, did not get paid much.

The next encounter with such an approach to life happened with us. In 2001, we visited Delhi. When we wished to take a trip to the city, say for shopping at the center of Indian arts and crafts, we would hire a taxi for five hours. There was a fare schedule to hire a taxi by the hour. We would drive up to this center by car, knowing for sure that we would spend at least four hours inside. There were five or six stories of the finest, most beautiful paintings and articles — we spent dozens of hours there. So I would tell the driver that

he was free for the next four hours. He could leave and do whatever he wanted (and I meant that he could make extra money, since he was definitely going to get mine). “Thank you, thank you”, he would say, and go lie down in the shade under a tree, where he would stay lying down for the entire four hours.

Perhaps you are thinking that their salaries are adequate to justify this behavior. Okay, let me tell you about the honorarium I received for the colloquium at the mathematics department of the main university in Delhi — about three and a half dollars, while at another college, where I was persuaded, begged into coming to give a lecture, the honorarium was already . . . a dollar and a half. However, do not think that I was expecting any kind of honorarium. It was a surprise for which I was not ready. My problem in these stories was that I was afraid to refuse the payment so as not to offend them. But perhaps our understanding, our consciousness, is so different that I should have thanked them and refused. I don’t know. This issue of misunderstanding torments me all the time.

There was another episode that surprised me a little. We were traveling in a private car we hired from Delhi to Agra to take in the views of the Taj Mahal mosque.



This trip is about 250 kilometers. We departed from Delhi (very early) and were driving along a spectacular freeway. The freeway was tidy, clean, and well-kept. But once we got off the freeway, the road became shabbier and dirtier. And when we were driving through some village, along a narrow street between houses, it was

a complete nightmare. There were puddles (where did they come from if there was no rain?), pits, and mud. The car would roll from side to side. On both sides of the car (centimeters away) there were houses, and the children were sitting on the porches, in this mud. It would have been so easy to fill these pits, even if only in front of your house. But to take care of highways you get paid, whereas to clean up around your house you don't! So nobody wants to do anything. Once again, the minimalist approach.

And now, a note about the roads unrelated to the sociology of population.

Upon returning from Agra on the same freeway, there was serious traffic as we approached Delhi. There were rickshaws running and biking (cycle rickshaws) in the lane closest to the sidewalk. The next lane was also occupied by rickshaws, but these were motorized and had covered cabins (the so-called tuk-tuks).



Tuk-tuk

Next, there were a couple of lanes of cars, and finally there were elephants running in the centermost lane. They had platforms on their backs with people sitting on the platforms. Very amusing.

By the way, we rode Indian elephants like these on one of our subsequent visits to India. It is very scary because they are tall —

four or five meters. The elephant we were riding was very old and it was wobbling. And we were constantly discussing how we would jump off if the elephant starts collapsing. The second time we rode elephants was in Cambodia. There they were shorter, black in color, and young.



And now one more note about the roads, which may be related to the sociology of population.

Ten years later, in 2011, we again had to travel on the roads of India, and a lot. On the one hand, the country had clearly become more prosperous. However, driving even on good roads had become extremely difficult, almost impossible. For example, the trip from Delhi to a town 200 kilometers away, where I was invited to give a lecture, took about eight or nine hours. We took to the road at 5:00 a.m. for a presentation that was scheduled for around 3 p.m. At first, I did not understand why it had to be so early. The next day, the 400-kilometer trip to the Himalayas took 15 hours. But there the roads were bad. To drive back to Delhi (about 400 kilometers total) took us 16 hours. I am sensing that you no longer want to go there. But you will never guess the reason why the ride was so slow. I didn't figure it out right away either — only on the

way back, because the roads were good, and it was obvious that it wasn't ordinary traffic holding things up. The Indians who had grown somewhat affluent began to buy tractors rather than cars. Perhaps the tractors were cheaper, but the price difference wasn't the only reason. Having a tractor is already a business of sorts. And all the time I observed every Indian trying to start his own business. You can attach a flatbed trailer to the tractor and transport people on it, like on a bus. People will be standing, so what — they stand the same way on bus roofs. Or you can attach a freight trailer to the tractor and operate it as a cargo truck. The only difference is the speed of movement. A tractor travels at a maximum speed of 20 kilometers per hour. So here we are, driving on highways at this speed. At times we are driving behind a huge truck, slowly and for a long time. Because of the oncoming traffic, you cannot see what is in front of it. Once there is an opening in the traffic, we change lanes and see that it's a tractor pulling a freight trailer ("mimicking" a cargo truck).

That's what happened: people got rich . . . and blocked all the roads.

## Central Asia of the Soviet era (around 1967)

Sometime around 1967 I was at a major workshop conference in Central (Soviet) Asia. This was in the foothills of the Pamirs. The Pamirs had the highest mountains in the Soviet Union — there are many seven-thousanders (that is, mountains with elevations greater than 7,000 meters). The Pamirs are, in fact, a section of the Himalayas that was part of the Soviet Union. The workshop program was lengthy and in the middle of it we got a break of 3 or 4 days. Together with Fedyo Bogomolov, a student at the time (who

became a very good mathematician later), we decided to spend these days on a trip into the mountains to see the seven-thousanders. We did it, and those days were full of adventure. Several of the observations are relevant to our topic.

In that region, high in the mountains, at an altitude of three or four kilometers, there are many villages, the so-called auls. Life there has no concept of time. Let's say a bus is scheduled to leave at 8:00 a.m. Of course, we'd waiting at the bus stop. However, the driver arrives by 10 a.m. Then the passengers slowly begin to gather. We also waste time as we leave. Later we hitched a car ride and spent many hours driving into the mountains. The roads were petrifying. Our car constantly had half a wheel hanging over the abyss. Looking down, you could see a nearly hundred-meter drop, and at the bottom there were wrecked trucks (those that did not make it through this route) and a peaceful little mountain river. From above, from the high cliffs looming over, rocks fall. A few cars behind us, a rock fell on the head of the man sitting next to the driver. We later learned that this was the first party secretary of the entire district, that is, the overlord of everything around. There was a grand funeral when we came back. And then we needed a place to stay the night. It turned out that there was a hotel in the aul! It was a hut with one room. The woman who looked after the hut came over. She showed us the room with a huge bed. I lifted the blanket and saw the grayish sheets. I told her that the sheets didn't look clean. The reply was: "Oh please, they have only been slept on once, and that was a year ago, also in May". Having exchanged glances with Fedya, we quickly decided that after a year these might be cleaner than the clean ones she could provide. We settled in for the night. By the way, there was a huge camel tied to the fence behind the hut. The woman warned us not to get close to it. "This is a vicious camel with a bad temper", she said. "Only a couple of days ago, he got upset at his master and bit off his head". We didn't get close to the camel. The sheets had to be shaken well,

as they were rough with dust and sand — proof that indeed no one lay on them for a year.

In the morning we needed to grab a bite, so off we went walking through the aul. There was a man standing in the street and selling shashliks. They smelled wonderful and looked delicious. We walked up. Some man finished his shashlik and gave the plate back to the proprietor. There were leftover onions on the plate that the man did not eat. I asked for a shashlik. He put it on top of the onions uneaten by the previous customer. I asked in horror: "What about the onions?" The vendor replied: "Oh, you don't like onions". And he used my shashlik skewer to brush off the onions into the bin and gave me the same plate with my shashlik. Fedya quickly whispered to me: "He won't understand, we might get roughed up. You better take it", and so I took it and ate it. By the way, I have one doubt about this story. Perhaps this happened not in this aul, but in Baku, Azerbaijan. Somehow it isn't Fedya coming through in my memory here, but someone else, I'm not sure who. However, he, possibly another man, perhaps a resident of Baku, explained to me that for disinfection they eat their food very spicy. Those spicy condiments are the disinfection that saves them from gastrointestinal epidemics.

Since the focus of this story is not our journey, but the life of people, I will only mention in passing just one incredible story. On the way back, we were afraid to be late for the workshop, so we stopped near a group of local residents on a tiny airfield. They told us that this was the season opening day for flights over high mountains, from some very famous mountain lake. The airplane may or may not come. This was a mail plane, but it could take passengers. No tickets, just like hitching a ride. And suddenly there was the rumble of an airplane flying over the mountains. Everyone was waving their hands, but the quick-witted Fedya grabbed a bottle of vodka from his backpack and waved the bottle. The plane made a circle and

landed. The pilots called us over and immediately took off. This saved us about 50 kilometers of mountain trails. (How many of you have ever stopped a plane in flight to hitch a ride?) The place where the plane landed was an airfield that did have passenger flights. We bought tickets and were set to fly directly back to the base, our workshop. However, things aren't always that simple in life. The plane was flying through a very narrow passage between the mountains when it entered the fog. Naturally, without hesitation and to our delight, the plane did a somersault and flew back. Now we had to hitchhike our way back along the same road on which we began our journey into the mountains, that petrifying road, and what's more, it was raining. Fortunately, I have this wonderful trait. I fall asleep instantly when I'm very tired (to this day). Fedya later recounted how scary the drive was — the car in the rain and on a slippery road would almost hang over the abyss. And Vitali, none the worse for it, slept like a baby. So I came out of it as a hero.

## Venezuela

In 1993, a conference was held in the city of Merida in Venezuela, which I attended. The city of Merida is situated at an altitude of 1,600 meters above sea level and surrounded by magnificent mountains. The city has a cable car line comprising three sections, and the last, third section takes you to an altitude of 4,500 meters. Of course, right away I wanted to go up that high. However, it turned out that the third section was not in service. A month earlier, the cable snapped, and a cabin fell, killing four passengers. I decided that the first two sections were also dangerous, but they explained to me that, on the contrary, at present they were not dangerous at all. You see, the Swiss had built the cable car line 30 years earlier. However, no one inspected it over the 30 years. But now the Swiss have arrived, they have checked everything, and

were currently repairing the third section. So the first two were in perfect order (and I went up to an altitude of over 3,500 meters).

A week later, I was flying from Merida back to Caracas. It was a large plane — I think it had a seating capacity of about 150 or 200 passengers. As in all such planes, there were overhead bins for carry-on luggage. However, half of these bins had missing or broken covers. So stowing carry-on luggage there was simply dangerous. But there was no other way.

One evening during the conference, there was a reception at the college where the conference was taking place. Perhaps it was even in honor of our conference, but I am not sure about that. After the last lecture (around 6 p.m.), there was an announcement that we should not return to the hotel, although it was about a 20-minute walk away. That is, the reception was expected to begin around 6:30 p.m. It was February, and even in Venezuela it was getting chilly in the evening and at an altitude of 1,600 meters. However, we were afraid to miss dinner and the reception, so everyone stayed.

Little by little various guests were arriving. The reception turned out to be huge and was taking place on the college square. Two hours had passed already (since the promised 6:30 p.m. start). We started to feel some tension. The first two hours of waiting were apparently considered the norm, but anything longer than that was unusual.

Another 40 minutes passed, and one of the Venezuelan mathematicians finally explained it to us. The issue was that the governor and the cardinal of the district had been invited, and there was a question of who would be the last to drive in (this is the greatest honor). Negotiations were underway between representatives of both sides. Finally an agreement was reached

that they would drive in simultaneously through two different entrances. So at 10 p.m. we started our meal. Representatives of the Venezuelan mathematicians were very upset by this story. However, I still don't understand why they, knowing that a delay of about two hours was normal, did not advise us (whispering in our ear) to run to the hotel and come back.

There were many other funny little stories, but I decided not to dwell on them. However, I do want to say a few words about an extremely positive experience, a tour to the giant telescopes located not far from this place at an altitude of about 4,500 meters. These were telescopes under international monitoring. This place is considered to be very clear, with few cloudy days and very clean air. Unfortunately, that day there were clouds. But we managed to view a thing or two. Viewing distant outer space through such a telescope turned out to be an incredibly powerful and emotional experience for me. The view was three-dimensional, and the feeling was that the clouds of matter were moving somewhere infinitely far away. I remember it as clearly today as I did that evening. Something that stays forever.

## Israel

When talking about yourself, you can neither say bad things nor good things. And any story will touch upon people you know too well. So I will just make one comment about our mentality.

Unfortunately, autism is very common among us, autism of various degrees. I am not talking about the disorder — autism as a disorder — but about its milder forms, which are not customarily referred to by this term. This terminology of mine is inconsistent with the classical medical one. I will explain it.

The word “autism” means isolation in oneself, immersion in the world of one’s own emotions, and disconnection from reality. In my case, I don’t mean complete disconnection from reality, but only partial disconnection. Not so much isolation in oneself as taking care of oneself, immersion in oneself. You might say that I am describing egoism. However, the difference to me between egoism and autism is that egoism is directed toward oneself consciously, whereas the same behavior in the case of autism is not conscious. If you will (and by way of an aphorism), “egoism is pragmatic, conscious autism”.

People see only themselves (and possibly, their family too) and completely forget about other people around them. For example, a driver slowly and unhurriedly drives through a green light with a gap of two or three cars behind the car in front. The fact that there is a huge line of cars behind him, and another two or three cars will not make it through the traffic light, is of no concern to him. Not because he is bad person, but because he is not aware of other people, he is not thinking about them. We see this kind of autism on the roads all the time. People like this are completely oblivious to the presence of other cars and drivers.

And now we have coronavirus, a highly contagious disease that is likely deadly for older people. It is so easy to put on a mask, to skip an extra restaurant outing, as well as some other pleasures we were so accustomed to in the “former” world. But an autistic cannot help it. And until the fine became very steep, most people going outside were not wearing masks. I looked at many of these people and I saw good people. It never occurred to them that they were potential killers. They only remembered that the disease was not too dangerous for them. So it was worth taking a risk. To them, other people did not exist. Right now there is a downright war in the streets and in the Knesset over the opening of all kinds of entertainment facilities. Because the people who work there want

to make money and other people want to have fun. How many people will die in this case, and a horrific death at that? When this disease kills, it does so in a terrifying manner. Do they see themselves as potential killers? I doubt it — they do not see other people at all.

The topic that I am touching on now is a bit delicate. Different people may hold very different views on the matter. So I will stop. I will just note that in my time in Russia, I had a library of folktales from different cultures. I must say that these folktales describe very accurately the character traits of the people from which they originate. I think it is better not to get into the specifics or provide examples.

For another example of social behavior, I'd like to turn to the ancient world. Ancient civilizations managed to exist for millennia, which is completely unclear about the present time. One thought on this issue flashed through my mind when I first visited China. I'd like to share this thought in the next story.

## China

In 1994, we visited China for the first time. The conference was in Wuhan, notoriously famous today. We were received royally and assisted with a visit to the wonderful city of Xi'an, particularly famous for its Terracotta Army Museum. I have no desire to belittle this wonder of the world with an unfinished narrative. Google and Wikipedia will give you a more complete and accurate account. But there is one thing I realized while I was there. I want to share it. It is in the spirit of what we are talking about here, even though it relates to distant history. So here it is, very briefly.

The Terracotta Army is a collection of sculptures depicting the army of Qin Shi Huang, the first emperor of China. About 8,000–10,000 sculptures scaled to actual human height were discovered underground. They have individual faces and are armed with weapons of those times; there are horses and military staffs. The exhibit is one of a kind and it makes you shiver. It is an incredible, monumental work of a huge number of sculptors and artisans of many other crafts. Believe me, it's overwhelming and people walk there with their mouths open, unable to leave. Perhaps this is akin to the sensations from the Egyptian pyramids. But I have not seen them to compare. We have always been told that these pyramids, and other monumental structures of the ancient world, were designed to glorify the rulers. And suddenly, this very belief failed to hold up in this case.

Qin Shi Huang was not born an emperor. By the way, the years of his life were 259 BC – 210 BC, and he inherited the royal title, [King of Qin](#), from his family. He was 12 years old when he became king. Incidentally, there is a discrepancy here with what the museum guide was telling us; he said that Qin Shi Huang was 3 years old when his parents died; perhaps there is no contradiction, and a certain regent ruled until he turned 12. My next argument will be much stronger if he was only 3, but it still holds true for a 12-year-old. So, as soon as his parents died, the ministers got together and decided on a huge project to choose for the period of the new king's reign. Note that at the age of 3, the child did not yet have the ambition to launch such a major undertaking in the name of his future glory. And even a 12-year-old wouldn't yet have an ego raging on this scale.

It wasn't him, but the wise ministers who conceived this. And I understood the plan: to engage the populace in a monumental

project, to give people a goal, to give them a future. To have them spend their energy on the implementation of a colossal program, rather than riots and revolutions.

The construction of the pyramids probably served the same purpose. And suddenly a modern example comes to mind — Kennedy's 10-year program to land a man on the moon. Perhaps thanks to this program, this vision, those were happy years for the American people. We need goals, a roadmap that captivates an entire generation. This is how Israel was built. The Jews had a great purpose. And now that the goal has been achieved, the state has been created, and, moreover, we have transformed over the past decade into a strong state independent of the hostile world (largely thanks to Netanyahu), we are destroying ourselves in often meaningless demonstrations and anarchy. The great goal we have achieved has dissipated inside us. We need a new one. Even the war against the coronavirus pandemic has only brought us together for a couple of months. Perhaps because this is a global war, not just ours.

The ancient civilizations that managed to exist for millennia knew this secret. The modern world has lost it and therefore finds itself mired in problems. Perhaps it is our Israeli luck that our restless neighbors constantly keep on creating problems for us. This introduces additional goals into our life and creates a certain roadmap for the future. This is a delicate topic to continue.

By the way, Qin Shi Huang became a symbol of the unified China and assumed the title of emperor in 221 BC. He also laid the foundation for the construction of the unified Great Wall of China by connecting the existing local defensive walls.

He reigned until his death in 210 BC.

\*\*\*\*\*

גرسה לילדיים

## מפגשים עם בעלי חיים

### ציפורים

#### עורב זנבתן ישראלי

ישבתי במכוניתי החוננה והמתנתתי לאשתי לודה. באמצע הכביש עבר נתיב הפרדה עם דשא ועצי דקל שנטעו במרוחים של כ-10 מ' זה מזה. ציפור לא גדולה (אך גם לא קטנה) נחתה על הדשא. היא אחזה במקורה בפרוסה גדולה של קром לחם יבש. נדמה לי שהיא זו עורב זנבתן ישראלי.



הציפור התiyaשה על הדשא, נגסה בקרום והחלה לאכול. תוך זמן קצר הגיעו למקום ציפור נוספת דומה לציפור הראשונה. נראה היה כי הן הכירו זו את זו. היה ברור כי הציפור הראשונה לא התכוונה לחלק את הקром עם האורחת. בעוד אוכלת, היא אפשרה לציפור השנייה לצפות. כל אותו זמן היא חצתה בגופה בין הקромים לבין הציפור השנייה, ולא הניחה לה להתקרב אל הקром. הציפור השנייה עמדה במקומם בלי ליזום שום צעד תוקפני, ואז עזבה בפתאומיות ועפה אל עץ הדקל שצמ疼 במרחב של כ-5 מ' מהמקום. היא

התישבה מ踔ורי העצ וחללה לחפור באופן נמרץ בקרקע. כל אותו זמן היא ישבה כר שהציפור הראשונה ראתה את זנבה ואת רגליה שמעיפות רגבי אדמה, אך לא יכולה לראות מה בדיק היא חופרת. ברור היה כי המראה עורר את סקרנותה של הציפור הראשונה: היא הפסיקה לנגור בקרום והחלה לעקב אחר מעשיה של חברתה. בעבר כמה שניות, סקרנותה הכרעה אותה והיא עפה מאחורי עז הדקל כדי לעמוד מקרוב על התרחשויות. ברגע שהיא נחתה על הקרקע, הציפור השנייה עפה מהמקום במהירות, תפסה את הקרקע הנטוש ועזבה את המקום יחד אותו – ככלומר, היא הערימה על הציפור הראשונה! במלים אחרות, הייתה עד לפעולה התבונית מצד הציפור השנייה. הייתה לה מטרה (להשתלט על הקרקע) ותכנית כיצד להציג זאת, שיוושמה בהצלחה.

### **עורב זנבתן אוסטרלי**

בשנת 1988 בילינו שמוונה שביעות בקנברה שבאוסטרליה (שהינו שם מצהיר יולי עד אמצע ספטמבר). כשהמדובר בציפורים, במיוחד בתוכים, אוסטרליה היא מקום מופלא ומיוחד. תשפטו בעצמכם.



מה שמופיע בתמונה מעלה אינו איזה פארק ציפורים מיוחד. זה מקום רגיל לגמרי בטבע, למרחק של כ-100 מטר משפט האוקיאנוס וכ-8 ק"מ מכיבש אספלט. המכונית שלנו הייתה המכונית היחידה במקום הזה עד שהופיעו כל רכב נוסף. כשמגיעים לשם, ציפורים אין נראות בהתאם. אולם, ברגע שהולפים פרוסת לחם, מרגישים תנועה בין העצים. כשאתם עומדים ולחם מונח

בכף ידכם המושטת במשר 5-10 דקות, عشرות רבות של ציפורים מתקbezות מסביבכם.

ישנם חמישה או שישה מינים של תוכים. התוכים שיושבים על LODA בתמונה הם מאותו מין, ואין זה מקרה. המין שהיה הראשון להגיע מהעצים אל LODA (בעצם, אל הלוחם שהוא אחזה ביד) יוסיף ל תפוז את המקום המוביל. היתר יאספו פירותים מן הקרקע. אגב, ענבים הם המזון שהתוכים אוהבים אפילו יותר מלחם. הרושם הוא שהם ממשיכים מאכילתם. העובדה שהם אינם פוחדים מה"מלצת" הענקית הזאת – האדם – וידעים כי לא נש��ת להם סכנה ממנה, מעידה על מידת מסויימת של תבונה.

אולם, כתבת ברצוני לחזור אל הציפור החכמה ביותר. אני מתכוון לעורב זנבתן, אך הפעם לעורב ZNABTAN AUSTRALI.



בביקורנו באוסטרליה שכרכנו בית קטן בפרוורי קנברה. מול הכנסתה לבית היה מגרש קטן שעליו תמיד התקבזו ציפורים. יש לומר, שבמקום זה, בניגוד לקמפוס האוניברסיטה, לא היו תוכים רבים. ילדינו, ענת בת ה-9 ועמנואל בן ה-11, נהגו כМОבן להאכיל את הציפורים. במרחק של כמה מטרים מ הכנסתה בבית ניצב מתקן קטן להאכלת ציפורים. אחרי שארכנו שם במשך זמן מסויים, הציפורים התרגלו לנוכחותנו, אך עדין נהגו להתפזר ברגע שעברנו למקום. יומ אחד, יחסית מוקדם בבוקר, שמענו נקישות בדלת. כולנו כבר היינו למיטה, לא רחוק מדלת הכנסתה. LODA פנתה לפתחה. הדלת הובילה אל מבואה בגודל של 2 על 3 מ', שבתורה הובילה לשירות אל הסלון. LODA פתחה את הדלת, אך אף אחד לא היה מאחורי. היא הפנתה מבט מטה והבחינה בצד שמדה ליד הכנסתה! זו הייתה האחורייה. היא הפנתה מבט מטה והקיפה את המבואה. היא ברור שהיא התרגשה מאוד, ומרוב פחות או יותר השתיינה קצר על הרצפה. אולם, היא השילימה את הקיפה וחזרה אל מדרגות הכנסתה. כולנו עמדנו ללא ניע. הציפור נשמה לרווחה

(אני כמובן מפרש את התנהוגותה במונחים האנושיים, אבל פרשנות זו נראית לי מתבקשת). לאחר מכן, היא שוב הסתכלה علينا וקפזה מהמדרגה אל הקירקע. מעשה הגבורה הסטויים, והיא שמה את פעמיה לעבר מתקן האכלת. הבנו כי כך היא הראתה לכל שאר הציפורים, שעקבו אחריה מכל עבר, שמעתה מקום זה שיר אליה. היא קבעה את העובדה, ומעכשיו הייתה בעלית המקום. מרגע זה ואילך, כל הציפורים המתינו עד שהיא תסימם לאכול ותתרחק מהמתקן, ורק אז הגיעו לאכול.

שוב, אנו עדיםפה להצבת מטרה, תכנית מורכבת ונוועצת, וביצועה המדויק. מה אפשר ללמידה מהסיפור הזה על היצויליזציה של עורבים זנבותניים אוסטרליים?

## קוקברה (Kookaburra)



זו היא ציפור מיוחדת במיןה. יתכן שהיא הציפור האינטלקנטית והחכמה ביותר שקיימת.

נפתח בסיפור היכרותי אתה.

כפי שכבר כתבתי לעיל, בשנת 1988 בילינו זמן מה באוסטרליה. יום אחד, החלטנו לערוך פיקניק בפארק העירוני של קנברה. התהיישבנו לשולחן יחד עם הילדים, והזאננו אוכל. מיד הבחנתי בצדpor שישבה על ענף העץ לצמיח ליד השולחן. המראה שלה לא היה מיוחד כלל: היא לא התבERICA בצבעים בוהקים. לא ראייתי שהיא מנסה לגנוב מאטנו אוכל (פעם קרה לנו שצדpor שצפתה בנו פתאום צללה אל השולחן וגנבה פרוסה ענקית של גבינה). אולם, תנוחתה של הצדpor זו העידה על סקרנותה. הצפיה בפיקניק המשפחתי ללא ספק ריתקה

אותה. איני בטוח מדויק חשבתי על כך אז. אולי הסיבה הייתה נועצה בעיניה של הציפור: היו לה עיניים גדולות כמו-אנושיות, ולא עיניים נקודותיות כמו אצל ציפורים רבים. לאחר שצפתה בנו במשך זמן מסיים והבחינה בעניין שלי בה, עפה מהמקום.

מסיבה כלשהי היא נחרתה בזיכרון. בעבר יותר משנה אחרי האירוע הזה, כשהיינו בארץ, הגדמנתי למסיבה. בין האורחים היה גם פרופסור לאורניטולוגיה (מומחה לציפורים). נזכרתי בציפור המזורה הזה, שכביבול לא היה בה משחו מיוחד, ושאלתי אותו עליה. האמת שהtabby'شت קצת לשאול, כי לא יכולתי להגיד עליה דבר: סתם איזו ציפור אחת, שאיני מסוגל לתאר ואני יודעת את מיניה. لكن, אמרתי לו רק שהיא ציפור אחת שעניניה אוטי. אבל עברו זהה היה מספיק! הוא מיד ענה לי שמדובר בקוקברה, ציפור חכמה מאוד שאיננו יודעים עליה הרבה. יש לה חיים חברותיים, היא מכירה את אחיהינה ואף מבקרת אצלם. נדמה לי כי הייתה זו האינטילגנציה הגבוהה שלה שמשכה את תשומת לבו.

אבוריג'ינים שמחים מאוד כשציפור זו משתקעת ליד כפרם. בבודק היא משמעה קרייה שנשמעת כמו קו-קה-בה-רה, ומכאן שמה. האבוריג'ינים קוראים לקריאה זו "צחוק של קוקברה", אבל מעולם לא שמענו אותה. קוקברה צורכת בשר. היא טורפת נחשים באזרור מחייבת. שיטת הצד שלה היא כדלקמן: היא תופסת נחש באזרור הראש (גם לוכדי נחשים עושים זאתvr), ממריאה אל עלה, ומשליכה את הנחש אל הסלעים. אם הנחש לא מת, היא חוזרת על הפעולה הזאת. מהירותה תגובהה של קוקברה היא מדהימה ממש: פעם צפינו כיצד היא מקדימה נחש בונפילטו.

בשנים שלאחר מכך ערכנו מספר ביקורים קצרים נוספים באוסטרליה, אך לא פגשנו בקוקברות. בשנת 2002 שוב הגענו לביקור של חדשניים בקנברה. המרפסת של ביתנו הייתה מלאה בציפורים, בעיקר קקדו - ועל כן אני עוד כתוב. אולם קוקברה הופיעה לראשונה רק 10-12 ימים לפני שהיא נזכרה/ac. לחזור ארץה. יומ אחד, בערך בשעה 7:00 בבוקר, לודה יצא מחדר השינה לסלוון, ניגשה אל המרפסת וקרה לה: "ויטלי, יש ציפור חדשה על העץ". קופצת מייד וראיתי קוקברה! רצתי אל המצלמה כי פחדתי לפספס אותה, פתחתי בשקט את דלת המרפסת והתחלה לצלם בעודי עומד ליד הדלת. הקוקברה ישבה על הענף והביטה بي. לאחר מכן, היא עפה ישר אל מעקה המרפסת והתיישבה עליו מולי. לא ניתן היה לפרש את המעשה אחרית: היא כאילו ביקשה ממני לצלם אותה. צילמתי אותה עוד כמה פעמים. הציפור הסתובבה לצדדים, ואז הסתכלה

ישירות بي והחלה פוצה וסגרת את פיה! שוב, הייתה זו מהוות אוניברסלית בירורה – הגיע זמן לקבל אוכל! במקורה היו לנו בבית פרוסות בשר נא שהן המעדן האהוב על קוקברות. מהר מאד לודה הביאה קערה עם פרוסות הבשר. היא נטלה פרוסה אחת והתכוונה להניחה על המעקה, אבל הקוקבירה הושיטה את מקורה כדי לחת את הפרוסה ישר מידת. לודה נבהלה והשיגה את ידה לאחר. יותר הקוקבירה לא ניסתה לחת בשר מידת. היא חיכתה בסבלנות עד שלודה תניח את האוכל על המעקה.



מאחר יותר לודה שמה את הקערה לפניה, והציפור אכלת ישירות ממנה.



אידיליה כזאת מהרגע הראשון של ההיכרות! במשך חדש וחצי האכלנו קקדו (אני עוד אספר על קר), אבל הם עדיין פחדו לעת לנו להתקרבות למרחק של פחות

ممטר אחד. העדרו המוחלט של פחד אצל הקוקבורה העיד על כך שהיא פשוט הבינה שלא נשקפת לה כל סכנה מأتנו.

לבסוף, הציפור שבעה וסימנה את הארוחה. כיצד לדעכם היא הביעה את הכרת התודה כלפיו? הנה תראו:



היא הפנתה לנו את הגב כדי להראות שאיננה פוחדת מأتנו. היינו במרחק של סנטימטרים בודדים ממנה. אגב, במהלך כל אותו יום כל שאר הציפורים – קקדו ואחרים – עקבו אחר המתרחש מהעצים, אך לא העזו להתקרב אל הקוקבורה. היוצא מן הכלל היחיד אירע ביום לאחרת. זה סיפור מופלא נוסף שתוכלו לראות בסרטון הבא:



video-3,fight.mpg

למחרת היום, הקוקבורה הגיעה לבדוק באותה שעה כמו ביום הקודם. היא מיד התישבה על המזקה, ותהלך האכלה החל. אולם, הפעם קרו שני אירועים נוספים.

ראשית, אירעה התנגשות בין הקוקבורה לעורבת הזנבותן האוסטרלית שאכלה במרפסת שלנו במשך כל אותו חודש וראתה בה את נחלה הבלעדית. פתאום מישחו העז לחתת ממנה אוכל! התברר שגם היא אוהבת לאכול בשר, אף שלא ידעת זאת קודם. היינו רגילים להאכיל אותה בלחם, גם קקדו אהבו מאוד. עוד אספר על הציפור הנפלה הזאת בהמשך. גם היא הייתה אינטיליגנטית מאוד,

אך בכל זאת לא השתוותה אל הקוקבירה. הקוקבירה שלנו פשוט התעלמה ממנה.

האירוע השני שאירע כר אירע: הקוקבירה סיימה את ארוחתה, ועפה מהמקום. אולם, כעבור כ-20 דקות הגיעו קוקבירה נוספת, קטנה יותר. אני חושב שהקוקבירה הבוגרת העבירה את הכתובת שלנו לאחיה הצעיר. משומם מה לא נראה לי שהוא היה יצא ישר שלה.



התגענו על חברותה של הקוקבירה גם למשך היום. שימו לב לדו-השיך הלבבי בינה לבין לודה.

ماוחר יותר טסנו לאזור הטרופי. הנסיעה כללה גם ביקור קצר. כעבור שבוע חזרנו לקנברה, ולאחר יומיים עזבנו את אוסטרליה. במהלך הביקור באזורי הטרופי דאגנו שמא הקוקבירה לא תחזור. האם היא תהיה מוכנה להמתין לנו במשך שבוע שלם? אך דאגתנו הייתה לשוא! בובקו של יום שובנו לקנברה, היא הגיעו כדי לבדוק האם חזרנו.



בתמונה הزاد אפשר לראות את ארוחת הפרידה. באותו בוקר טסנו חזרה הביתה. מעין כמה פעמים היא הגיעה כדי לבדוק האם חזרנו. שימו לב לעיניה של הקוקבירה. תשׁו אוטן לעיני קקדו בתצלום שני מביא בהמשך. עיניו של הקקדו הן צעירות ממש, דמיות נקודות, ואילו עיני הקוקבירה בנויות כמו עיני אדם.



הקדדו בתמונה בצד שמאל נראה נסער ומטוח. אפשר לראות זאת לפ' הכרבולות הזקורה. בתמונה מימין הוא אוכל בנחת. השם האנגלית של קקדו הוא Cockatoos.

הנה עניין מוזר: בערך הרלונטי בוויקיפדיה כתוב שקקדו חיים בערך עד גיל 40. אולם, ב-1988 ביקרתי בקרקס קקדו עם ענת ועמנואל שהיו אז קטנים. שם נאמר לנו שתוחלת חייהם של קקדו היא מעבר ל-100 שנה, ושהם מחייבים עם הגיל. כדי להוכיח את התזה זו, הדגימו אנשי הקרקס את יכולותיהם של קקדו בגילאים שונים. קודם הציגו בפנינו קקדו בגיל 30, לאחר מכן ציפורים בניו 50-40, 60, 70 ולבסוף בניו 80. אכן, רמת האינטלקטואלית שלhn עלתה עם הגיל עד לביצועים מדהימים ממש. בעניין זה אני סומר יותר על אנשים שעבדו עם הציפורים באופן בלתי אמצעי מאשר על כתבי ערכיהם בוויקיפדיה.

קקדו חיים ונעים מקום למקומם בלהקות. ראייתן להקות שהיו בהם עד 100 פרטים. במעטוףם הם ממש מיעים צעקות מחרישות אוזניים, וגם מקראקרים. הקראקור שלהם הוא גרוני ומאוד לא ערבי לאוזן. לפי תצפינו, הקקדו הם אינדיבידואלייטים ואנוכיים.



למרפסת שלנו הם לא הגיעו מיד. המזון הרגיל שלהם הוא לחם או גרעינים. הינו משאירים מעט מהמזונות האלה על המרפסת, ובהדרגה הם החלו להגיע. בדרך כלל הם הגיעו בקבוצות גדולות, וכמה פרטים הפכו לאורחים קבועים אצלנו. כדי שלא יריבו ביניהם, הינו מכינים להם כמה עריםות של גרעינים. לעיתים, ציפור אחת נסיטה להשתלט על מספר עריםות, ומול עינינו ניטשו מאבקים. אבל לרוב שמרו הקקדו על שלום בית יחסוי.



לעתים, הארוחות התרנהלו כפי שאפשר לראות בתמונה השמאלית, אך לרוב הדפוס היה כמו בתמונה הימנית. כמובן, בעודם אוכלים הם לא הבינו אחד על השני כדי לא להסתכסר. עם אחת, אחרי שהם כבר התרגלו לאכול על המרפסת שלנו, מוקדם בבוקר נשמעו נקישות על החלון.פה אני צריך להסביר את מבנה דירתנו. בדירה היה סלון עם יציאה למרפסת, שבה התרחשו כל האירועים עם הציפורים. דלת הובילה מהסלון לחדר נוסף, שהיה בו חלון יחיד

צמוד למרפסת. בחלון זהה היו תריסים שהיו סגורים בכל עת. הציפורים לא יכלו לראות אתנו בחדר זה. אבל איך הם ידעו שישנו בו! הם נקשרו בחלון חדר השינה שלנו: הנה הבוקר הגיע, איפה ארוחת הבוקר שלנו? לודה קמה והלכה להביא להם גרעינים כדי שנוכל לישון עוד קצת. הציפורים האלה היו נבונות מאוד. הם הבינו היכן צריך לחפש אותנו ונקשרו בחלון כאשר התעכבנו.

פעם אחת הייתה עד להתרחשות מזורה שלא הצלחתי לפענה. קקדו בוגרת ישבה בקצה המערה שלנו, צמודה אל הקיר. קקדו קטנה יותר, כנראה גוזלתה של הקקדו הבוגרת, ישבה בצדדים אליו. גוזלים של קקדו גדולים בקצב מהיר ודומים בגודלם לציפורים בוגרות. נראה היה כי הקטנה ממלמת וمبקשת דבר מה מאמה (אגב, כשאני מדבר על ציפורים אני מייחס להם זכר ומנקבה באופן שרירותי לחלוון - איני יודעת להבחין בין המינים כשמדבר בצדורים). מפעם לפעם, הקקדו הבוגרת עונתה לה דבר מה. הסצנה הזאת הזכירה לי באופן מלא סצנות דומות אצל בני אדם – ראייתי אם וילדה שבוכה ומתחננת לקבל דבר מה. הסצנה הזאת נשכחה זמן רב, אבל אינני יודעת כיצד הסתימה: התרחكتי מהמרפסת, וכשחזרתי הם כבר לא היו שם. מסקרן מאד מה היה הדבר שהגוזל ביקש מאמו. במרפסת סביבם היה אוכל בשפע. כלומר, לא על הלחת לבדוק יחיה הקקדו!

זמן קצר לפני סיום ביקורנו בקבנברה נודע לנו שבוחניות מוכרים מעדן מיוחד עברו קקדו, משהם ממש מתיםعلاו. מדובר בתערובת מסוימת של מיני אגוזים, אולי מומתקים במקרה. מוכרים אותה על מקל פלסטי.



МОבן כי קנינו את המעדן. בתמונה הקטנה לעיל תוכל לראות את המקל הקטן אחרי שהקקדו כבר חיסל את האוכל שהיא עלי. למקל מחובר או קטן כדי שאפשר יהיה לקשור אותו אל עצ. הרעיון היה שקקדו ישבו על ענף עצ ויתענגו

על המעדן. ואולם, הבקדו הראשון שהגיע למקום התמהמה כדקה אחת, שחרר את המקל והשתלט על המעדן לבדו.



קשרנו את המקל השני והשתדלנו להקשות עד כמה שאפשר על ציפורים להוריד אותו. היתי בטוח שהם לא יצליחו, אך טעית.



בתמונה הימנית ניתן לראות כיצד קקדו מנסה להגיע אל המקל, ובתמונה השמאלית הוא מהרר על פתרון הבעיה. אינני יודע מה קרה, אך תוך זמן קצר כל היחידה האכילה הזאת כבר הייתה בידו.

בפעם השלישייה החלטתי לחבר את המקל אל מסעד הכסא. ניתן לראות זאת בתמונה מטה. הקקדו שבתמונה תפס את העמדה הטובה ביותר. העניין הוא שאי אפשר לשבת על ראש המסעד משום שהכסא יתפרק (kekdu אחר כבר ניסה זאת). ישיבה מהצד השני של הכסא "מהווע סיכון" כי גבו של הציפור יונפה כלפינו. גם ישיבה על מושב הכסא מסוכנת משום שקשה להמריא ממנו. ככלומר, הקקדו בתמונה תפס את המקום היחיד הנכון.



בתמונה מצד ימין אתם רואים ניסיון של הקקדו להגיע לממתך. חבורה גדולה של קקדו אחרים עוקבים אחר ניסיונתו של הקקדו הראשון.



ועכשיו לסוף הסיפור: הקקדו הראשון הצליח לשבור בידו חתיכה מהממתך. הוא לא הספיק להכנס אותה לפה והחזיק אותה ביד. ואז הקקדו שישב לידו חטף

את החתיכה מידו וחיסל אותה במהירות רבה. הנצחתי את המעשה בסרטון וידאו.

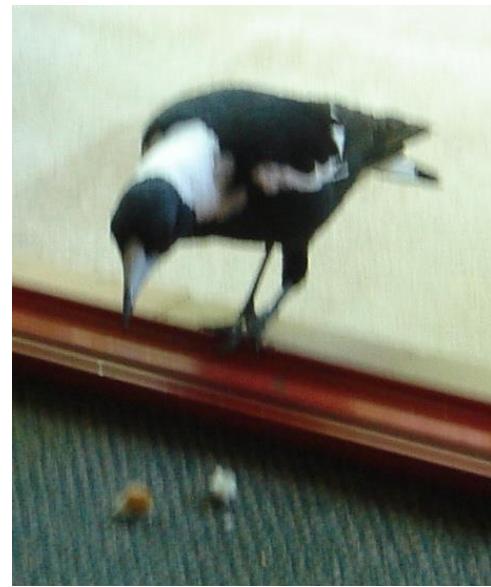
לאחר הדרמה הזאת הקקדו הראשון כבר לא הצליח להתקוף. הוא התיישב על מושב הכסא ולאחר מכן מסויים קרע את הממתק מהכסא ועף יחד אליו. לא רצינו להתקרב אליו יתר על המידה, ולכון לא הבנו כיצד הוא הצליח לנתק את הממתק מהכסא. ייתכן כי קרע במקומו את החבל שבאמצעותו קשרנו אותו.

### שוב על עורבת הזנבתן האוסטרלית

כבר כתבתי עליה. העורבת זו הייתה שונה במקצת מהעורב שפגשנו במהלך שהייתנו בקנברה בשנת 1988. שימו לב לכתרם הלבן בראשיהם של שני העורבים. לעורבת שעליה אני רוצה לספר קצת יותר כותם גדול יותר.

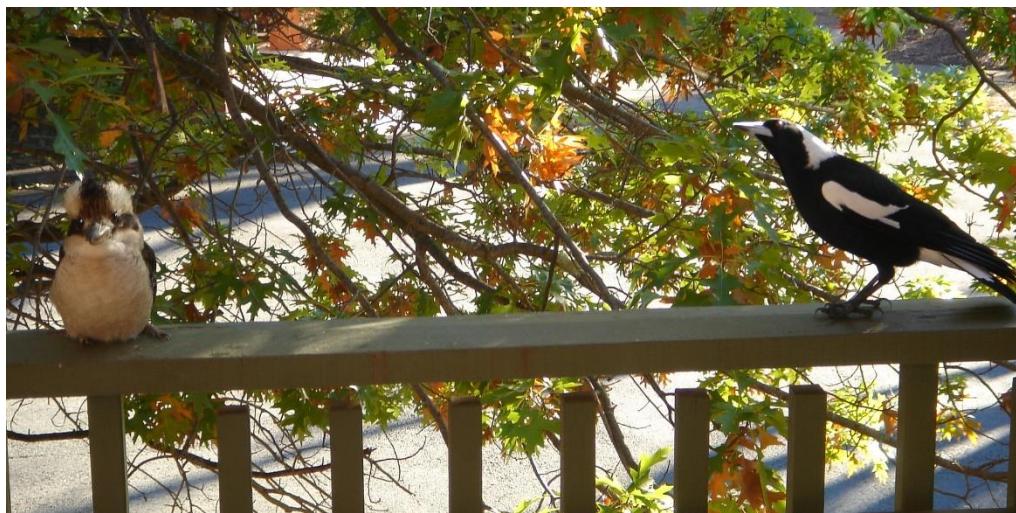


ציפוריים אלה שירות יפה מאוד וידועות לתפואות חתיכות לחם במעופם. לא מזמן נודע לי כי בשנת 2017 ציפור זו זכתה בתחרות ציפור השנה שנערכה באינטרנט. וכך נכתב על זכייתה: "[היא] מזכירה עורב זנבתן מצוי וידועה בשירות הבוקר הרוב קולית שלה. אך אףלו יותר משירותה, ידועה ציפור זו בצלילה המהירה והחדה שלה לעבר עצמים חשודים שמתקרבים אליה, במיוחד כאשר היא מגדלת גוזלים". הינו עדים לשתי התכונות המיוחדות האלה. בזכותן אשתי כינתה אחת משתי היציפורים מהמין הזה שנגגו לבקר אצלנו בקביעות, זمرة וקלעית. בקרים, כשהיא שרה לנו כדי לבקש אוכל (בזמן שהקקדו נקשר על החלון), לודה הייתה אומרת: "הנה הגעה הזמרת". ברגע שהיא זורתה לה לחם, הזמרת נהפכה לקלעית. רק אחת משתי היציפורים ניחנה בתכונות המיוחדות האלה. איןני יודע האם מדובר בהזכר או בנקבה.



שיערנו אז שגם עורבת הזנבותן שלנו רצתה לשריין לעצמה מקום על המרפסת ואתנו, וסקלה להיכנס אלינו, אך לא היה לה די אומץ. היא עמדה ליד הדלת שהובילה מהמרפסת פנימה, אולם בסוף הינה לאכול רק על ספו של החדר. מאידך, היא העבירה לנו מבחן ידידות משלها: בדומה לקוקברה, היא הפנתה לנו את הגב. אולם במקרה זה, היינו רוחקים הרבה יותר. צילמנו אותה כאשר היא עמדה עם גבה כלפיו (צירפתי את התמונה הזאת מעלה).

וכעת הגיע הזמן לספר על הקוקברה לזרמת שלנו, שאותה כברذكرתי בסיפור על הקוקברה לעיל.



בתמונה רואים את אחרית הקרב (גם הסרטון אינו מציג את הקרב עצמו). כפי שכבר סיפרתי לעיל, בפעם הראשונה שהקוקבורה הגיעו אלינו היא אכלה בנחת ועזבה את המקום. כל הציפורים שהיו רגילים לבלוט את בוקריהן על המרפסת שלנו עקבו אחריה מהעץ. לא ציפיתי לקטטה כי האכלנו אותם בלחם וברעינים, ואילו לקוקבורה נתנו בשר. מה שלא ידעת אז הוא שגם העורבות שלנו חיבבה בשר אף יותר מhalbם שבו נהגו לאכול אותה. לעומת זאת היום, כשהגיעה הקוקבורה, העורבות כבר לא יכלה להתאפק. נראה שביום הקודם היה הייתה סבורה שהקוקבורה סתם חלפה במקום ולא התכוונה לפתח את מקומה במרפסת. אך כעת היא שבה והייתה על סף הפיכתה לחברה קבועה בחבורה, שתתנשل את העורבות מבשר. ولكن, בעוד שהקוקבורה אכלה את מנת הבשר שלה ושאר הציפורים ישבו על העץ ועקבו אחריה ביראת כבוד, הזמרת שלנו התיישבה על מעקה המרפסת למרחק של מטר או מטר וחצי מהקוקבורה ופרצה בשיר קרב. השיר היהיפה מאד. חשבתי שהקלטה אותו, אך הסרטון אפשר לשמוע רק את השיר הקצר השני שהוא השמיעה בין שני ניסיונות ההתקפה. כסימיה לשיר, החלה להתקרב אל הקוקבורה. הקוקבורה מצדיה התעלמה ממנה לחלוין והמשיכה לאכול בשקט. כאשר העורבות התקרבה אל הקוקבורה כמתוח מכת מקור, הקוקבורה ביצעה תנועת בזק בראשה לעבר העורבת, שעפה מהמקום בבהלה. סצנה זו מופיעה במלואה הסרטון. העורבות התיישבה מה עבר השני של המרפסת והמשיכה לעקוב אחר הארוחה של הקוקבורה. את המצב הזה אפשר לראות בתמונה שמתי לעיל. נדמה לי שהיא שרה שיר נוסף, אך לודה אינה זוכרת זאת. כשעצמה הקוקבורה את המקום, ניסינו להרגיע ולהאכיל את הזמרת שלנו. יש לציין שקוקברות קטנות מעורבים גם מקדים. אולם התבוננה היא זו שקבעת את המועד גם בקרב הציפורים.

## טוקי-קוקי שלנו

לפני כ-20 שנה, למשך שנה שלמה חי אتنנו תוכי. ענת קיבלה אותו במתנה לחבר, אך היא עצמה לא מצאה זמן לטפל בו. لكن, לודה לקחה על עצמה את הטיפול. בתמונה השמאלית אפשר לראות את אהבתו ואת הכרת התודה שלו. בתמונה הימנית רואים את התנוחה האהובה עליו.



בסוף, ענת הייתה היחידה במשפחה שהתוכי לא היה מוכן ללבת אליה. את עמנואל הוא אהב, ואתה הוא נהנה לשחק משחק מסוים.



מהר מאוד התוכי הבין שאיני אוהב כשהוא יושב על מסגרות של ציורים. لكن, הוא היה מתישב על מסגרת כלשהי בקצה החדר, מביט بي וממתין. לא יכולתי לתפסו, ונרגנו לקיים את הריטואל הבא: הייתי לוקח ביד מקל ארוך וצועד לעברו. כשהתקרבתי, הוא היה עף לציר בקצה השני של החדר. העניין חזר על עצמו מספר פעמים בזדדות. התוכי הבין שלא צריך להגיזים והוא מצוי בעצמו אחר. למשל, הוא נהג להתיישב על מסגרת ריקה שהכנו במיוחד עבורו.

שם המדעי של התוכי הוא *Cockatiel*. באנגלית מין זה ידוע גם כ*bird weiro* או *quarrion*. זה תת-מין של *cockatoo* מצוי באוסטרליה.

תוך זמן קצר לודה הצליחה ללמד אותו לדבר. אגב, התוכי שלנו היה זכר. נקבות של המין הזה מתאפיינות בהתנהגות שונה בתכלית, ואין מדברות. אם נחזור לנושא העיקרי של הסיפור שלי, תבונת הציפורים, אז התוכי קוקי שלנו היה מודע לחלוטין למשמעות דבריו. למשל, הוא היה אומר לנו "בוקר טוב" (ליתר דיוק, בוקר-בוקר-בוקר טוב) רק בבקרים. כשהייתי בארצות הברית וטלפנתי ל-לוּדה,

שמעתי אותו אומר "מספיק לודה מספיק" כי היה סבור שאינו מקבל תשומת לב ראוייה. לודה גם למדה אותו לשיר.



lodah מعتبرה שיעור זמרה לתוכי

שירתו הייתה אולי הדבר המדהים ביותר. הוא ידע לשרוק את חליל הקסם של מוצרט. חברים ומקרים שלנו היו מגיינים אליו במיוחד כדי להאזין לו. משום מה חשבתי שהיא קל ללמד אותו את השיר של הקולונל מהסרט הגשר על הנهر קוואי. אולם פה הוא דזוקא התקשה. הוא התאמץ מאד, חזר על השיר מספר פעמים, אולם באמצע היה בכל זאת נשבר ועובר למוצרט. אף על פי כן, היה שב ומנסה. בסופו של דבר, הוא כן הצליח לשרוק את המנגינה, אך ניכר היה כי מדובר במאיץ רב מצדו. זהה היה התוכי קוקי הגאון שלנו! למרבה הצער,ليلת אחד לודה יצאה אל המרפסת כשהוא ישב על כתפה, מעודה, והתוכי עף אל תור הלילה. הוא חג מעליינו במשך זמן רב, אך בסוף התרחק. זה קרה בחורף קר כשהטמפרטורה הייתה מתחת ל-10 מעלות. אנו לא יודעים מה קרה לו. עשינו טעות גדולה כשהלא הרأינו לו את הבניין שלנו מבחווץ. لكن, גם אם שרד את הלילה הראשון ההוא, הוא פשוט לא ידע לאן לחזור.

נאמר לנו שם נביא לו בת זוג הוא יפסיק לדבר אتنנו כי הם יהיו עסקים אחד בשניה. לא עשינו זאת ولكن אני יודע כיצד הוא מתנהג בחברת תוכים אחרים. אנו הצבנו מראה בצלוב שלו. תחילת הוא ניסה להסתכל מאחוריו כדי לראות את התוכי השני, אך מהר מאוד הבין שמדובר בלבואתו. אולם הוא המשיך לגשת אל המראה ולדבר לעצמו – אפשר לראות זאת בתמונה הבאה:



סיפור אחר שאני רוצה להזכיר פה אירע בהודו. העברנו לילה בקמפוס של אוניברסיטה מקומית, וכשהחשייך החלטנו לעורף טיול קצר מוחץ למתחם הקמפוס. הלכנו לאורך שביל לעבר השער, ולא הצלחנו לשמוע את עצמנו. העצים שצמחו לאורך השביל היו מלאים בציפוריים שהריעשו באופן מחריש אזנים. היצוץ שלהם היה חזק שלא יכולנו לנහל שיחתינו. כשחזרנו לתוך הקמפוס חמש דקות מאוחר יותר, במקום שරר שקט מוחלט. הציפוריים הלאו לישון. הם הריעשו באופן בלתי נסבל, והשתתקו בין רגעים כאלו קיבלו פקודה. ידידתי ילנה (לנה) ולדי מירסק, פרופסור לרפואה, סיפרה לי סיפור מעניין על עורב מצוי. עורבים הם ציפורים חכומות מאוד.



הסיפור זה הוא סיפור על נקמה. "יתכן – ואני אף בטוח בכך – שיכולה לנתקם היא סימן ברור לתבונה. ל-לנה הייתה שכנה שהיא לה חתול יפה מאד. يوم אחד מצאו את הפגר שלו ליד הכנסייה לבניין. נראה היה שעורבים הרגו אותו (כשמצאו אותו הם עוד חגו מעל הפגר). החתול לא הספיק להימלט. אחד השכנים סיפר

שימיים קודם לכן ראה כיצד החתול הרס קן של עורבים. יצא לי לשמעו סיפורים דומים אחרים.

## עוד על בעלי כנף, אך הפעם על פינגוינים

בשנת 2006 ביקרנו במלבורן ובסמורת הפינגוינים על חוף האוקיינוס, לא רחוק מהעיר.



למרות החום במהלך היום, לאחר רדת החשיכה שורר על חוף האוקיאנוס קורע, וכך לראות פינגוינים צריך להיות שם דואק בשעות החשיכה. הוזהרנו מבעוד מועד וכן הצעידנו בשמיות. במקום שמננו צילמנו היי ספסלי עז, ואנשים רבים המתינו שם לרדת החשיכה. הציפורים שאנו רואים בתמונה נעלמות ברגע שמתחיל להחשיך, ופינגוינים מתחלים לעלות מתוך הגלים אל החוף. זהו מראה משעשע למדי. הם מתחברים בגל הפגע בחוף, ואז מdalגים במהירות אל השיחים, שמתחלים ממש בקצבה התמונה שהבאתי מעלה. גובהם של פינגוינים הוא כ-33 ס"מ, אך אורכם גופם הוא 43 ס"מ. מדובר במין הקטן ביותר של העופות האלה. וכך, גל אחר גל פולט אל החוף קבוצות של פינגוינים, וזה נמשך עד השעות המאוחרות של הלילה. לאחר הדילוג אל השיחים, הפינגוינים מתחלים בעלייה לאורך השביל. השביל הופך בדרך בה הם צועדים אל בתיהם-מחילותיהם. בתמונה מטה רואים כיצד הם פועעים בדרך זו בקבוצות.



משתח עץ נבנה עבור הצופים מעל שביל הפינגוינים. לאחר שצפינו בעלייתם מהאוקיאנוס, התקדמנו לאורך המשטח ועקבנו אחר צעדתם. עיר הפינגוינים משתרעת לכל כיוון. שבילים קטנים מטאצלים מהדרך הראשית, ומהם מטאצלים שבילים זעירים ממש. בין השבילים האלה נמצאות מחלות פינגוינים. מכל מקום נראה ראשיהם של גוזלים, שהמתינו לבני משפחתם שיביאו להם אוכל. אתם בוודאי יודעים שפינגוינים נשאים מזון בבטנם. הם פוצים את פיהם, וגוזלים תוקעים את מקורם לתוך הפה של אבא או אימה, שפולטים מזון. כל זה אומר שפינגוינים עמוסים מאוד במזון, והליכה בשביל די קשה להם. לכן, במהלך הליכתם, מפעם לפעם הם נעצרים כדי לנוח. הדבר המדהים הוא שהם נעצרים ביחד ובאופן מתואם אחד, וממש קופאים על המקום, כל אחד בתנוחתו, כאלו קיבלו פקודה. זמן מה הם עומדים ללא ניע, ואז חוזרים לצעוז, שוב כולם ביחד. הרושם הוא שכשמשהו מהם מגיע אל השביל שלו, הוא קד קידה אל הפינגוינים הנוטרים שימושיים בצדיהם בדרך הראשית. ברור שבדומה לכל חברה אחרת, גם בחברה הזאת השווין אינם קיימים. יש מי שחי קרוב לאוקיאנוס בתווך שיחים יפים, ויש מי שנאלץ לצעוד רחוק למקום שאינו טוב במיוחד.

אני רוצה לתאר פה סצנה אחת שראיתי. יתכן ומדובר בסצנה טרגדית. ממש מתחתנו (אנו עמדנו על המשטח למעלה), רأינו בשביל הפינגוינים שני גוזלים. גודלם היה כמעט כבוגר הפינגוין הבוגר, אך פרוותם נראית שונה. לדם הייתה ממוקמת מחייב, והם לסתורין עמדו לידה ורצו אל השביל. הם רצו אל כל נדמה לי שהיא זה בעצם בכ. ברור היה כי הם רעבים מאוד. הם רצו אל כל קבוצת פינגוינים שחלפה במקום ובירקשו אוכל, ומש טיפסו עליהם בעודם פוצים את פיותיהם. אולי פינגוינים בוגרים התחמקו מהם, עקרו והמשיכו בדרךם אל גוזליים. רקaimא אחת, שכנראה נכרמו רחמייה, נתנה לכל אחד מהגוזלים להוציא משהו מפה, אך זה לא סייפק את הקטנים והם המשיכו לבקש אוכל מהקבוצות הבאות. ניגשנו אל עובדת השמורה שעמדה במקום והפנינו את

תשומת לבה לזוג הגוזלים. היא הסבירה שהוריהם עוד עשויים לחזור, ושלפעמים, כאשר הצד איננו מצליח, פינגווינים עשויים לשחות באוקיאנוס מעבר ליום אחד. היא אמרה לנו שהיא עוקבת אחריהם במקרה שיזדקקו לעזרה מאוחר יותר. אמנם לא השתכנעתי לגמרי, אך אמירתה הפicha בנו תקווה מסוימת. וcut לשאלת האם העובדה שהפינגווין שראינו חלק מזון עם גוזלים של פינגווין אחר מצביעה על פעולה תבונית?

ניבור כתע לpinguinos ארגנטינאים המכונים pingui מגן. בחורף שנת 2010 יצאנו לשיט מסביב לדרום אמריקה בספינה Infinity. המשע ארך כשבועיים והוא נסעה לנו חוויה נפלאה ממש. הפלגנו מעיר סנטיאגו, עקפו את יבשת אמריקה דרך תעלת מגן ועגנו במקום כמעט שומם בשטח ארגנטינה. שם נסענו באוטובוס לעיר הפינגווינים. הנסעה נמשכה כשעה. הכביש העילי היה באיכות טובה מאוד, וכך נראה לי שהמקום היה למרחק של כ-100 ק"מ מדרום לנמל. המקום נמצא באחד הפארקים הלאומיים של ארגנטינה. להערכת העובדים, באתר זה מוקנים כשני מיליון פינגווינים. מדובר, אם כן, בעיר של ממש. לפי מה שראינו, הערכה זו אינה רחוקה מהאמת.

כמו במלבורן, תחילת צעדנו במשטח עצ שונבנה מעט מעל הקרקע כדי לא להפריע לפינגווינים לעبور מתחתיו. בשלב מסוים המשטח הסתיים, ואפשר היה לצועד על הקרקע. הפינגווינים הסתובבו בינינו, פסעו לעבר האוקיאנוס כדי להביא מזון וחזרו עמו אל מחילותיהם, שבhn המתינו להם הגוזלים. המחלות היו בכל מקום, ולידן עמדו גוזלים.



פינגווינים פועעים אל האוקיאנוס וחזרה



בתמונות לעיל תוכלו לראות "אי-שוויון חברתי". המשפחה בתמונה שבצד שמאל חיה בתנאים מושלמים: המhilאה מכוסה בעצים ומוגנת מפני תקיפה על-ידי עופות דורסים. היא גם ממוקמת קרוב מאוד לחוף האוקיאנוס, כך שהדרך אל המזון אינה ארוכה מדי. בתמונה מצד ימין אתם רואים משפחה שגורלה ספר עליה פחות: המhilאה חשופה לכל טורף, ועל הגוזלים להסתתר בה מיד במקרה סכנה כי הם מהווים טרפ כל. המhilאה גם נמצאת רחוק מהאוקיאנוס.



בתמונה משמאלי אפשר לראות משפחה אחרת. מיקומה איננו גروع, אך גם איןנו מושלם. ישנו שיכים מסביב למhilאה, והאוקיאנוס איננו רחוק. שימוש לב שגוזלים תמיד נמצאים מאחורייהם. לפיגוין בוגר ישנו כתם אדמדם מתחת לאף, אך הוא איננו נמצא אצל גוזלים. התמונה הימנית היא מבט כללי על עיר הפיגוינים,

شمשתרעת על-פני שטח נרחב מאוד. יצא לנו לראות גם משפחות עם שלושה גוזלים.



זהו החוף שאליו הם מגיעים כדי להצטייד במזון, ומשם חוזרים למחילותיהם. הם עומדים זמן רב על החוף, והתחושא היא שהם מתקשרים אחד עם השני בדרך כלשהי. התמונה מטה היא ברצולציה גבוהה יותר, ואפשר לבדוק בפרטים שונים של התנהגותם ביתר קלות.



לפני שאפרד מבعلي כנף, ברצוני להראות את ההתקhalויות האגדיות שלהם:



תמונה גדולה יותר של התקהלוות נוספת (של פינגוינים):



התמונה צולמה על האי שנמצא פחות או יותר מול עיר הפינגוינים.

## דינגו



בדינגו פגשנו במרכז אוסטרליה על סלע איירס (Ayers Rock), מונולית שהאבוריג'ינים קוראים לו אולורו (Uluru).



גובהו של הסלע שאתה רואים בתמונה הוא 348 מטר, אורכו הוא 3.6 ק"מ, רוחבו במקומ הרחב ביותר הוא 2.4 ק"מ, וסביבו מישור שטוח שמשתרע למרחק של עשרות קילומטרים. המקום השומם הזה הוא אתר קדוש עבור האבוריג'ינים. למרחק של 15 ק"מ ממנו נמצא מרכז מבקרים, שנבנה במיוחד עבור מבקרים במונולית, והוא מספק אפשרות לינה. במרחק של 450 ק"מ ממנו נמצא יישוב קטן בשם Alice Springs, ובו שדה תעופה. היישוב נמצא למרחק של 2,000 ק"מ מהעיר דרווין על חוף האוקיאנוס. חוג הגדי (קו הרוחב שמספריד בין אזור האקלים הממוזג לאזור האקלים הטרופי) חוצה את הכביש המוביל לדרווין

במרחק של כ-25 ק"מ ממקום זה. משפחתי ואני הגענו לשם במיוחד כדי להצלם על הקו זה.



כדי שתוכלו לחוש את ייחודיות המקום, אצין כי בנקודה שבו הכביש המוביל לדרוין יוצא מ- Alice Spring ניצב שלט ענק "תחנת הדלק הבאה היא במרחק של 000 1 ק"מ" (בחצי הדרך לדרוין). צהה היה המקום זהה בשנת 1988.

ובכן, נחזר לדינגו. הגענו לסלע איירס במיניבוס עם תיירים נוספים. אבל מארגני הסיוור "שכחו" לא סוף אותנו שם! נותרנו במקום עם שני ילדים שהיו אז קטנים. איני אוהב להזכיר בסיפור זהה, אך הבנתי אז אילו אנשים שלחה בריטניה לאוסטרליה בזמןנו. לא יכולנו להאמין למה שקוררה לנו, המתנו במקום שעה או שעתיים נוספות ללא מים או מזון (הכל נשאר במיניבוס). הסיוורים האחרונים עזבו לקראת הצהרים, ונותרו רק כמה סיוורים מאוחרים. בסופו של דבר ניגשנו אל שוטר שגם הוא עמד לעזוב את המקום. האיש נדהם מהעניין,icus מואוד למצא את הנהג המगעל שלנו דרך רשות הקשר. אך עוד לפני שהוא אסף אותנו משם, פגשנו בדינגו. היה לנו מזל שנשארנו במקום ושהיו לידנו רק חמישה או שישה אנשים נוספים. עמדנו ליד סלע איירס, וקובצת האנשים הנ"ל התמקמה במרחק של כ- 10 מ' מatanנו. בין חברי הקבוצה הסתווב כלב קטן וחמוד בבעצם, הרושים שלי היה כי אחד מאנשי הקבוצה הביא את כלבו מהבית. נהניתי צחוב. הרושים שלי היה כי אחד מאנשי הקבוצה הביא את כלבו מהבית. נהניתי להבית בו, והוא היה מסתכל بي בחזרה. פתאום הבנתי שזה דינגו! קראתי שהם מתחדים לכלבים רגילים ומחפשים לעצם שלל. ידועים מקרים שבהם הם חטפו תינוקות למדבר (יש אפילו סרט על כך). יתכן שברגע שהבנתי זאת, משהו במבטיו השטנה. הדינגו תפס מיד שנחשף. גם מבטו השטנה, ובן רגע הוא הפך

לחיהת פרא, שמשמש לא הייתה רוצה לפגוש בו! הדינגו קפץ לכoon הסלע כדי לעקוף אותנו מלמעלה וברח אל המישור השטוח המדברי שהוא מכוסה בעשבים צהובים כרוביים בשמש. במרחק של כמה מטרים מהסלע כבר אי-אפשר היה להבחן בו. נדמה לי שאף אחד בקבוצת האנשים שביניהם הוא הסתווב לא הבין מה קרה.

תחליה ראיינו התחזות מופלאה תוך ביצוע ממש אמנומי, ולאחר מכן חיית פרא אכזרית שנמלטה מרדרף אפשרי. הייתה זו התנהגות תבונית בעליל! אפשר לכנות זאת חוקיות בטבע, אף שהחורג מגבולות המושג הזה.

## על דולפינים וקצת על לווייתנים

אתחיל בלווייתנים כי מדובר בסיפור קצר. צפיתי בהתנהגות תבונית של לווייתנים פעם אחת בלבד. יצא לי גם לצפות ב"קרקס" לווייתנים, שבנוגע אליו אפשר להתווכח על "taboanot" לעומת "ailof". אולם יתכן שאילוף איקוטי פירשו בעצם מודעות התבונתו של בעל חיים ולדרך הנכונה לנצל אותה.

נדמה לי שהיה זה בקיץ 2002. הייתה אחד המנהלים של סמסטר קיץ מיוחד במכון למתמטיקה של אוניברסיטת ונקובר (PIMS). בחודש אוגוסט יצאנו לחופשה קצרה ונסענו לעיריה בחוף האוקיאנוס. עיירה הזאת היה מזח שמננו מדי יום הפליגו ספינות תיירים קטנות כדי לצפות בלווייתנים. אפשר היה לצפות במינים שונים של לווייתן. היה לנו מזל וצפינו בשני מינים שונים. מכון שמספר רב של ספינות שט באזרוב זמני, הן מפליגות לכוכנים שונים ומדוזות זו לצד בראשת הקשר כשמופיעים לווייתנים. הדבר מගביר מאוד את סיכוי הצלחת המשע. תחיליה ראיינו לווייתנים שמוציאים סילוני מים. הצלחנו להתקrab אליהם למרחק קטן מאוד. הלווייתנים ניזונים מפלנקטון, והם גדולים מאוד. הסילוניים שהם מוצאים מרשימים, ויכלנו להנוט מהם באופן מלא. באותו רגע ממש הגיע מסר דרך ראש הקשר שבקרבת המקום נצפו גם לווייתנים ממין קטлан. קשה להבחן בהם כי הם נעים במהירות רבה למרחקים עצומים, ולכן היה לנו מזל. הספינה מיד שינתה כיוון, ושתה במהירות רבה לאזרוב שבו נצפו הקטלנים. מיד כשגענו לאזרוב ראיינו מרחוק זוג לווייתנים. הם יצאו מן המים לזמן קצר וצלו חזרה. יותר לא ראיינו אותם. כל הנוסעים התגוזדו על הסיפון והביטו לכל עבר, אך דבר לא קרה. 10-15 דקות עברו, אולי אפילו יותר. חשבנו שהמזל שלנו אזל

בטרם החל. פתאום, במרחק של כ-5 מטר מהספינה, הגיעו מן המים שני לווייתנים אדירים ממדיים ועפו אל על באוויר. התמונה מטה הנזיפה את הרגע, אך יש לזכור שהם קפצו במקביל, בתיאום מושלם ובתנוחה זהה. הגודל שלהם היה כביכול הספינה שלנו. נדמה היה שהם היו יותר גדולים מ-10 מטר, אף שקרהתי שזה הגודל המרבי שלהם.



זהו מפחיד לראות את הרה זהה כה קרוב לספינתנו. הם הגיעו לעלינו מים וצללו ממש בנתיב הספינה שלנו. נבהلت שהספינה מתנגש בהם, אך הם נעו במהירות הרבה יותר גבוהה ממהירות הספינה. זנבותיהם ירדו לאיטהם לתוך המים, ואפיו הספקתי לצלם. למרבה הצער, אז עוד לא הייתה לי מצלמה דיגיטלית, והיום איןני אפשרות למצוא את התצלומים. לכן, נאלצתי לקחת את התמונה מהאינטרנט.



לאחר שהלווייתנים נעלמו, המשכנו לחכות להם זמן רב והסתכלנו סביבנו. אולם, לאחר שחשפו את עצם מולנו, הם שעו למרחק רב, וכבר לא ניתן היה לראות

היכן יצאו החוצה. ברור לחלוטין, שה"מעוף" המקביל באוויר בוצע במירוח עבורנו. מדובר היה במפגן מודע, ותודה רבה להם על כך!

לפני שנתיים ביקרנו באים הקנריים. ספינת השיט שלנו עגנה בא' טנרי', וביקרנו בפארך לורו ובمופע הלוייתנים בא'. הלוייתנים עשו עבודה יפה מאוד, ונחנינו. לקרהת סוף המופע, המנחה אפשר ללווייתן להשתעשע. אינני זוכר כיצד הוא כינה זאת. בכינסה למופע קיבלנו מעלי גשם קלים מפלסטיק. הלוייתן החל לשחות לאורך האקווריום הענק והוא בזבבו כדי להתיז עליינו מים. חשבתי שהמים לא יגיעו אליו כי ישבתי יחסית רחוק, אולם הוא הצליח להרטיב אותנו כהוגן. ציינתי לעצמי שתרגיל זה הסב לו הנאה אמיתי. את התרגילים האחרים הוא ביצע כמשימה שהיא צריכה לעשות, אך בעת הוא עבד מכל הלב, תוך התלהבות עצומה. אחרי שקיבל סימן לעזרה, הוא בכל זאת הקיף את האקווריום פעמיים נוספת ושוב התיז עליינו מים.

معنى אם מדובר היה בנקמה על קר שמכריחים אותו לעבוד או בגילוי של חוש הומור מצדך?

עת נverb לסייע Dolfinim. לראשונה נתקلت בדולפינים ב-1964 או ב-1965. בעירט קצבלי שבחצי האי קרים, שבו שכן המכון לאוקיינוגרפיה של האקדמיה הסובייטית למדעים, התקנס אז לראשונה בית ספר למתמטיקה. בראש המכון עמד חוקר ידוע מאוד של ימים ואוקיאנוזים. תחום מחקרו נגע בעיקר בתנאי מזג אוויר, סערות וסופות. כדי לחזור גלים, הוקמה במקומם ברכיכה גדולה בצורה טבעת עבה, שדפנותיה היו עשויות מצוכית. אפשר היה לעמוד מחוץ לבריכה ולצפות בגלים שנוצרו במיוחד בתוך המתקן. באותה עת החלו להופיע שמוות על קר שאמריקאים מאמנים Dolfinim למטרות לחימה, ורוסיה לא יכולה כמובן להישאר מאחור. לכן, הוחלט לבצע ניסויים בדולפינים בתוך בריכת הטבעת הזאת. אנו, מתמטיקאים שהשתתפו בבית הספר, עזרנו להעביר דולפינים מהים אל הבריכה במשאיות. יחד עם מספר חברים, העברתי שלושת הדולפינים הראשונים. בתא המטען של המשאית היו מסמרים חשובים, ואחד הדולפינים נפגע. בזמן הנסיעה שפכנו עליהם מים כי הם רגשים מאוד המשיך וחשו ברע. למרות זאת, הם נזהרו מאוד שלא לפגוע בנו בשינויים החודות. הם לא התנגדו, דזוקא ניסו להקל علينا והסתכלו בנו במבט טוב וمبין. כשהשלכנו את שלושת הדולפינים הראשונים לבריכה, והם החלו להקיף אותה בשחיה, התברר שהדולфин הפצוע לא היה מסוגל לשחות לבד. שני הדולפינים האחרים תמכו בו מחדדים, והם שחו בשלישיה. כשהובאו למקום Dolfinim

נוספים, הם התחלפו, כך שהדולפין הפגע תמיד נתמך משנה הצדדים. הם גילו תבונה וערבות הדדית. הסיפור הזה הסתאים באופן טרגי. בסופו של דבר, כל הדולפינים מתו כי הניסוי לא הוכן כראוי.

הפגש הקרוב הבא שלנו עם דולפינים היה מאושר מאוד. בשנת 2002 ביקרנו בניו זילנד. שהינו כמעט כל הזמן בוילנטון, אך עשינו כמה גיחות קצרות למקומות נוספים. באחת הגיחות הנ"ל הגיעו לאי הדרומי. האי הדרומי פחות מפותח, ובחלקו הדרומי הוא ממש היoli. באי ישנו מפרץ אחד דמוי פיורד (כלומר, "לשון" ארוכה ומפותלת של ים שנכנס אל תוך היבשה, כמו בנורבגיה). הוא התגלה זה לא מכבר, ואין אליו גישה נוחה. בפתח הפיורד נחצבה מנהרה, ובמקומם נבנה מזח קטן עבור ספינות תיירים. הכניסה למעגן הקטן נחסמה באמצעות רשת כדי למנוע מדגים גדולים להיכנס אליו. קנינו סיור על אחת מהספינות הקטנות. אוטובוסים רבים הגיעו למקום, וספינות סיור הפליגו אותה אחרי השניה. הספינות שטו עד ליציאה מהפיורד לאוקיאנוס, וחזרו אל המugen לאורך החוף הנגדי. הן בטור המים הן על החוף ראיינו בעלי חיים מעניינים רבים. כמה דולפינים שחוו מסביב לספינה. פתאום, שלושה או ארבעה מהם החלו להוביל את הספינה שלנו. רק אנו זכינו לנتابים האלה! אולי פשוט היה לנו מזל. נסעimos בכל יתר הספינות התקהלו על הסיפון כדי להבטיח בדולפינים. לנו היה קשה לראות אותם, ולכן התגודדו בחרטום. שלושה דולפינים שחוו לפני חרטום הספינה שלנו כל הזמן (תחליה היה נדמה לי שמספרם רב יותר). הספינה שינתה מהירות, אך זה לא השפיע על התנהגות הדולפינים. לעיתים הספינה העצירה כדי שנוכל לצפות בבעלי חיים אחרים שהיו על החוף. בזמן העצירה, הדולפינים שחוו מסביב לספינה ושיחקו תוך כדי המתנה להמשך המשען. ברגע שהספינה חזרה לנوع, הם הסתדרו לפניה וליוו אותנו. הבטתי בדולפינים מלמעלה. אחד מהם, ששחה ממש לפני חרטום הספינה והיה בחצי סיבוב גופו כלפיו, הסתכל עלי בעין אחת. ייתכן שהוא לא הבית רק בי, אך ראיתי את מבטו. היה נדמה לי שהוא מחייך. שני הדולפינים הנוספים בדרך כלל שחוו בצדדים, במרחק מה מהספינה. לבסוף, התקרנו אל המugen. הרשות הייתה לפניינו. כשהיינו במרחק של כ-50 מטר מהreshold, שלושת הדולפינים פרצו קדימה, קופזו בבת אחת מהמים כך שמלוא גופם עלה לגובה רב באויר, ופנו לכוכנים שונים. דבר צזה רואים במופיעי דולפינים, אך פה מדובר היה בדולפינים שחוו בטבע. אז מי לימד אותם לבצע את התרגיל הזה אם לא תבונתם העצמית? כל נועם הספינות עקבו אחר המתרחש. אני רואה במעשה זה לא רק ניסיון ליצור מגע אלא בעצם הזמןה למגע. ואני בני האדם עוסקים אף ורק בבעיותינו הקטנות.

