

## CONVERSATIONS WITH A. S. GOLUBITSKI

B. I. TOPAZ

What can I tell you? Maybe he is crazy, or I am crazy, or mathematics itself is crazy. But he has done so much that is important, even if every thing he says is . . . .

We are both debris scattered by the implosion (can it be?) of an untenable view of reality, so naturally we had regular dealings the year we both discovered ourselves at the University of Oregon at Onegin. We even agreed to meet each Monday at 10 A.M. for some undisclosed purpose, which I understood to be more or less an elementary construction of the monster. The first time, a rainy October morning, he was nowhere to be seen, but his office was open, and littered with expensive books containing color reproductions of the works of Roerich, so I spent a pleasant hour till he arrived, beaming and dripping, and greeted me: “This morning I have been thinking about the number two! It is very important, because – because it is the biggest number which is a divisor of all the even numbers – and even numbers . . . are very important for mathematics!” Let it be. Some good people are studying the equation  $a + b + c = 0$ . He could be senile, or else he could be not senile. At least two possibilities.

From 11 or so until the excuse of hunger sufficed, we discussed the merits of the number 2. Not a hint of the monster. And again, for next Monday, an appointment, at 10.

Which was a bit different. It wasn’t raining (a memorable occasion), he didn’t arrive until noon, and this time he was with six colleagues, apparently in orbit in pairs about him: two mathematical physicists, with whom he discussed physics, mostly the physics of cream and coffee, I gathered, two microbiologists, with whom he seemed to be discussing plasmids, and two pedagogues, with whom he was discussing all details of the establishment of a correspondence school for ages 6-8. He glanced at me coldly, and continued his three conversations without addressing a word to me. There was only room in the office for three of his colleagues at any given moment, so I lurked in the hallway with whatever three were not actively involved in

the conversation at a given moment, till Golubitski peered out at me and inquired, "What did we talk about last week?"

Two.

I summarized for him, elegantly and in few words, the salient features of the number two as they had been revealed to us the week before. He looked at me coldly, very coldly, and said drily: "Most interesting," before becoming reabsorbed in his gifted clouds of cream and the use of plasmids. He had a habit of speaking random sentences into the air, leaving the listener to decide which were intended for him on the basis of the subject matter. This was particularly hard on the pedagogues. But suddenly, of course:

But suddenly, he said, obviously to me (now inside the door, near a filing cabinet), looking out the window: "But actually it seems to me that 9 is an important number, especially because it is prime. Prime numbers are very important for mathematics!" On top of the filing cabinet there was a dessicated cactus in a pot with perhaps a quarter inch of earth, and a paper with the title "Discriminants in symplectic geometry: an organic approach". Nine is not a prime.

"Nine is not a prime," I heard myself say, certain that I had never said such a thing before. Golubitski looked at me not only very coldly, but very suspiciously, from beneath a famous pair of eyebrows. "Not a prime?"

The microbiologist currently out in the hall, who was pretending to be thinking about having a drink from the water fountain, came over and poked his head through the door. "But Aleksandr Sergeevich, he is right, nine is not a prime number." It was two to one now, with three uncommitted and two indifferent, and Golubitski looked at the two of us as if wondering if we were contagious. But with the moral authority of microbiology as my ground, I said, boldly, "It is three times three."

It seemed to me there were no longer two possibilities. Golubitski stepped closer to his blackboard and began to write in large, clear symbols:  $3 + 3 + 3$ , explaining that he always told his students how easy multiplication by three is: you just have to add the same number to itself, twice! And this also works for multiplication by 4! The physicists watched, the pedagogues watched, and the microbiologists especially watched with something approaching fascination as he performed the first of the two additions, then the second, with all of his attention absorbed in a single activity for the first time since his arrival. He got nine, and the suspicion on his face deepened. "It is a curious thing," he said, quietly. I went out into the hall and had a drink of water. "Yes!" I heard him exclaim, "but it is a product of primes! Products of primes are very, very important for mathematics!"

My wife and I had guests one evening in February, two fragments living in England, passing through. The phone rang, and it was Golubitski. I had not

seen much of Golubitski for a while, and he had called to talk again about numbers. He said something about the complete predictability of stochastic processes. But the main point was this: 5 multiplied by 5 is 25, and 6 multiplied by 6 is 36, but 7 multiplied by 7 is *not* 47. “It is the breakdown of a pattern! Nothing is more important for mathematics than the breakdown of a pattern!” I pointed out desperately that the monster was divisible by both 25 and 23, by both 36 and 34, and by both 49 and 47. “Yes,” he said, “certainly, but not by both 81 and 79! And that is why the number nine is a very important number for mathematics!”

Soon with a polite excuse I was able to finish my dinner. On the news that evening, I saw with some dismay that the winning lottery number was 253647, and what is worse, I began to see how to use the random draws of a lottery with 75 balls to generate at least Conway’s simple group. So now there were again at least two possibilities.

The center of the mystical order of the dervishes is in the Turkish city of Konya, situated near a large and beautiful lake. Some years ago, as you may perhaps recall, a man named Nasr-ed-din Hoja was seen hunkered down by the side of the lake, and spooning something into it. He explained that he was putting starter yoghurt into the lake, to turn the whole lake into yoghurt. “But this can never work!” was the objection. Hoja’s face fell as he admitted that he knew quite well that it could never work, but then as he looked out across the expanse of the lake he brightened again, and cried, beaming radiantly: “But – if it works!”

B. I. Topaz, Princeton, September 1995

### *About the Author*

B. I. Topaz is *nom de plume* of an American mathematician.