ERIK SIMON

"The Black Mirror" ("Der schwarze Spiegel"), 1983

Born 1950 in Dresden, Erik Simon was, as a reader and editor for the East-German publishing house the New Berlin (Das Neue Berlin), one of the shapers of SF in the German Democratic Republic. Like his close friends the Steinmüllers and other GDR writers of their generation, he managed to avoid any ideology in his writings, communist or otherwise. He studied electrical engineering and physics at the local university and is fluent in many languages, especially Russian, Polish, Czech, and Bulgarian but also English and Dutch. He is one of the most knowledgeable scholars of world SF, has edited SF anthologies from Eastern European countries, and after the fall of the GDR, has become a much sought-after translator of the Strugatskys, various authors of American hard SF such as Vernor Vinge, and the Polish fantasy writer Andrzej Sapkowski. He has also edited anthologies of modern fantasy and stories of alternate worlds. A recognized critic and reviewer of science fiction, he has co-edited (and partly authored) with Olaf R. Spittel an important reference work on GDR science fiction (*Die Science-fiction der DDR*, 1988). He is the greatest German authority on the Strugatskys and has had some essays on the Strugatskys and GDR SF published in the English-language SF journals *Science Fiction Studies* and *Foundation*. His work as an author is overshadowed by his work as a critic, editor, and translator; he has written only short stories, which often parody SF, play with genre conventions, and experiment with form (such as verse). Frequent in his work are serious psychological investigations of the effects of space travel and the contact with extraterrestrial beings and societies. A short story "Ikaros" ("Wissenswertes über den Planeten Ikaros," 1971), translated by Vernon A. Chamberlin and adapted by James Gunn, appeared in *Analog* July/August 1998 and was included in James Gunn's anthology *The Road to Science Fiction: Around the World*, vol. 6 (1998). Two collections appeared in the GDR, *Alien Stars* (*Fremde Sterne*) in 1979 and *Lunar Phantoms and Visitors to Earth* (*Mondphantome, Erdbesucher*) in 1987. With Reinhard Heinrich (born 1954), he also co-authored *First Time Travels* (*Die ersten Zeitreisen*, 1977). Currently, Shayol is publishing the "Works of Erik Simon": *Stellar Constellations* (*Sternbilder*, 2002), *Lunar Mysteries* (*Mondmysterien*, 2003), and with Reinhard Heinrich, *Travels from Time to Time* (*Reisen von Zeit zu Zeit*, 2004), a cycle of paradoxical and humorous time-travel stories. "The Black Mirror" ("Der schwarze Spiegel"), from the anthology *Ways to Impossibility* (*Wege zur Unmöglichkeit*, 1983), shows Simon's interest in puzzling but physically plausible alien phenomena and in literary experimentation, for the story is also a reference to an occult tale by Gustav Meyrink.

THE BLACK MIRROR

by ERIK SIMON

As was inevitable from the nature of things, everything bordering on this "nothing" plunged into it, immediately becoming "nothing" itself, that is, disappearing without trace.
Gustav Meyrink, "The Black Sphere"[1]

At first a rumor, mythical, with no surrounding circumstances, the news spread through Earth's metropolises, megalopolises, and gigalopolises that an absolutely fabulous invention had been made on the planet Riddh, which revolves round the star Epsilon Indi. The two planets had been in radio communication ever since a Riddhan spaceship had visited Earth several decades previously. Because of the huge distance between them—twelve light years—it was less a dialogue than two concurrent monologues; the answer to any question took at least twenty-four years to arrive.

In addition to that, the translation of the messages was often unclear. The system of scientific concepts differed widely in many areas.

Thus it happened that Earth had not learned of the departure of a spaceship until fourteen years after it had set off—nor of the invention on board that the Riddhans wanted to give to humankind. A cheap process for transforming chemical elements into each other, some said, or even an inexhaustible source of energy, a genuine perpetuum mobile. Nobody knew exactly what it was because the radio message was not very clear; others interpreted it as saying it was more of a mathematical nature. There was also mention of a "one-sided surface"—which made people think of a Möbius strip—but at the same time of a kind of mirror.

Thus everyone could make what they wanted of it and everyone was happy for the moment, even a couple of central European writers who thought it couldn't be anything worthwhile and said so, already pleased that afterward they would be able to say "I told you so" once again.

Meanwhile, the Riddhan ship was approaching the solar system; it was much faster than the previous one, which was still on its way back. The second was flying close to the speed of light and reached Earth only a few years after the radio message.

Immediately, people remembered the promised invention, of which the message said that it would solve some of the most urgent problems of terrestrial civilization. It was precisely these problems that had caused mankind to forget the Riddhans and their auspicious gift. Now it all came back and they looked forward to the arrival of the cosmonauts as they looked forward to Santa Claus—only this was one they could believe in.

The landing took place as planned, on the edge of the Great North African Garbage Dump, the Sahara.

There were only two Riddhans on the ship. They were greeted by the terrestrial committee of welcome, who reaffirmed the inviolable friendship between the planets and enquired—in passing, so as not to seem impolite—about the present that had been announced.

The Riddhans thanked them for the nonviolent friendship, as their translation machine put it, and said that they wanted to present their invention to the public as soon as possible.

The presentation took place in Zinnwald, where the Central Institute for Extra-, Super-, and Subterrestrial Life Forms had been set up—the completeness of the title was simply a matter of prudent foresight since the Institute was occupied exclusively with itself and the Riddhans, whose first spaceship had landed nearby. The appearance of the two visitors in the Institute's main lecture theater was broadcast by all the world's television stations on their main channel, which was usually devoted to sport, old films, and variety shows.

In the middle, on a podium, were the two extraterrestrials: the pilot, a stocky, powerfully built middle-aged man, and the young inventor, who had come to present his device himself. For those who were interested in such details, his deep-purple eyes indicated that he was a descendant of the Riddhans of the high islands—but of course no one was interested in that.

Suspended on wires about five feet above the floor was a large, round disk, like an Oriental temple gong, with a thick metal ring studded with screws around it. The surface inside the ring gleamed dully. It was a protective cover for the actual invention, the translation machine told them.

Over the muted noise usual at press conferences, the inventor told them that he would first of all present one side of his invention—the absolute mirror.

His companion undid the screws around the edge of the disk and removed the cover, revealing a surface that looked like a mirror—a very clear,

large, round mirror that shone brightly. It hung there, gently swinging to and fro.

"The mirror," the inventor said. "The ideal mirror."

"A mirror," the audience muttered. "An ideal mirror, great, but what use is that to us? All this fuss for a mirror, no." Most of the viewers at home switched over to another channel.

Meanwhile, the Riddhan scientist explained the functioning of the mirror and the pilot demonstrated it. The ideal mirror reflected everything completely: light, infrared radiation, X-rays, radio waves, elementary particles, everything, without itself reacting in any way.[2]

If you touched it—bold members of the audience were allowed to come up onto the platform and try—it felt neither cold nor hot. You could direct the flame of a welding torch at it, or laser beams, or liquid air at minus two hundred degrees centigrade, and the mirror was unchanged; it felt lukewarm and looked like a shiny, very clear mirror. It was also ideally hard and tough—not even the hardest materials, the strongest acids and lyes, the heaviest presses could make the least impression on it. Whatever was thrown at the mirror—light, heat, a steel ballbearing, or a brick—the mirror threw it back.

The audience was fascinated. "What a wonderful invention," said all those who knew something about the matter—as did the others, just to be on the safe side.

"That's only the beginning," said the Riddhans.

They screwed the cover back over the mirror and gave a sign, at which the disk was turned around on the wires it was hanging from. On the reverse was a similar dully gleaming protective covering, but it was attached to the solid frame with many more screws than the one at the front.

The Riddhans cleared the front rows in the lecture theater—just in case, they said. Then they started to unscrew the second cover. It was thicker and heavier than the other one and both the extraterrestrials had to hold it when they took it down. Beneath it was a second, transparent disk, also fixed to the frame. Behind, though . . . behind it was black—blacker than black—immensely black and cold.

A shudder went through the audience. They couldn't see the cold, but a hint of it radiated out from the black surface—a hint of cold beyond any cold that could be felt. With a calm, modest gesture, the Riddhan scientist pointed to the frame hanging down from the ceiling and to the blackness

in it. He said, "This is a one-sided surface. One side—the ideal mirror. The other side—is not there."

Then they did some more experiments.

The pilot of the Riddhan spaceship took a number of objects that had been put ready on the table and threw them through a small opening in the glass protective cover at the black surface. They disappeared without trace.

Then he demonstrated the same effect with objects the audience handed him. They all dropped into the black void—and were no more. Even newspapers were quite happily swallowed by the black hole.

A hubbub of voices, amazement, questions. "Truly an ideal nothing," said one of the television entertainers present, enviously.

The inventor corrected him. "It is not 'a nothing,'" he said, "it is *nothing*. *It* is not a nothing, nor is it ideal, it is nothing at all."

"Strictly speaking, it is not even nothing at all," the pilot added. "It's the other side of something that only has one side."

"A realized abstraction—and therefore not present in reality."

"A mathematical surface, which is ideally permeable and yet lets nothing through, since what goes through ceases to exist."

"And what does not exist cannot go through."

"Nothing."

"Nothing."

The Riddhans spoke, presumably speaking to each other since the audience understood nothing—that is, precisely the topic in question.

But perhaps it was the fault of the translation machine.

Many more similar experiments were made. The black hole absorbed everything completely: light, infrared radiation, X-rays, radio waves, elementary particles, everything, without showing the least reaction.

A wooden pointer slowly pushed into the black surface became invisible behind it. When it was withdrawn the part that had been in the blackness was missing.

The nothing gave off intense cold. When the inventor put a glass of water close to it, it froze immediately.

The Riddhans did not respond to questions as to the why and how of these phenomena. "Later," they said in the calm voice of the translation machine, "later."

Two days later, there was another presentation, this time not a public one, but for a group of terrestrial scientists. After the device had been demon-

strated, the Riddhans explained the principle of the quasi-stable singularities in non-integral dimensions on which the mirror functioned, and especially the negative dimensions—which are really not negative at all, they're just called that because in them there are only negative intervals.

The mathematicians and physicists understood a fraction of the formulas and pretended they had understood most of them. The two philosophers present declared that it was all perfectly clear to them but indicated that they had reservations on matters of principle.

The engineers only started listening when the visitors talked about constructing such a black mirror. That was more straightforward than the theory. Once they had understood how to make one, they wanted to know what its purpose was.

The pilot smiled. The had made the journey to Earth so quickly, he replied, because their ship was equipped with two such mirrors: one with the black, missing side uncovered and fixed to the nose, facing forward; the other at the rear with the reflecting side facing backward and the black opening, which was turned toward the ship, hermetically sealed.

"The mirror for a photon power module? Of course, it's an ideal mirror, won't melt," the scientists and engineers cried excitedly.

They didn't actually need an engine, the pilot said. Even in a vacuum, there was always the occasional molecule, elementary particle, or energy quantum that hit the rear mirror, thus transferring its impulsion to the ship, while any obstacle in front was simply swallowed up by the black surface and therefore offered no resistance. With an additional photon reactor the ship would travel even faster, true, but it was not absolutely necessary.

At that, everything went quiet in the room, so quiet the two philosophers could be heard leafing through the standard works. Eventually, a gray-haired physicist said, "But that's perpetual motion—genuine perpetual motion."

"It is indeed," the Riddhan scientist confirmed. A hubbub broke out in the room. The engineers started to work out the efficiency—and the probable costs. The physicists argued over what kind of perpetual motion device it would be—first, second, or third. The mathematicians took out their notes on the theoretical basis, put their hands over their ears, and immersed themselves in their formulas. One of the philosophers left the room in protest; the other had fallen asleep.

"The openemptymissing side"—as the machine translated it—"can also

be used as a thermodynamic perpetual motion device," the Riddhan inventor said. "Its temperature is always precisely absolute zero."

"That's right!" the physics professor exclaimed. "A Carnot cycle with 100 percent efficiency, in theory all the heat input is translated into work."[3]

"And in practice as well, almost, losses will be negligible," said one of the engineers. "A perpetual motion device of the second kind."

"No, no, it's more a one minus of the first kind—part of the energy actually vanishes into nothing," another argued.

"And for domestic use," cried a third, hardly able to contain his excitement, "a small mirror like that could be linked to a gas turbine—driven by ordinary air that will pour into the turbine under its own pressure."

"That would not be advisable—a planet's air supply is large, but not infinite." The warning of the Riddhan scientist was drowned in the general commotion.

"The ideal engine!" someone cried. "An end to air pollution at last—and it won't cost a cent! Now we can chuck all our garbage straight into the black hole and that's that. We'll fetch new raw materials from the new planets we'll discover with the new spaceships we'll build. Better materials!—And more, a lot more!"

No one paid any attention to the Riddhan visitors. First of all, the engineers rushed out of the room, to start building the powerful new machines straight away, followed by the scientists deep in thought or heated argument. Finally, the philosopher woke up and went off in search of his colleague.

The two Riddhans were left by themselves. They carefully fixed the protective covers to both sides of the mirror and tightened all the screws.

"I'm worried," the scientist from the high islands confessed. "They might use the mirror carelessly, let something valuable fall into it."

"Worried?" the pilot replied. "I think we should never have come. Bit by bit, they'll throw the whole universe—created by the primal singularity, held together by gravity, dispersed by the expansive impulse—into the black empty half. That's the curse of our visit to Earth, brother."

"So what?" muttered the scientist. "Sometime or other we all have to go into the negative dimensions of the continuum."[4]