

GRANFALLOON

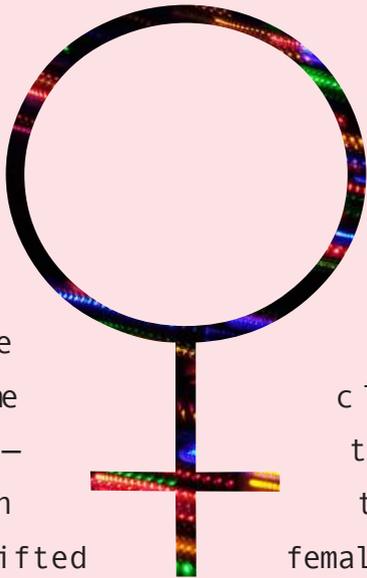
YEAR 1

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Herstorical Sci-Fi & More...

WELCOME to the trial edition of **GRANFALLOON** magazine! In this issue, we celebrate the contributions of women writers to science fiction. It's unfortunate that women writers have largely been under-represented in the genre. We can only hope that this will change. To that end, we have carefully curated a selection of stories by female authors mostly from the classical era of sci-fi – the 50s-60s. In addition to the work of these gifted female authors, we're pleased to feature a story by Ray Bradbury, a poem & a short story by contemporary female science fiction writer and speculative poet Kirtan Desai, as well as two thought-provoking essays relevant to sci-fi readers. Many thanks to all who read the issue and to the authors featured, both present & past...



- Al (Albert) Mamet
Editor-in-Chief

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Garden of Evil

by

Margaret St. Clair

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Ericson returned to an awareness of his personal identity quite suddenly. He had an impression that it was a long time, months at least, since he had been in a state of normal consciousness. At the back of his mind a memory of pain had imprinted itself as a signet makes an impression in hot wax; he shied away from it. “Where am I?” he asked.

The green-skinned girl squatting beside him in the coppice looked at him sideways out of her dark jade eyes. “Hungry?” she asked.

“But where am — yes, I am hungry. Yes.”

Mnathl — he knew, somehow, that that was her name. Didn’t he remember her from the other side of the gulf in his memory, from the days when he had begged food in the streets of Penhairn? Mnathl handed him a nicely-roasted bosula rib. He ate it avidly. He had always thought the bosula was the best of the food animals of Fyhon.

When the bone was gnawed clean she passed him, in a

folded fresh green leaf, a mixed grill consisting of bits of bosula liver, kidney, tripe, salivary glands, and eyes. He ate that, too. When his stomach was full Ericson lay back with his arms under his head and looked at the big puffy clouds drifting overhead. He had no desire to think about himself or the things that had been happening to him in the last three or four months, but the thoughts came anyhow.

The chief thing was pain — remorseless, long-continued, pain. Mnathl had come to him one day when he was sitting on the dock in Penhairn and told him they were going to Lake Tanais. He had got up and gone with her obediently; a byhror addict has little will of his own. The pain had begun after that.

There had been a barren island in the middle of the brackish, poisonous waters of the lake, and most of the time, until just latterly, he had been kept bound for fear he would drown himself in them. Mnathl... Mnathl had swum over from the mainland to tend him; she had bathed him and kept his body free of sores and vermin, set food before him and tried to coax him to eat. And twice a day she had given him injections of mercapulan with a hypodermic syringe. His arm was pocked with the needle marks. Where had she got the syringe and the drug? She must have stolen them from the big Colony Hospital in Penhairn.

The injections had brought on the pain. Ericson, at the thought, felt sweat break out on his upper lip. What he had endured had been just at the edge of what a man could stand and still live. (His ordeal, had he known it, had been very much less than it would have been had he taken the drug cure in the hospital in Penhairn. Mnathl,

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though she had not disdained the help of terrestrial science, knew things about the Fyhonese flora and its properties that no terrestrial even suspected. Still, the ordeal had been bad enough). Ericson shifted his position and sighed.

Mnathl had cured him of byhror addiction. In return, he had hated her. There had been weeks, he remembered, when his brain had held nothing but horrible pain and the wish to kill Mnathl. Once, when she had untied him for exercise, he had shammed sleep until she came close to him; then he had caught her by the throat. He had come close to killing her then. And no doubt in those long, maniacal days there had been other times.

Ericson raised himself on one elbow and looked at her. She was pouring water into a clay pot above the small, workman-like fire she had built, and was putting in bits of chopped bosula meat. Her greenish skin, the skin of a native of the South Polar continent, glittered slightly as she moved. “Mnathl...” he said.

She turned toward him quickly, but did not speak. “Mnathl, I’m sorry I tried to... hurt you on the island. I must have been pretty bad.”

Mnathl almost smiled. “No matter,” she said. “Pretty soon, soup.”

•••

The incident seemed to be closed. Ericson lay back in the shade again and watched the movements of the cloudscape across the deep turquoise of the sky. His eyes felt as fresh as Adam’s. The trees were green with

the greenness of living emeralds, and the sun had an ardor and a richness like no sun he had ever known before.

Winds blew with caressive, sweet-smelling tendrils over his face, and from the warm soil beneath him he could almost feel strength soaking up again into his body cells. He had visited several planets since he had first left earth; he had loved none of them as he did Fyhon. Fyhon...

Arnaldo, the chunky little head of the paleo-biology department of Penhain University, had told him once that terrestrials loved Fyhon so because conditions on that planet were like those on Terra during the part of the Cenozoic when man was beginning to become man. Fyhon, he said, appealed to some deep-seated memory in humanity of what a planet ought to be.

Ericson had laughed at him. He was new to Fyhon then, with a temporary appointment as ethnographer to the South Polar Ethnographic Commission. Racial memory had seemed to him as out-moded a concept as spontaneous generation. But his temporary appointment had been extended once, and then once again, and by the end of the second period he had been wildly, hopelessly in love with Fyhon. He had hoped to get a permanent appointment, had hoped to stay on Fyhon for the rest of his life.

Ericson sighed again. After a while he raised one hand above his head and looked at it. He could see the bones and the joints of the bones and the movements of the sinews under the pale gold skin. The marks of Mnathl’s hypodermic needle were faintly red. He ran his fingers down his body, surprised at the largeness and hardness

of the rib cage, and the prominence of the sockets of his hips. His body felt attenuated and worn. But it was his body, no longer the property of byhror and the byhror emptiness. He held up his hand once more and looked at it against the light. He was beginning to realize that he was alive.

He drifted off into sleep. When he woke, Mnathl was holding out a steaming bowl to him. “Soup?” she said.

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They stayed for some eight days in the coppice, while Ericson knotted his memories together. Byhror and the need for it were sinking back with the passage of each successive day into the status of things unalterably in the past. Mnathl set snares and hunted — she would not allow him to move a hand — and Ericson watched her almost incuriously. He felt a little more conscious every hour how good it was to be alive.

On the ninth day Mnathl poured water on the cooking fire. She nested the cooking pots together, slung them deftly over her shoulder, and contrived a belt of twisted vines for her hunting knife. “Go now,” she announced.

Ericson got up obediently. “Are we going back to Penhairn?” he asked.

The corners of Mnathl’s mouth twitched. “No,” she said. “Way on up. On in. In Dridihad.” She pointed with her thumb.

Ericson stared at her. “Dridihad?” he said. He’d heard the name before. It was... now wait... yes, it was the name the natives applied to the heart of the almost

unknown South Polar Minor continent. “I can’t go there. I’ve got to go back to Penhairn, now that I’m well. I’ve three years of byhror addiction to make up.”

Mnathl’s eyes narrowed. “Dridihad,” she repeated stubbornly.

“But... Listen, Mnathl, I’m terribly grateful to you for what you’ve done for me. I never can thank you enough. But I couldn’t go to Dridihad now, wherever it is. I’d need equipment — cameras, notebooks, guns, a tent. Right now I’ve got to go back to Penhairn, see about getting a job.”

“All sorts of things to see,” Mnathl said. She edged up to him. “You like. You like good.” There was a prick in his arm. Mnathl had made other things in her cooking pots the last few days beside soup.

Ericson felt a peculiar glassy lethargy creeping over him. The sensation was not entirely unpleasant. It was as if he looked at his limbs and his body through a sheet of perfectly transparent crystal. He could see his actions and his movements with absolute clarity, but he had nothing to do with them.

“You like see Dridihad,” Mnathl said. “All sorts of things for eth — ethnog — for man like you to look at. Come on. You like good.” She started along a shadowy, green-roofed trail.

While Ericson watched with resentful detachment, his body began obediently to follow her. Speech as well as volition had deserted him, and all he could do was to move silently in her steps.

As mile succeeded silent mile, memory and common sense came to his aid. There had been a time, nearly three years ago, when he had set out to explore the periphery of the minor polar continent by himself. His temporary appointment had expired, and he had been moving heaven and earth to get it made permanent. The one-man expedition had been a part of the general heaven-and-earth moving process; it had occurred to him that the Ethnographic Commission might be inclined to view his application more favourably if he could offer the Commission a piece of original ethnographic research, such as a report on the natives in the periphery would be.

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His attempt had been a miserable failure; indeed, he owed his former byhror addiction to it. His supplies had been eaten by animals, he had poisoned himself with tainted chornis liver, fever had attacked him. In his fits of feverish delirium he had thrown away nearly everything, even his hunting knife. In order to get back to Penhairn at all he had had to resort to chewing the leaves of the byhror plant. The leaves contain a remarkable stimulant; Ericson had been able to get his fever-racked body back to civilization alive. But it had been at the cost of slavish addiction to the drug.

And now Mnathl — bless her greenish skin and queer flat eyes — was offering him a journey to the mysterious heart of the minor polar continent. Offering it to him on a silver platter. A piece of original ethnographic research. He had been ungrateful and a fool. “You like good,” she had said. Well, she ought to know.

The effects of the drug she had pricked his arm with must be wearing off. Ericson found he could smile. “Why are

we going to Dridihad, Mnathl?” he asked a little later.

Mnathl shook her sleek green head without even turning around to him. “No,” she said.

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The trip in to Dridihad was a seduction, an enchantment, a bliss. Ericson’s strength came flooding back to him. His sick pallor was turning to rich gold. On the second day he whittled, under Mnathl’s guidance, a spear and a throwing-stick for it, and on the third and fourth she taught him to set snares and kindle fires with a sliver of onchian. The country grew wilder and more beautiful, the trees taller, the sky a deeper blue, the waterfalls more loud. He tried to question the girl, but she never answered anything except “No,” and after a little, in his happiness, he gave up asking questions.

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What did it matter, after all? He was learning from day to day secrets that any geographer or ethnographer would have given the best years of his life to learn; the piece of original ethnographic research was becoming a reality; and who, except a fool, questions someone who has not only restored him to life but is giving him his heart’s desire?

On the eighteenth day, when Ericson’s body had filled out and been turned to a living gold by the sun, they came across the pyramid. It stood in a swale with purple flowers growing around it and a small river flowing around one side, and it was so tall that Ericson, looking dizzily up, swore he saw clouds floating around its top. He wanted to stay and look at it, to record it in his mind, but Mnathl was not impressed. She let him have two

hours, and then she urged him on.

“But who built it, Mnathl?” he demanded when he had been pulled reluctantly away. “How did it get here?”

Mnathl seemed to be debating whether to answer him. He could never decide whether she was naturally taciturn, or whether she really grudged telling him things. “My people built it,” she said at last. “Deidrithes. Long time ago. Long time ago.” She motioned vaguely with her hand.

Something in the gesture made Ericson see with sudden clarity how deep the abyss of the past, even on this young world with the ardent sun, really was. Fyhon was young; but the Deidrithes had been living on Fyhon a long time.

11 Two days later Ericson, contrary to their usual custom, was in the lead, breaking trail. Mnathl caught him suddenly around the waist and pulled him back, but she was not quick enough. The huge, thick-bodied snake with the red bandings lashed out at him and just fell short. But one glistening fang grazed his foot.

...

Mnathl, bleached by fear to the color of an inferior grade of jade, killed the snake with a stone. Then she made Ericson sit down on the grass, and slashed at his foot with her hunting knife.

“What is it, Mnathl?” Ericson asked. The wound was not especially painful, but his heart had already begun to beat slowly and wearily, as if beating were a burden almost beyond its strength, and at the same time it

seemed to have grown until it threatened to burst his chest.

“Outis,” Mnathl answered briefly. She hesitated for a moment. “Bad,” she said, as if to herself. “Very bad. Could kill me too.” Then she leaned over and set her lips to the bleeding gash her knife had made.

Ericson tried to draw away from her. He was so dizzy that he could hardly see. “No,” he croaked, “don’t. You mustn’t suck it, Mnathl. I don’t want you to risk your life.”

The green-skinned girl shrugged. “No matter,” she answered. “Will do. O.K.”

Ericson tried to push her from him, but he was too weak. The world was receding from him in black waves. She sucked blood and poison from the wound, spat, sucked, spat, and sucked again.

He would have liked to protest, to thank her for her sacrifice, but he had no time. His pulse had begun to flutter feebly, and he fainted.

...

For the next several days he was in a stupor most of the time. Whenever he came back to consciousness, he saw Mnathl lying exhausted in the grass near him, and he knew without being told that the poison she had sucked from his wound was moving sluggishly and with slow malignity through her veins. Nevertheless, the wound on his foot was always cleanly dressed and plastered with fresh herbs, and from time to time she opened it with her knife and let the pus escape.

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When they were finally on the road to Dridihad again, he tried to thank her for what she had done.

“Anything I can do for you, Mnathl,” he wound up with some embarrassment (it is difficult to thank someone who refuses to look at you), “anything I can do for you, why, you let me know. I could have died there, without ever getting my permanent appointment or seeing Dridihad. We’re friends, aren’t we, Mnathl? Friends.” He took her hand.

Mnathl nodded curtly. “O.K.,” she said. She pulled her fingers from his. The Deidrithes, Ericson thought not for the first time, were an impassive, unemotional folk.

It took them nearly a month more to get to Dridihad. On the way they had to ford two swollen rivers and beat off the attack of a must-maddened bull rhodops. Neither of these incidents had any consequences. On the sixty-sixth day after their departure from Lake Tanais, they came to the foot of Dridihad.

For a week or so the ground had been rising steadily and the air growing crisp and thin. They had labored uphill, uphill. Dridihad itself, built on a high plateau, had been visible for three days before they reached it, a silhouette, faintly pinkish, against the clouds. When they had first caught sight of it, Ericson had felt an almost painful anticipation seize him, and even Mnathl, usually so impassive, had shown, in her glowing face and quickened breathing, how excited she was.

The ascent to the plateau itself, along a path so precipitous that Ericson was always having to clutch it with hands as well as feet, was so toilsome that fatigue had dimmed his curiosity a little when they arrived at the

top. Earlier that day Mnathl had thrown the cooking pots and the knife contemptuously over the side of the cliff, and now, cupping her hands around her lips and standing almost arrogantly erect, she strode up to the rosy-red, eroded battlements.

“Klarete laoi!” she called. “Laoi, klarete!” So far as Ericson could see, no one at all was listening. But after a moment the massy doors of the gate began to open outward, ponderously, in the twilight. They went in.

Dridihad, Ericson saw at first glance, was much larger and more populous than he had supposed from below. The low, stepped buildings, all made of the rose-pink stone, seemed to stretch out for mile upon mile, as far as he could see. They made upon him an impression of antiquity so strong that it was almost disturbing. The small greenish people like Mnathl were everywhere. In dots, trickles and rivulets they were pouring out into the streets.

Mnathl’s eyes fell on a man near her. She spoke to him. Instantly he bowed profoundly before her, and made a second, shallower obeisance to Ericson.

“Go with him,” Mnathl said, turning to the ethnographer. “Sleep in his house.” Obediently, Ericson followed his guide. When he looked around toward Mnathl, she had already disappeared.

The man (his name seemed to be Boator) took Ericson to an airy suite of rooms on the top floor of one of the biggest of the houses of red stone. Attendants waited on him with food and drink and water for bathing. They took away his dirt-encrusted, ragged clothing and brought him a heavy greenish robe. After Ericson had bathed and

put it on, he inspected himself in the sheet of polished metal that served for a looking glass and decided that the colour of the fabric made his curling beard and fair skin look as if they had been cast from yellow gold.

He was tired, but far too excited to rest.

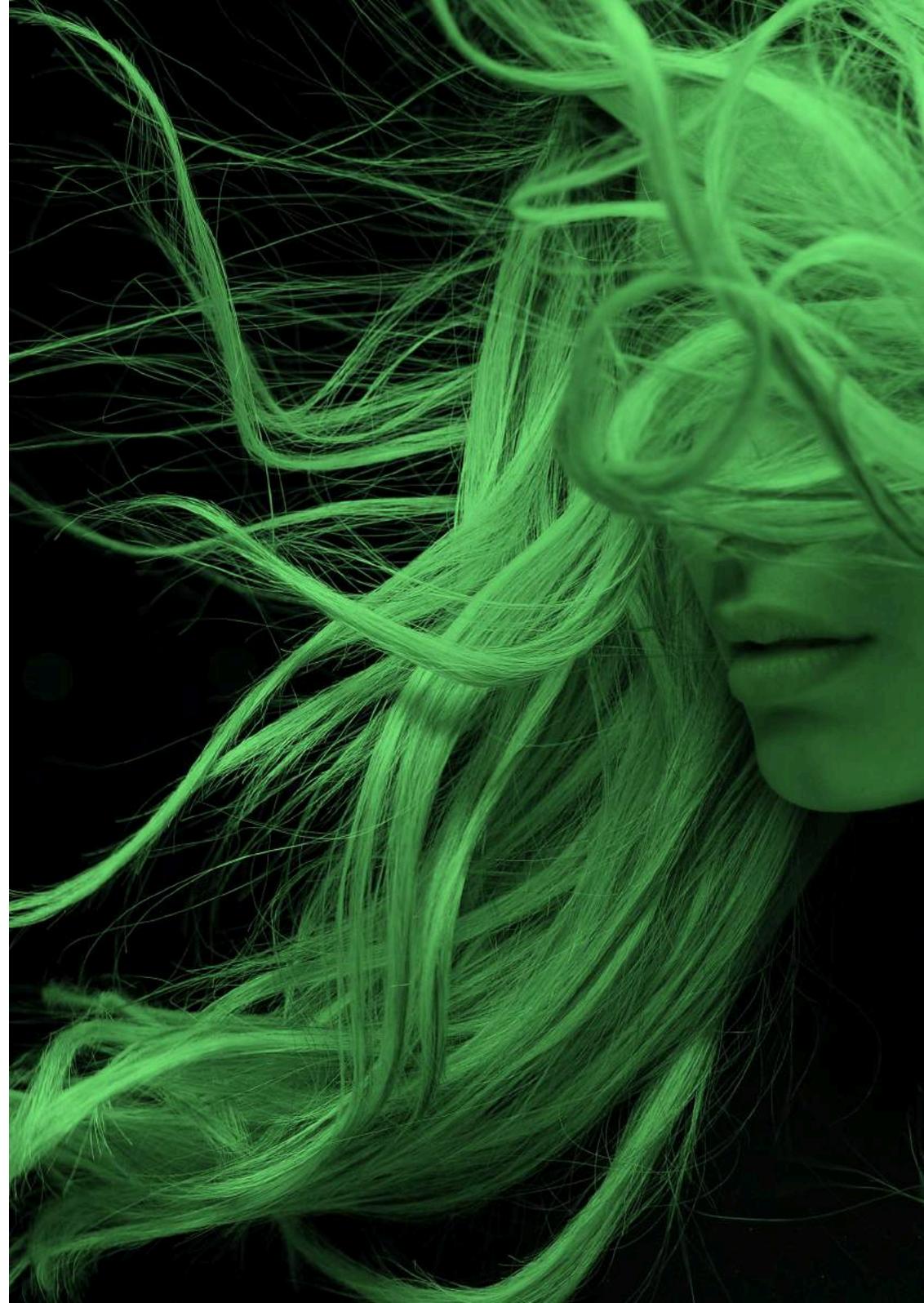
The chief thing, the indubitable, the incredible thing, was that there was a very old, a very populous city, a city whose existence no one had even suspected, in the heart of the South Polar Minor continent. It was news to inflame an ethnographer to the point of hysteria. When Ericson got back to Penhain with his report, it was going to revolutionize their whole concept of Fyhonese history; one would hardly exaggerate to say that it would be epoch-making news. No doubt there would be a period when they'd consider him the biggest liar since Marco Polo. But after the first skepticism wore off he'd have a permanent ethnographic appointment almost forced upon him. His report would shake established reputations, found new schools, would — oh, if he only had something to write on!

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When the attendant came in again, Ericson made motions of writing in the palm of his hand, but the man's face remained blank. And when he asked for Mnathl the attendant merely shook his head and went out.

For want of anything better the young man hung out of the window watching the smoky flicker of lights in the city around him. It was not until the last one had gone out that he went, reluctantly, to bed.

Next morning, immediately after breakfast, Mnathl came to visit him. He hardly knew her at first. The scanty garments she had worn unconcernedly on their journey



to Dridihad had been replaced by the stiff, hieratic folds of a dull purple robe embroidered in blue. On her head there was a silvery crown of antique workmanship, set with luminous purple stones, and she moved with the conscious dignity of a princess or a priest.

Her manner toward him, too, had changed. She smiled faintly when she first saw him, and everything about her seemed freer than Ericson had seen it before. She was animated, almost vivacious.

He asked her for something to write with. "No," she answered, still with that faint smile, "no use. Hunt now."

They left Boator's house by a side door (to avoid the crowd that would appear at once if they were glimpsed in the streets, Ericson surmised) and entered a small, walled court. There four improbably striped animals, about the size of small ponies, were waiting for them. Ericson mounted one of them, and Mnathl, tucking up her skirts, bestrode another. With two attendants they rode circuitously through Dridihad and out into the high plain.

The variety and abundance of game were amazing. There seemed to be more animals than there were trees, and they came in all sizes, shapes, colours, and coats. There was even a big blue-hued thing that reminded the young man a little of a kangaroo. He enjoyed himself, but he could not help wishing that he knew more about Fyhonese zoology than he did — to appreciate all those properly.

They got back to the city just before dark. Ericson ate, and then Mnathl took him to the temple. It was the tallest building in Dridihad, a stepped pyramid of unusually reddish stone, and Ericson was to grow fond, later, of the

view from its flat top. The naos itself, however, was a small room skimpily scooped out of one side of the pyramid, and it was very badly lighted. Ericson, who had resolved, in default of paper to write on, to impress all he saw and heard irremovably upon his mind, had to strain his eyes to see anything.

Mnathl officiated. His first feeling that she was a priestess seemed to be correct. As to the ritual itself, it was highly impressive, especially when one considered that he did not know the language in which it was going on. It ended with the sacrifice of an animal like a bosula; while two attendants held it, Mnathl cut its throat, caught the blood in a cup, and poured it on the altar fire. Then she roasted pieces of the meat over the coals and dealt them out among the celebrants of the ceremony, partaking first herself. None of the collops was offered to Ericson; but, then, he could hardly be considered a communicant of the religion of the Deidrithes, whatever it was.

As the days passed, a possible explanation of Mnathl's treatment of him began to come to Ericson. He was not a conceited man, or it might have occurred to him earlier. And it bothered him to think that she was attracted to him, whereas he had never found her attractive in any way. Still, what other hypothesis would account for the facts?

They were together almost constantly and, except for the attendants who were always armed with heavy axes, always alone. She hunted with him, showed him the city, rode with him; she even taught him to play a rather childish game, something like the Sicilian Mora, which she always beat him at. Day after day she took him with her to witness religious rites which were obviously of the most hallowed character. Ericson had the impression that

the rites were leading, in a series of slight graduations, up to some supreme event! and he tried to note and remember everything.

...

The climax came suddenly. One lovely evening, just as the full moon was rising, Mnathl took him with her up the steep sides to the top of the pyramid. The two attendants hovered discreetly in the background. For all practical purposes, he and the girl were alone.

Mnathl looked at him. There was a glint, warm, glowing, and facile, in her eyes that he had never seen there before. There was a short but rather embarrassing silence. At last Ericson, feeling like a boor and a churl, took her hand.

19 “Mnathl,” he said, “I’m so grateful to you. You’ve done so much for me, helped me so much. You... mean a lot to me, Mnathl.” That, at least, was true.

Mnathl pulled her fingers away and regarded him. “What you mean?” she asked blankly. “What you mean?”

“That you... that I...” he stopped, too embarrassed to go on.

Mnathl threw back her head and laughed. It was the first time he had ever heard the sound from her, and there was something strange in it. She motioned to the axmen with her hand.

“Not like, not hate,” she said blandly. “Let you see, let you hear, so you tell Them all that Deidrithes do. You our messenger. Then we eat.”

Then we eat... For a moment the words echoed meaninglessly in Ericson’s mind. The axmen were forcing him to his knees near a depression in the center of the pyramid. “But why...” he said.

“We hear about you the first time you try trip,” Mnathl said. “Everybody know. No other men your colour in Fyhon.”

His color. Ericson began to understand. Mnathl’s devotion, her self-sacrificing tenacity, her long kindness to him, everything — had all been nothing but the prelude to a ritual meal in which his rare blonde body was to be the chief support. No doubt a man of his colour would be an especially choice offering to the gods. The gleam he had seen in Mnathl’s eyes had been not love, but a kind of religious gluttony.

He began to laugh. Irony had always appealed to him; and besides he was remembering a sentence in the Ethnographic Commission’s preliminary survey: “There is no doubt that ritual cannibalism is unknown among the natives of Fyhon.”

“O.K., Mnathl,” he said, recalling what he had been saved from, what he had seen and learned. “I’m ahead, no matter how you look at it. It’s O.K.”

He was still smiling when the axman on the right struck and Ericson’s severed head went rolling along the surface of the pyramid. ■

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Margaret St. Clair was born in Hutchinson, Kansas. She played a pioneering role as a woman writing science fiction in a male-dominated field. By 1950, she had published over 130 short stories. Her work is startlingly original and has yet to be fully appreciated.

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Submissions Welcome!

Sci-Fi

Cyber Punk

Speculative Poetry

Fantasy / Speculative

Fantasy Art / Photography



Time Enough At Last

by

Lynn Venable

23

For a long time, Henry Bemis had had an ambition. To read a book. Not just the title or the preface, or a page somewhere in the middle. He wanted to read the whole thing, all the way through from beginning to end. A simple ambition perhaps, but in the cluttered life of Henry Bemis, an impossibility.

Henry had no time of his own. There was his wife, Agnes who owned that part of it that his employer, Mr. Carsville, did not buy. Henry was allowed enough to get to and from work — that in itself being quite a concession on Agnes' part.

Also, nature had conspired against Henry by handing him with a pair of hopelessly myopic eyes. Poor Henry literally couldn't see his hand in front of his face. For a while, when he was very young, his parents had thought him an idiot. When they realized it was his eyes, they got glasses for him. He was never quite able to catch up. There was never enough time. It looked as though Henry's ambition would never be realized. Then something happened which changed all that.

Henry was down in the vault of the Eastside Bank & Trust when it happened. He had stolen a few moments from the duties of his teller's cage to try to read a few pages of the magazine he had bought that morning. He'd made an excuse to Mr. Carsville about needing bills in large denominations for a certain customer, and then, safe inside the dim recesses of the vault he had pulled from inside his coat the pocket size magazine.

He had just started a picture article cheerfully entitled "The New Weapons and What They'll Do To YOU," when all the noise in the world crashed in upon his ear-drums. It seemed to be inside of him and outside of him all at once. Then the concrete floor was rising up at him and the ceiling came slanting down toward him, and for a fleeting second Henry thought of a story he had started to read once called "The Pit and The Pendulum." He regretted in that insane moment that he had never had time to finish that story to see how it came out. Then all was darkness and quiet and unconsciousness.

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When Henry came to, he knew that something was desperately wrong with the Eastside Bank & Trust. The heavy steel door of the vault was buckled and twisted and the floor tilted up at a dizzy angle, while the ceiling dipped crazily toward it. Henry gingerly got to his feet, moving arms and legs experimentally. Assured that nothing was broken, he tenderly raised a hand to his eyes. His precious glasses were intact, thank God! He would never have been able to find his way out of the shattered vault without them.

He made a mental note to write Dr. Torrance to have a

spare pair made and mailed to him. Blasted nuisance not having his prescription on file locally, but Henry trusted no-one but Dr. Torrance to grind those thick lenses into his own complicated prescription. Henry removed the heavy glasses from his face. Instantly the room dissolved into a neutral blur. Henry saw a pink splash that he knew was his hand, and a white blob come up to meet the pink as he withdrew his pocket handkerchief and carefully dusted the lenses. As he replaced the glasses, they slipped down on the bridge of his nose a little. He had been meaning to have them tightened for some time.

25 He suddenly realized, without the realization actually entering his conscious thoughts, that something momentous had happened, something worse than the boiler blowing up, something worse than a gas main exploding, something worse than anything that had ever happened before. He felt that way because it was so quiet. There was no whine of sirens, no shouting, no running, just an ominous and all pervading silence.

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Henry walked across the slanting floor. Slipping and stumbling on the uneven surface, he made his way to the elevator. The car lay crumpled at the foot of the shaft like a discarded accordion. There was something inside of it that Henry could not look at, something that had once been a person, or perhaps several people, it was impossible to tell now.

Feeling sick, Henry staggered toward the stairway. The steps were still there, but so jumbled and piled back upon one another that it was more like climbing the side of a mountain than mounting a stairway. It was quiet in the

huge chamber that had been the lobby of the bank. It looked strangely cheerful with the sunlight shining through the girders where the ceiling had fallen. The dappled sunlight glinted across the silent lobby, and everywhere there were huddled lumps of unpleasantness that made Henry sick as he tried not to look at them.

“Mr. Carsville,” he called. It was very quiet. Something had to be done, of course. This was terrible, right in the middle of a Monday, too. Mr. Carsville would know what to do. He called again, more loudly, and his voice cracked hoarsely, “Mr. Carrrrrsville!” And then he saw an arm and shoulder extending out from under a huge fallen block of marble ceiling. In the buttonhole was the white carnation Mr. Carsville had worn to work that morning, and on the third finger of that hand was a massive signet ring, also belonging to Mr. Carsville. Numbly, Henry realized that the rest of Mr. Carsville was under that block of marble.

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Henry felt a pang of real sorrow. Mr. Carsville was gone, and so was the rest of the staff — Mr. Wilkinson and Mr. Emory and Mr. Prithard, and the same with Pete and Ralph and Jenkins and Hunter and Pat the guard and Willie the doorman. There was no one to say what was to be done about the Eastside Bank & Trust except Henry Bemis, and Henry wasn't worried about the bank, there was something he wanted to do.

He climbed carefully over piles of fallen masonry. Once he stepped down into something that crunched and squashed beneath his feet and he set his teeth on edge to keep from retching. The street was not much different from the inside, bright sunlight and so much concrete to crawl over, but the unpleasantness was much, much worse. Everywhere there were strange, motionless lumps



that Henry could not look at.

Suddenly, he remembered Agnes. He should be trying to get to Agnes, shouldn't he? He remembered a poster he had seen that said, "In event of emergency do not use the telephone, your loved ones are as safe as you." He wondered about Agnes. He looked at the smashed automobiles, some with their four wheels pointing skyward like the stiffened legs of dead animals. He couldn't get to Agnes now anyway, if she was safe, then, she was safe, otherwise... of course, Henry knew Agnes wasn't safe. He had a feeling that there wasn't anyone safe for a long, long way, maybe not in the whole state or the whole country, or the whole world. No, that was a thought Henry didn't want to think, he forced it from his mind and turned his thoughts back to Agnes.

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She had been a pretty good wife, now that it was all said and done. It wasn't exactly her fault if people didn't have time to read nowadays. It was just that there was the house, and the bank, and the yard. There were the Jones' for bridge and the Graysons' for canasta and charades with the Bryants. And the television, the television Agnes loved to watch, but would never watch alone. He never had time to read even a newspaper. He started thinking about last night, that business about the newspaper.

Henry had settled into his chair, quietly, afraid that a creaking spring might call to Agnes' attention the fact that he was momentarily unoccupied. He had unfolded the newspaper slowly and carefully, the sharp crackle of the paper would have been a clarion call to Agnes. He had glanced at the headlines of the first page. "Collapse

Of Conference Imminent.” He didn’t have time to read the article. He turned to the second page. “Solon Predicts War Only Days Away.” He flipped through the pages faster, reading brief snatches here and there, afraid to spend too much time on any one item. On a back page was a brief article entitled, “Prehistoric Artifacts Unearthed In Yucatan.” Henry smiled to himself and carefully folded the sheet of paper into fourths. That would be interesting, he would read all of it. Then it came, Agnes’ voice. “Henrrreee!” And then she was upon him. She lightly flicked the paper out of his hands and into the fireplace. He saw the flames lick up and curl possessively around the unread article. Agnes continued, “Henry, tonight is the Jones’ bridge night. They’ll be here in thirty minutes and I’m not dressed yet, and here you are... reading.” She had emphasized the last word as though it were an unclean act. “Hurry and shave, you know how smooth Jasper Jones’ chin always looks, and then straighten up this room.” She glanced regretfully toward the fireplace. “Oh dear, that paper, the television schedule... oh well, after the Jones leave there won’t be time for anything but the late-late movie and... Don’t just sit there, Henry, hurrreeee!”

Henry was hurrying now, but hurrying too much. He cut his leg on a twisted piece of metal that had once been an automobile fender. He thought about things like lock-jaw and gangrene and his hand trembled as he tied his pocket-handkerchief around the wound. In his mind, he saw the fire again, licking across the face of last night’s newspaper. He thought that now he would have time to read all the newspapers he wanted to, only now there wouldn’t be any more. That

heap of rubble across the street had been the Gazette Building. It was terrible to think there would never be another up to date newspaper. Agnes would have been very upset, no television schedule. But then, of course, no television. He wanted to laugh but he didn’t. That wouldn’t have been fitting, not at all.

He could see the building he was looking for now, but the silhouette was strangely changed. The great circular dome was now a ragged semi-circle, half of it gone, and one of the great wings of the building had fallen in upon itself. A sudden panic gripped Henry Bemis. What if they were all ruined, destroyed, every one of them? What if there wasn’t a single one left? Tears of helplessness welled in his eyes as he painfully fought his way over and through the twisted fragments of the city.

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He thought of the building when it had been whole. He remembered the many nights he had paused outside its wide and welcoming doors. He thought of the warm nights when the doors had been thrown open and he could see the people inside, see them sitting at the plain wooden tables with the stacks of books beside them. He used to think then, what a wonderful thing a public library was, a place where anybody, anybody at all could go in and read.

He had been tempted to enter many times. He had watched the people through the open doors, the man in greasy work clothes who sat near the door, night after night, laboriously studying, a technical

journal perhaps, difficult for him, but promising a brighter future. There had been an aged, scholarly gentleman who sat on the other side of the door, leisurely paging, moving his lips a little as he did so, a man having little time left, but rich in time because he could do with it as he chose.

Henry had never gone in. He had started up the steps once, got almost to the door, but then he remembered Agnes, her questions and shouting, and he had turned away.

He was going in now though, almost crawling, his breath coming in stabbing gasps, his hands torn and bleeding. His trouser leg was sticky red where the wound in his leg had soaked through the handkerchief. It was throbbing badly but Henry didn't care. He had reached his destination.

Part of the inscription was still there, over the now doorless entrance. P-U-B—C L-I-B-R—-. The rest had been torn away. The place was in shambles. The shelves were overturned, broken, smashed, tilted, their precious contents spilled in disorder upon the floor. A lot of the books, Henry noted gleefully, were still intact, still whole, still readable. He was literally knee deep in them, he wallowed in books. He picked one up. The title was "Collected Works of William Shakespeare." Yes, he must read that, sometime. He laid it aside carefully. He picked up another. Spinoza. He tossed it away, seized another, and another, and still another. Which to read first... there were so many.

He had been conducting himself a little like a

starving man in a delicatessen — grabbing a little of this and a little of that in a frenzy of enjoyment.

But now he steadied away. From the pile about him, he selected one volume, sat comfortably down on an overturned shelf, and opened the book.

Henry Bemis smiled.

There was the rumble of complaining stone. Minute in comparison which the epic complaints following the fall of the bomb. This one occurred under one corner of the shelf upon which Henry sat. The shelf moved; threw him off balance. The glasses slipped from his nose and fell with a tinkle.

He bent down, clawing blindly and found, finally, their smashed remains. A minor, indirect destruction stemming from the sudden, wholesale smashing of a city. But the only one that greatly interested Henry Bemis.

He stared down at the blurred page before him.

He began to cry. ■



Born in New Jersey, **Lynn Venable** is a writer of science fiction. Her short story "Time Enough at Last" was adapted for television as an episode of *The Twilight Zone* in 1959, starring Burgess Meredith. The story is frequently anthologized and discussed by scholars, who note that it was published in the same year as Ray Bradbury's *Fahrenheit 451* and includes similar themes about reading and books.



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Song in a Minor Key

by
C.L. Moore

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Beneath him the clover-strewn hill-slope was warm in the sun. Northwest Smith moved his shoulders against the earth and closed his eyes, breathing so deeply that the gun holstered upon his chest drew tight against its strap as he drank the fragrance of Earth and clover warm in the sun. Here in the hollow of the hills, willow-shaded, pillowed upon clover and the lap of Earth, he let his breath run out in a long sigh and drew one palm across the grass in a caress like a lover's.

He had been promising himself this moment for how long — how many months and years on alien worlds? He would not think of it now. He would not remember the dark spaceways or the red slag of Martian drylands or the pearl-grey days on Venus when he had dreamed of the Earth that had outlawed him. So he lay, with his eyes closed and the sunlight drenching him through, no sound in his ears but the passage of a breeze through the grass and a creaking of some insect nearby — the violent, blood-smelling years behind him might never have been. Except for the gun pressed into his ribs between his

chest and the clovered earth, he might be a boy again, years upon years ago, long before he had broken his first law or killed his first man.

No one else alive now knew who that boy had been. Not even the all knowing Patrol. Not even Venusian Yarol, who had been his closest friend for so many riotous years. No one would ever know — now. Not his name (which had not always been Smith) or his native land or the home that had bred him, or the first violent deed that had sent him down the devious paths which led here — here to the clover hollow in the hills of an Earth that had forbidden him ever to set foot again upon her soil.

He unclasped the hands behind his head and rolled over to lay a scarred cheek on his arm, smiling to himself. Well, here was Earth beneath him. No longer a green star high in alien skies, but warm soil, new clover so near his face he could see all the little stems and trefoil leaves, moist earth granular at their roots. An ant ran by with waving antennae close beside his cheek. He closed his eyes and drew another deep breath. Better not even look; better to lie here like an animal, absorbing the sun and the feel of Earth blindly, wordlessly.

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Now he was not Northwest Smith, scarred outlaw of the spaceways. Now he was a boy again with all his life before him. There would be a white-columned house just over the hill, with shaded porches and white curtains blowing in the breeze and the sound of sweet, familiar voices indoors. There would be a girl with hair like poured honey hesitating just inside the door, lifting her eyes to him. Tears in the eyes. He lay very still, remembering.

Curious how vividly it all came back, though the house had been ashes for nearly twenty years, and the girl —



the girl ...

He rolled over violently, opening his eyes. No use remembering her. There had been that fatal flaw in him from the very first, he knew now. If he were the boy again knowing all he knew today, still the flaw would be there and sooner or later the same thing must have happened that had happened twenty years ago. He had been born for a wilder age, when men took what they wanted and held what they could without respect for law. Obedience was not in him, and so —

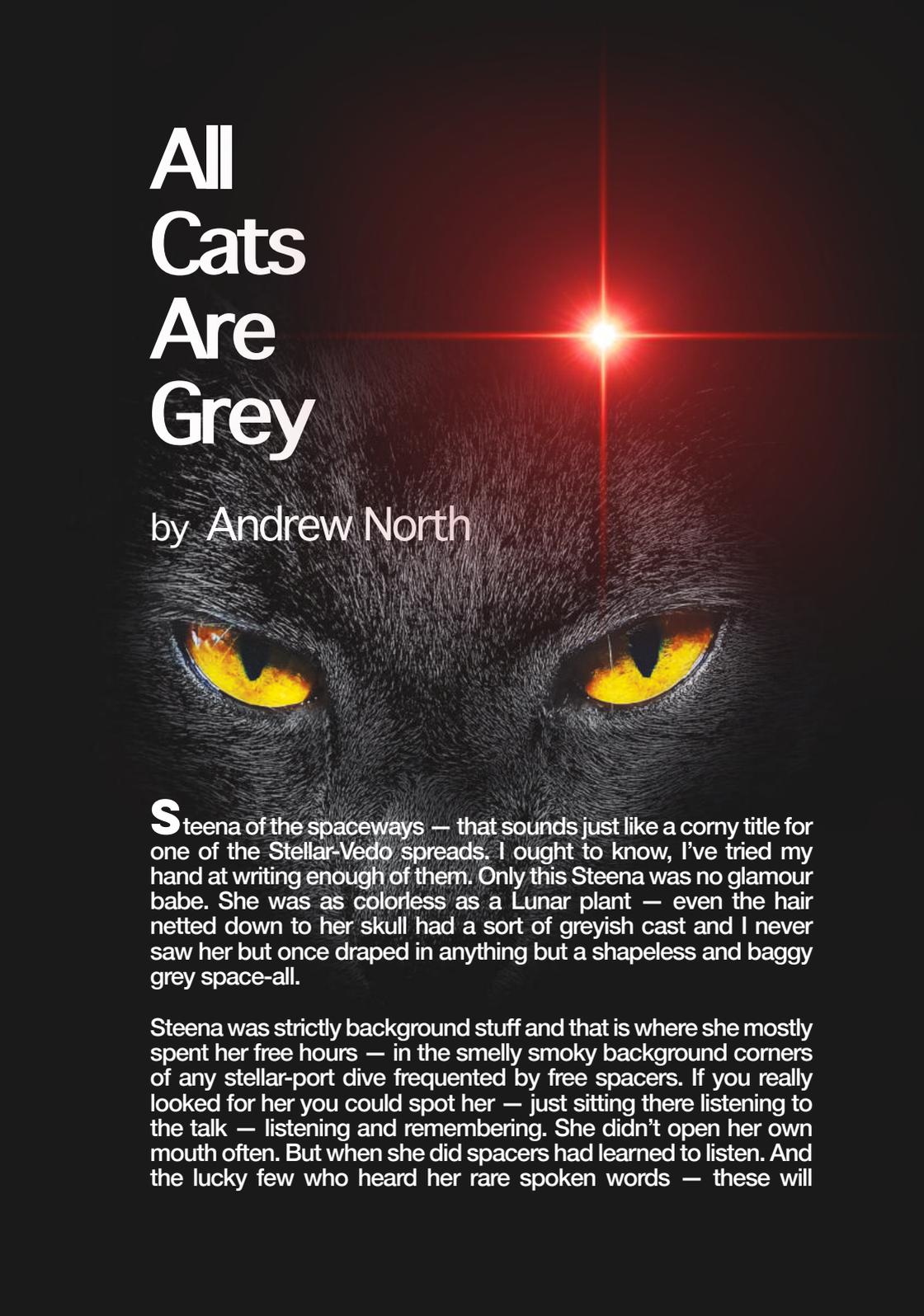
As vividly as on that day it happened he felt the same old surge of anger and despair twenty years old now, felt the ray-gun bucking hard against his unaccustomed fist, heard the hiss of its deadly charge ravening into a face he hated. He could not be sorry, even now, for that first man he had killed. But in the smoke of that killing had gone up the columned house and the future he might have had, the boy himself — lost as Atlantis now — and the girl with the honey-coloured hair and much, much else besides. It had to happen, he knew. He being the boy he was, it had to happen. Even if he could go back and start all over, the tale would be the same.

And it was all long past now, anyhow; and nobody remembered any more at all, except himself. A man would be a fool to lie here thinking about it any longer.

Smith grunted and sat up, shrugging the gun into place against his ribs. ■



Catherine Lucille Moore is a science fiction and fantasy writer who first came to prominence in the 1930s. In 1981, Moore received two annual awards for her career in fantasy literature: the World Fantasy Award for Life Achievement at the World Fantasy Convention, and the Gandalf Grand Master Award, chosen by vote of participants in the World Science Fiction Convention.



All Cats Are Grey

by Andrew North

Steena of the spaceways — that sounds just like a corny title for one of the Stellar-Vedo spreads. I ought to know, I've tried my hand at writing enough of them. Only this Steena was no glamour babe. She was as colorless as a Lunar plant — even the hair netted down to her skull had a sort of greyish cast and I never saw her but once draped in anything but a shapeless and baggy grey space-all.

Steena was strictly background stuff and that is where she mostly spent her free hours — in the smelly smoky background corners of any stellar-port dive frequented by free spacers. If you really looked for her you could spot her — just sitting there listening to the talk — listening and remembering. She didn't open her own mouth often. But when she did spacers had learned to listen. And the lucky few who heard her rare spoken words — these will

never forget Steena.

She drifted from port to port. Being an expert operator on the big calculators she found jobs wherever she cared to stay for a time. And she came to be something like the master-minded machines she tended — smooth, grey

But it was Steena who told Bub Nelson about the Jovan moon-rites — and her warning saved Bub's life six months later. It was Steena who identified the piece of stone Keene Clark was passing around a table one night, rightly calling it unworked Slitite. That started a rush which made ten fortunes overnight for men who were down to their last jets. And, last of all, she cracked the case of the Empress of Mars.

All the boys who had profited by her queer store of knowledge and her photographic memory tried at one time or another to balance the scales. But she wouldn't take so much as a cup of Canal water at their expense, let alone the credits they tried to push on her. Bub Nelson was the only one who got around her refusal. It was he who brought her Bat.

About a year after the Jovan affair he walked into the Free Fall one night and dumped Bat down on her table. Bat looked at Steena and growled. She looked calmly back at him and nodded once. From then on they traveled together — the thin grey woman and the big grey tom-cat. Bat learned to know the inside of more stellar bars than even most spacers visit in their lifetimes. He developed a liking for Vernal juice, drank it neat and quick, right out of a glass. And he was always at home on any table where Steena elected to drop him.

This is really the story of Steena, Bat, Cliff Moran and the Empress of Mars, a story which is already a legend of the spaceways. And it's a damn good story too. I ought to know, having framed the first version of it myself.

For I was there, right in the Rigel Royal, when it all began on the night that Cliff Moran blew in, looking lower than an antman's belly and twice as nasty. He'd had a spell of luck foul enough to twist a man into a slug-snake and we all knew that there was an

attachment out for his ship. Cliff had fought his way up from the back courts of Venaport. Lose his ship and he'd slip back there — to rot. He was at the snarling stage that night when he picked out a table for himself and set out to drink away his troubles.

However, just as the first bottle arrived, so did a visitor. Steena came out of her corner, Bat curled around her shoulders stole-wise, his favourite mode of travel. She crossed over and dropped down without invitation at Cliff's side. That shook him out of his sulks. Because Steena never chose company when she could be alone. If one of the man-stones on Ganymede had come stumping in, it wouldn't have made more of us look out of the corners of our eyes.

She stretched out one long-fingered hand and set aside the bottle he had ordered and said only one thing, "It's about time for the Empress of Mars to appear again."

Cliff scowled and bit his lip. He was tough, tough as jet lining — you have to be granite inside and out to struggle up from Venaport to a ship command. But we could guess what was running through his mind at that moment. The Empress of Mars was just about the biggest prize a spacer could aim for. But in the fifty years she had been following her queer derelict orbit through space many men had tried to bring her in — and none had succeeded.

A pleasure-ship carrying untold wealth, she had been mysteriously abandoned in space by passengers and crew, none of whom had ever been seen or heard of again. At intervals thereafter she had been sighted, even boarded. Those who ventured into her either vanished or returned swiftly without any believable explanation of what they had seen — wanting only to get away from her as quickly as possible. But the man who could bring her in — or even strip her clean in space—that man would win the jackpot.

"All right!" Cliff slammed his fist down on the table. "I'll try even that!"

Steena looked at him, much as she must have looked at Bat the day Bub Nelson brought him to her, and nodded. That was all I saw. The rest of the story came to me in pieces, months later and in another port half the System away.

Cliff took off that night. He was afraid to risk waiting — with a writ out that could pull the ship from under him. And it wasn't until he was in space that he discovered his passengers — Steena and Bat. We'll never know what happened then. I'm betting that Steena made no explanation at all. She wouldn't.

It was the first time she had decided to cash in on her own tip and she was there — that was all. Maybe that point weighed with Cliff, maybe he just didn't care. Anyway the three were together when they sighted the Empress riding, her dead-lights gleaming, a ghost ship in night space.

She must have been an eerie sight because her other lights were on too, in addition to the red warnings at her nose. She seemed alive, a Flying Dutchman of space. Cliff worked his ship skillfully alongside and had no trouble in snapping magnetic lines to her lock. Some minutes later the three of them passed into her. There was still air in her cabins and corridors. Air that bore a faint corrupt taint which set Bat to sniffing greedily and could be picked up even by the less sensitive human nostrils.

Cliff headed straight for the control cabin but Steena and Bat went prowling. Closed doors were a challenge to both of them and Steena opened each as she passed, taking a quick look at what lay within. The fifth door opened on a room which no woman could leave without further investigation.

I don't know who had been housed there when the Empress left port on her last lengthy cruise. Anyone really curious can check back on the old photo-reg cards. But there was a lavish display of silks trailing out of two travel kits on the floor, a dressing table crowded with crystal and jewelled containers, along with other lures for the female which drew Steena in. She was standing in front of the dressing table when she glanced into the mirror — glanced into it and froze.

Over her right shoulder she could see the spider-silk cover on the bed. Right in the middle of that sheer, gossamer expanse was a sparkling heap of gems, the dumped contents of some jewel case. Bat had jumped to the foot of the bed and flattened out as cats will, watching those gems, watching them and — something else!

Steen a put out her hand blindly and caught up the nearest bottle. As she unstopped it she watched the mirrored bed. A gemmed bracelet rose from the pile, rose in the air and tinkled its siren song. It was as if an idle hand played... Bat spat almost noiselessly. But he did not retreat. Bat had not yet decided his course.

She put down the bottle. Then she did something which perhaps few of the men she had listened to through the years could have done. She moved without hurry or sign of disturbance on a tour about the room. And, although she approached the bed she did not touch the jewels. She could not force herself to that. It took her five minutes to play out her innocence and unconcern. Then it was Bat who decided the issue.

He leaped from the bed and escorted something to the door, remaining a careful distance behind. Then he mewed loudly twice. Steena followed him and opened the door wider.

Bat went straight on down the corridor, as intent as a hound on the warmest of scents. Steena strolled behind him, holding her pace to the unhurried gait of an explorer. What sped before them both was invisible to her but Bat was never baffled by it.

They must have gone into the control cabin almost on the heels of the unseen — if the unseen had heels, which there was good reason to doubt — for Bat crouched just within the doorway and refused to move on. Steena looked down the length of the instrument panels and officers' station-seats to where Cliff Moran worked. On the heavy carpet her boots made no sound and he did not glance up but sat humming through set teeth as he tested the tardy and reluctant responses to buttons which had not been pushed in years.

To human eyes they were alone in the cabin. But Bat still followed a moving something with his gaze. And it was something which he had at last made up his mind to distrust and dislike. For now he took a step or two forward and spat — his loathing made plain by every raised hair along his spine. And in that same moment Steena saw a flicker — a flicker of vague outline against Cliff's hunched shoulders as if the invisible one had crossed the space between them.

But why had it been revealed against Cliff and not against the back of one of the seats or against the panels, the walls of the corridor or the cover of the bed where it had reclined and played with its loot? What could Bat see?

The storehouse memory that had served Steena so well through the years clicked open a half-forgotten door. With one swift motion she tore loose her space-all and flung the baggy garment across the back of the nearest seat.

Bat was snarling now, emitting the throaty rising cry that was his hunting song. But he was edging back, back toward Steena's feet, shrinking from something he could not fight but which he faced defiantly. If he could draw it after him, past that dangling space-all... He had to — it was their only chance.

"What the..." Cliff had come out of his seat and was staring at them.

What he saw must have been weird enough. Steena, bare-armed and shouldered, her usually stiffly-netted hair falling wildly down her back, Steena watching empty space with narrowed eyes and set mouth, calculating a single wild chance. Bat, crouched on his belly, retreating from thin air step by step and wailing like a demon.

"Toss me your blaster." Steena gave the order calmly — as if they still sat at their table in the Rigel Royal.

And as quietly Cliff obeyed. She caught the small weapon out of the air with a steady hand — caught and levelled it.

"Stay just where you are!" she warned. "Back, Bat, bring it back!"

With a last throat-splitting screech of rage and hate, Bat twisted to safety between her boots. She pressed with thumb and forefinger, firing at the space-alls. The material turned to powdery flakes of ash—except for certain bits which still flapped from the scorched seat — as if something had protected them from the force of the blast. Bat sprang straight up in the air with a scream that tore their ears.

"What...?" began Cliff again.

Steen a made a warning motion with her left hand. "Wait!"

She was still tense, still watching Bat. The cat dashed madly around the cabin twice, running crazily with white-ringed eyes and flecks of foam on his muzzle. Then he stopped abruptly in the doorway, stopped and looked back over his shoulder for a long silent moment. He sniffed delicately.

Steen a and Cliff could smell it too now, a thick oily stench which was not the usual odour left by an exploding blaster-shell.

Bat came back, treading daintily across the carpet, almost on the tips of his paws. He raised his head as he passed Steen a and then he went confidently beyond to sniff, to sniff and spit twice at the unburned strips of the space-all. Having thus paid his respects to the late enemy he sat down calmly and set to washing his fur with deliberation. Steen a sighed once and dropped into the navigator's seat.

"Maybe now you'll tell me what in the hell's happened?" Cliff exploded as he took the blaster out of her hand.

"Grey," she said dazedly, "it must have been grey — or I couldn't have seen it like that. I'm colourblind, you see. I can see only shades of grey — my whole world is grey. Like Bat's — his world is grey too — all grey. But he's been compensated for he can see above and below our range of colour vibrations and — apparently — so can I!"

Her voice quavered and she raised her chin with a new air Cliff had never seen before — a sort of proud acceptance. She pushed back her wandering hair, but she made no move to imprison it under the heavy net again.

"That is why I saw the thing when it crossed between us. Against your space-all it was another shade of grey — an outline. So I put out mine and waited for it to show against that — it was our only chance, Cliff.

"It was curious at first, I think, and it knew we couldn't see it — which is why it waited to attack. But when Bat's actions gave it away it moved. So I waited to see that flicker against the space-

all and then I let him have it. It's really very simple..."

Cliff laughed a bit shakily. "But what was this grey thing? I don't get it."

"I think it was what made the Empress a derelict. Something out of space, maybe, or from another world somewhere." She waved her hands. "It's invisible because it's a colour beyond our range of sight. It must have stayed in here all these years. And it kills — it must — when its curiosity is satisfied." Swiftly she described the scene in the cabin and the strange behaviour of the gem pile which had betrayed the creature to her.

Cliff did not return his blaster to its holder. "Any more of them on board, d'you think?" He didn't look pleased at the prospect.

Steen a turned to Bat. He was paying particular attention to the space between two front toes in the process of a complete bath. "I don't think so. But Bat will tell us if there are. He can see them clearly, I believe."

But there weren't any more and two weeks later Cliff, Steen a and Bat brought the Empress into the Lunar quarantine station. And that is the end of Steen a's story because, as we have been told, happy marriages need no chronicles. And Steen a had found someone who knew of her grey world and did not find it too hard to share with her — someone besides Bat. It turned out to be a real love match.

The last time I saw her she was wrapped in a flame-red cloak from the looms of Rigel and wore a fortune in Jovan rubies blazing on her wrists. Cliff was flipping a three-figure credit bill to a waiter. And Bat had a row of Vernal juice glasses set up before him. Just a little family party out on the town. ■



Born in Cleveland, Ohio, **Andre Alice Norton** (born Alice Mary Norton) was an American writer of science fiction and fantasy, who also wrote works of historical and contemporary fiction. She wrote primarily under the pen name Andre Norton, but also under Andrew North and Allen Weston. She was the first woman to be Gandalf Grand Master of Fantasy and to be inducted by the Science Fiction and Fantasy Hall of Fame.

Stories of a Hollow Earth

by

Peter Fitting

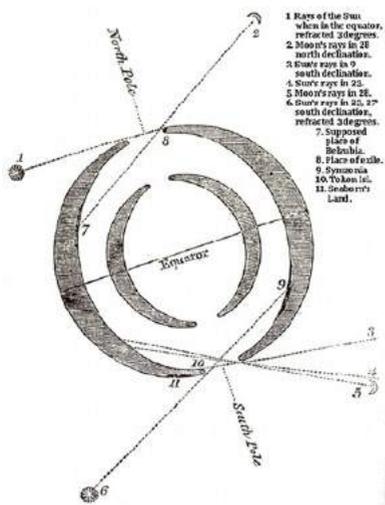
In 1818 John Cleves Symmes, Jr. issued his “Circular Number 1,” sending copies to “each notable foreign government, reigning prince, legislature, city, college, and philosophical society, quite around the earth”:

I declare that the earth is hollow and habitable within; containing a number of solid concentric spheres, one within the other, and that it is open at the poles twelve or sixteen degrees. I pledge my life in support of this truth, and am ready to explore the hollow, if the world will support and aid me in the undertaking.

The fortunes of the idea that the Earth was “hollow and habitable within,” from classical references to the underworld to esoteric and New Age writers today, have been recounted

elsewhere, most notably by Walter Kafton-Minkel in his *Subterranean Worlds: 100,000 years of dragons, dwarfs, the dead, lost races & UFOs from inside the earth* (1989). Symmes’s theories led to a number of fictional visions of the “world within,” most immediately, Adam Seaborn’s 1820 novel *Symzonia* — a work which has often been attributed to Symmes himself; and the novel with its diagrams and drawings was for some time cited as evidence that the world is hollow. In a somewhat different way, Symmes’s conviction that there were openings at the poles also led to the establishment of perhaps the most famous American naval scientific expedition, the “United States Exploring Expedition” which was commissioned to explore the South Pacific and led to the

establishment of a national museum of natural history — the Smithsonian Institute. (The history of the expedition and its origins in Symmes' ideas is recounted in William Stanton's 1975 *The Great United States Exploring Expedition of 1838-1842*).



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Symmes, however, was not the first to argue that the Earth was hollow; nor is *Symzonia* the first novel set in a hollow earth. There are of course numerous narratives — dating back to Greek and Roman texts — of descents into the underworld, but hypotheses about vast channels or chasms inside the Earth appear to be a much more recent idea advanced by some European thinkers in the 17th and 18th centuries as an explanation of volcanoes, whirl-

pools and the like. This period is filled with a variety of now discarded cosmological hypotheses, many inspired by the attempt to reconcile scriptural accounts of Creation with scientific observation: hypotheses about the movement of the sun, the earth and the stars, about the universality of the great Flood, about creation and the origins of life, and about the earth's own formation. Among the proponents of now abandoned theories about the composition of our planet was Edmond Halley (better known for the comet which bears his name), who proposed (in a paper explaining the movement of the magnetic poles published in the *Philosophical Transactions of the Royal Society* in 1692) that the earth was hollow: "that the seemingly solid earth is actually a shell about 500 miles thick containing three smaller concentric spheres... each sphere separated from the others by about 500 miles of atmosphere."

While it is perhaps relatively easy to follow the theories of inner cavities or of a passage between the poles (in writers like Thomas Burnet and Athanasius Kircher in the late 17th century), and to see their relationship to a text like the anonymous 1721 *Relation D'Un Voyage Du Pole*

Arctique Au Pole Antarctique Par Le Centre Du Monde, (which describes a channel running through the Earth from pole to pole), it is much more difficult to understand how the idea of the hollow Earth emerged as part of Halley's explanation of the motion of the magnetic poles. Even more inexplicable is the depiction of the hollow earth some fifty years earlier — complete with inner sun and earth — in Ludvig Holberg's 1741 subterranean utopia, *The Journey of Niels Klim to the World Underground*. This is a far greater imaginative leap, for instance, than Jules Verne's well-known account of a descent into the bowels of the earth through a dormant volcano (*Voyage au centre de la terre*, 1865). Verne's narrative of the discovery of a vast underworld cavern formed during an earlier geological period seems much more plausible than Holberg's invention of two entire inner worlds — one a planet inhabited by intelligent trees, the other the underside of the earth's crust, as vast as the outer crust on which we live, and populated with a fantastic variety of intelligent life forms.

First published in Latin in 1741, *The Journey of Niels Klim to the World Underground*, with a new theory of the Earth and the

History of the previously unknown Fifth Kingdom (*Nicolai Klimii iter subterraneum, Novam Telluris theoriem ac Historiam Quintae Monarchiae adhuc nobis incognita exhibens*) was quickly translated into a number of European languages. (The first English edition dates from 1742). As with Verne's *Voyage*, the adventure begins with the descent into a cave, although here the hero falls through a hole into the subterranean world, discovering: "that the conjectures of those men are right who hold the Earth to be hollow, and that within the shell or outward crust there is another lesser globe, and another firmament adorned with lesser sun, stars, and planets."

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On the central planet, Klim discovers a happy and prosperous utopian land of intelligent, mobile trees. In his subsequent travels around the planet Klim encounters many bizarre varieties of intelligent trees, and each species forms a separate social grouping. It is these sections of the novel that have earned Klim a place in the history of utopia. But in the final sections of the work Holberg turns from utopia and social satire to fantasy: Klim is expelled from the utopian land of Potu to the underside of the earth's crust which is inhabited by many other fantastic creatures,

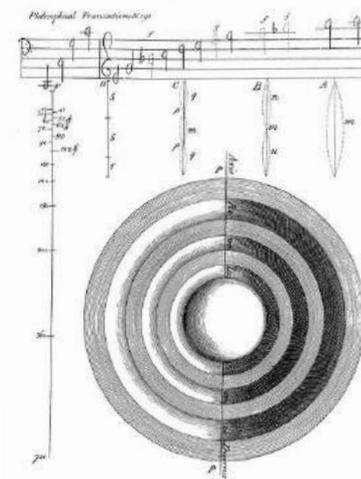
all of which — plant and animal species alike — are intelligent and gifted with speech; and then he discovers a race of human savages, who, of all the creatures of the subterranean world, “alone were barbarous and uncivilized.” Klim takes it upon himself to civilise them, and uses his knowledge to manufacture gunpowder and to conquer all of the countries of the firmament, becoming a tyrant — the “Alexander of the Subterranean world.” When his subjects eventually rebel, he is forced into flight and falls into the same hole through which he had previously fallen, thus returning to Norway.

The Journey of Niels Klim was widely known in the 19th century: the narrator of Edgar Allen Poe’s “The Fall of the House of Usher” includes the “Subterranean Voyage of Nicholas Klimm” among his readings, while the poet Thomas de Quincy began a translation of Klim sometime in the mid-1820s. Giacomo Casanova (better known for his *Memoirs*) wrote a lengthy subterranean utopia — *L’icosameron* (1788) — in which he acknowledges the importance of Holberg’s novel; while Mary Shelly mentions in her diary that she read Klim as she was writing *Frankenstein*. Fictional settings inside the earth can be found

throughout the 19th and 20th centuries —from Edgar Allen Poe’s “Ms. found in a Bottle” (1833) and his unfinished “Narrative of A. Gordon Pym” (1837), through to Edward Bulwer-Lytton’s *The Coming Race* (1871), Edgar Rice Burroughs’ Pellucidar novels, beginning with *At the Earth’s Core* (1922); and more recently there are authors like Raymond Bernard and William Read who continue to argue that the Earth is hollow.

Born in Bergen, Norway at the time of the Dano-Norwegian monarchy, Ludvig Holberg (1684–1754) is probably the most European of Scandinavian writers before Ibsen and certainly the best known; he is often referred to as the “father” of Danish and Norwegian literature. He was a writer, essayist, philosopher, historian and playwright who travelled extensively throughout Europe and is often credited as bringing the Enlightenment to the Nordic countries. In fact, the author of *The Journey of Niels Klim* was far better known for his “Introduction to Natural and International Law” and his theatre (he has been described as the “Moliere of the North”). Like Jonathan Swift’s *Gulliver’s Travels* (1726), Klim is a combination of social satire, utopia and the fantastic. But

Swift’s shipwrecked narrator is a much more familiar (and plausible) utopian narrative device than is Holberg’s imagination of a hollow earth. Holberg never explains who “those men... who hold the Earth to be hollow” are, and none of his critics have been able to identify them. As long as Holberg’s sources continue to be a mystery, *The Journey of Niels Klim to the World Underground* must be considered the first presentation of the idea of the hollow earth. ■



Peter Fitting is professor emeritus of French and Cinema Studies at the University of Toronto. His work has focused primarily on utopian fiction and on 20th century science fiction. In 2004 he published *Subterranean Worlds: A Critical Anthology* (Wesleyan UP).

Have Light Will Travel

by Kirtan Desai

Light beams
traversing parsecs
traveling
through
time.

Deleterious effects of wormholes
testing the limits of the mind.

Where we've gone

it's taken eons — we've felt
death's throes on starships to Orion...

Drowning technicolor dusks and double moons,
tonight, the sky's on fire

...

Supernova!



Kirtan Desai (they/them) is an interstellar fan of science fiction and fantasy who dabbles in writing speculative fiction and poetry. They live with their cat Jonesy and alternate between Earth and Altair VI.



The Pendulum

by

Ray Bradbury

55 **U**p and down, back and forth, up and down. First the quick flight skyward, gradually slowing, reaching the pinnacle of the curve, poising a moment, then flashing earthward again, faster and faster at a nauseating speed, reaching the bottom and hurtling aloft on the opposite side. Up and down. Back and forth. Up and down.

How long it had continued this way Layeville didn't know. It might have been millions of years he'd spent sitting here in the massive glass pendulum watching the world tip one way and another, up and down, dizzily before his eyes until they ached. Since first they had locked him in the pendulum's round glass head and set it swinging it had never stopped or changed.

Continuous, monotonous movements over and above the ground. So huge was this pendulum that it shadowed one hundred feet or more with every majestic sweep of its gleaming shape, dangling from the metal intestines of the shining machine overhead. It took three or four seconds for it to traverse the one hundred feet one way, three or four seconds to come back.

THE PRISONER OF TIME! That's what they called him now! Now, fettered to the very machine he had planned and constructed. A pri—son—er—of—time! A—pris—

on—er—of—Time! With every swing of the pendulum, it echoed in his thoughts. Forever like this until he went insane. He tried to focus his eyes on the arching hotness of the earth as it swept past beneath him.

They had laughed at him a few days before. Or was it a week? A month? A year? He didn't know. This ceaseless pitching had filled him with an aching confusion. They had laughed at him when he said, some time before all this, he could bridge time gaps and travel into futurity. He had designed a huge machine to warp space, invited thirty of the world's most gifted scientists to help him finish his colossal attempt to scratch the future wall of time.

56 The hour of the accident spun back to him now thru misted memory. The display of the time machine to the public. The exact moment when he stood on the platform with the thirty scientists and pulled the main switch! The scientists, all of them, blasted into ashes from wild electrical flames! Before the eyes of two million witnesses who had come to the laboratory or were tuned in by television at home! He had slain the world's greatest scientists!

He recalled the moment of shocked horror that followed. Something radically wrong had happened to the machine. He, Layeville, the inventor of the machine, had staggered backward, his clothes flaming and eating up about him. No time for explanations. Then he had collapsed in the blackness of pain and numbing defeat.

Swept to a hasty trial, Layeville faced jeering throngs calling out for his death. "Destroy the Time Machine!" they cried. "And destroy this MURDERER with it!"

Murderer! And he had tried to help humanity. This was his reward.

One man had leaped onto the tribunal platform at the trial, crying, "No! Don't destroy the machine! I have a

better plan! A revenge for this — this man!” His finger pointed at Layeville where the inventor sat unshaven and haggard, his eyes failure glazed. “We shall rebuild his machine, take his precious metals, and put up a monument to his slaughtering! We’ll put him on exhibition for life within his execution device!” The crowd roared approval like thunder shaking the tribunal hall.

Then, pushing hands, days in prison, months. Finally, led forth into the hot sunshine, he was carried in a small rocket car to the centre of the city. The shock of what he saw brought him back to reality. THEY had rebuilt his machine into a towering timepiece with a pendulum. He stumbled forward, urged on by thrusting hands, listening to the roar of thousands of voices damning him. Into the transparent pendulum head they pushed him and clamped it tight with weldings.

57 Then they set the pendulum swinging and stood back. Slowly, very slowly, it rocked back and forth, increasing in speed. Layeville had pounded futilely at the glass, screaming. The faces became blurred, were only tearing pink blobs before him.

On and on like this — for how long?

He hadn’t minded it so much at first, that first nite. He couldn’t sleep, but it was not uncomfortable. The lites of the city were comets with tails that pelted from rite to left like foaming fireworks. But as the nite wore on he felt a gnawing in his stomach, that grew worse. He got very sick and vomited. The next day he couldn’t eat anything.

They never stopped the pendulum, not once. Instead of letting him eat quietly, they slid the food down the stem of the pendulum in a special tube, in little round parcels that plunked at his feet. The first time he attempted eating he was unsuccessful, it wouldn’t stay down. In desperation he hammered against the cold glass with

his fists until they bled, crying hoarsely, but he heard nothing but his own weak, fear-wracked words muffled in his ears.

After some time had elapsed he got so that he could eat, even sleep while travelling back and forth this way. They allowed him small glass loops on the floor and leather thongs with which he tied himself down at nite and slept a soundless slumber without sliding.

People came to look at him. His eyes studied their curiosity-etched faces, first close by in the middle, then far away to the right, middle again, and to the left.

He saw the faces gaping, speaking soundless words, laughing and pointing at the prisoner of time traveling forever nowhere. But after awhile the town people vanished and it was only tourists who came and read the sign that said: THIS IS THE PRISONER OF TIME — JOHN LAYEVILLE — WHO KILLED THIRTY OF THE WORLDS FINEST SCIENTISTS! The school children, on the electrical moving sidewalk stopped to stare in childish awe. THE PRISONER OF TIME!

58

Often he thought of that title. God, but it was ironic, that he should invent a time machine and have it converted into a clock, and that he, in its pendulum, should mete out the years — traveling with Time.

He couldn’t remember how long it had been. The days and nites ran together in his memory. His unshaven checks had developed a short beard and then ceased growing. How long a time? How long?

Once a day they sent down a tube after he ate and vacuumed up the cell, disposing of any wastes. Once in a great while they sent him a book, but that was all.

The robots took care of him now. Evidently the humans thot it a waste of time to bother over their prisoner. The robots brought the food, cleaned the pendulum cell,



oiled the machinery, worked tirelessly from dawn until the sun crimsoned westward. At this rate it could keep on for centuries.

But one day as Layeville stared at the city and its people in the blur of ascent and descent, he perceived a swarming darkness that extended in the heavens. The city rocket ships that crossed the sky on pillars of scarlet flame darted helplessly for shelter. The people ran like water splashed on tiles, screaming soundlessly. Alien creatures fluttered down, great gelatinous masses of black that sucked out the life of all. They clustered thickly over everything, glistened momentarily upon the pendulum and its body above, over the whirling wheels and roaring bowels of the metal creature once a Time Machine. An hour later they dwindled away over the horizon and never came back. The city was dead.

Up and down, Layeville went on his journey to nowhere, in his prison, a strange smile etched on his lips. In a week or more, he knew, he would be the only man alive on earth.

Elation flamed within him. This was his victory! Where the other men had planned the pendulum as a prison it had been an asylum against annihilation now!

Day after day the robots still came, worked, unabated by the visitation of the black horde. They came every week, brought food, tinkered, checked, oiled, cleaned. Up and down, back and forth — THE PENDULUM!

...A thousand years must have passed before the sky again showed life over the dead Earth. A silvery bullet of space dropped from the clouds, steaming, and hovered over the dead city where now only a few solitary robots performed their tasks. In the gathering dusk the lites of the metropolis glimmered on. Other automatons appeared on the ramps like spiders on twisting webs, scurrying about, checking, oiling, working in their crisp mechanical manner.

And the creatures in the alien projectile found the time mechanism, the pendulum swinging up and down, back and forth, up and down. The robots still cared for it, oiled it, tinkering.

A thousand years this pendulum had swung. Made of glass the round disk at the bottom was, but now when food was lowered by the robots through the tube it lay untouched. Later, when the vacuum tube came down and cleaned out the cell it took that very food with it.

Back and forth — up and down.

The visitors saw something inside the pendulum. Pressed closely to the glass side of the cell was the face of a whitened skull — a skeleton visage that stared out over the city with empty sockets and an enigmatical smile wreathing its lipless teeth.

Back and forth — up and down.

The strangers from the void stopped the pendulum in its course, ceased its swinging and cracked open the glass cell, exposing the skeleton to view. And in the gleaming light of the stars the skull face continued its weird grinning as if it knew that it had conquered something. Had conquered time.

The Prisoner Of Time, Layeville, had indeed travelled along the centuries.

And the journey was at an end. ■



Ray Bradbury was an American fantasy and horror author who rejected being categorized as a science fiction author, claiming that his work was based on the fantastical and unreal. His best known novel is *Fahrenheit 451*, a dystopian study of future society in which books and critical thinking are outlawed.



A New Era

by

Kirtan Desai

63

Ronnie, an athletically built yet mild-mannered accountant, and Brigit, his neighbour, a diminutive housewife, had gathered at a nearby park on a fine summer afternoon to listen to what they assumed would be a mundane government announcement.

They awaited the arrival of their friend Philip, the editor of the community newspaper, whose family they would join for a picnic later that afternoon.

Meanwhile, the crowd gathered, growing into the hundreds.

A short, plump man ascended the podium and launched into a wordy preamble, introducing the new Finance Minister, Earl Hughes, Jr., who was about to deliver his first public announcement.

“Oh, I wish they’d get on with it,” mumbled Brigit under her breath.

Just then, Philip appeared and rushed to take his position among the crowd beside his friends.

“Did I miss anything?” he asked furtively.

“Not really, but what took you so long, mate?” Ronnie’s baritone voice bellowed with its distinct slow intonation.

“Same old — kids got art therapy today and Alice insisted I drop ’em off...”

Just as Philip was about to add more detail to his truthful account of familial responsibilities, the three friends shifted their attention to Earl Hughes Jr., who had stepped up to the podium.

Hughes tapped the microphone gingerly and cleared his throat before he began to speak.

“Ladies and gentlemen, I’m here today to report on the annual revenue from your local mining and refinery operations. Although this year we’ve experienced a severe economic turndown, I’m happy to report that we’ve realized a healthy profit from our revenue streams, all of which has been redistributed to stakeholders in relation to their original investments. The final figure for quarterly profit is three hundred and seventy fi...”

64

Before Hughes could even finish reporting the numbers, the atmosphere suddenly became saturated with boos, hisses, and growls until finally, several objects began to fly in the direction of the podium.

Ronnie looked his two friends in the eye and roared, “This guy’s a lying piece of shit — *he’s hiding something!*”

Enraged, the three friends now joined the crowd relentlessly accosting Hughes. One spectator took off her shoes and threw them at Hughes while another took the microphone and started beating him over the head with it. *Thud, thud, thud* boomed the speakers. Still others launched themselves at Hughes, reaching for his throat, all the while hurling insults and invectives, invariably calling him a liar.

Just then, with a singular motion of his strong arms, Ronnie picked up Brigit and hurled her towards the podium, grinning with delight as the woman flew through the air, defying gravity.

Landing squarely on her feet beside Hughes like a graceful ballerina, Brigit shot a quick nod of gratitude at Ronnie, and in an act quite alien to her character, the petite mother of two children growled fiercely and bit squarely into Hughes' right thigh, refusing to let go even after her mouth had filled with the sticky, salty-sweet blood of her victim.

Soon, she found herself battling others who wanted a piece of Hughes.

•••

Earl Hughes, Jr. was indeed guilty of deceiving the public. After barely fleeing the press conference alive, he confessed that some of the profits from various community projects under his control had ended up in personal, off-shore accounts.

And that wasn't the end of it. He also revealed further troubling truths about himself, from marital infidelity to a shocking admission of sexual depravity and bestiality.

That a corrupt, chronic liar like Hughes could rise to the level of minister was an aberration in the second decade of The New Era, as it was called.

That evening, The Great Saviour, founder of the Truth and Veracity Party, and Supreme Leader, a wise, old, august Sweeni Vlac, now about a decade into his life-term as president, addressed the nation.

He began by boasting, as usual of how he had single-handedly sparked the so-called 'The New Era' that had greatly reduced the levels of dishonesty in society.

In his usual tone, Vlac summarized with great ideological zeal, his 'War on Deception' — the impressive strides that had been made toward honesty since he had been forced, years earlier, to take extreme measures in the face of epidemic levels of corruption and deception.

He also spoke of the work that remained to be done to weed out the various 'Out-liars' among the citizenry, who had somehow managed to evade *the ray*.

•••

The ray...

The ray was a new form of radiation that Vlac claimed to have discovered himself. It could be broadcast at great distances and yet could still be counted on to target particular biological structures, down to a very precise range, as determined by Vlac himself, in this case, the human brain.

It was no secret that by deploying the ray, Vlac had caused widespread brain damage among the public, which had actually been his aim all along — a medium-sized lesion in the left temporal lobe of the cerebral cortex, to be exact, which impacted roughly 96% of the population.

While the effects of the ray had led to some mild to moderate language impairments (along with, in a few cases, much broader cerebral dysfunction), it also gave a majority of people the uncanny, almost superhuman ability to spot a liar from a hundred miles away.

After the ray, not only could citizens detect lies, but their brains were essentially rewired to express uncontrollable violence when they were lied to. The reaction was relative — a harmless white lie might elicit a minor beating whereas a more robust lie or serious forms of deceit would provoke a murderous response, up to an including blind, cannibalistic rage.



Vlac had foreseen that mob rule by legions of angry, human lie detectors would mete out justice more thoroughly and effectively than costly police forces and legal structures with their endless proceedings, inquiries and investigations into uncovering ‘the truth.’

In a way, it was a stroke of genius. Vlac had given the power to the people, but in the process, he had irreversibly damaged their brains!

For 96% of post-New Era citizens, the truth was literally and viscerally self-evident. As such, the old ways would never cut it in The New Era — business and politics were thoroughly revolutionized. Many professions, among them lawyers, telemarketers, marketing execs, public relations personnel, and car salesmen went the way of the dodo.

Almost overnight, the legal and tax codes were abridged from several volumes to a single page.

69 And Vlac wasn’t finished — the case of Earl Hughes, Jr. had ignited a renewed, crusading spirit in the elder statesman and great architect of The New Era.

That night, Vlac spoke of the serious challenge his administration still faced and spoke of his desire to finally bring ‘Out-liars,’ like Hughes, into the fold.

He particularly scapegoated the deaf, because the ray had not impacted their brains the same way, and he pointed out that they could still engage in deception through sign language.

“A handful of deaf have the power to usurp the Truth and Veracity Party’s goals,” he declared, “The deaf must be dealt with swiftly and severely.”

He also noted the advances made by government scientists in perfecting the ray and building more powerful boosters so that dishonesty could, once and for all, be obliterated from society.

Sweeni Vlac’s pictures were plastered everywhere across the land, as were his most famous catchphrases: *Truth over Deception! Liberty through Veracity! Long Live The New Era!*

•••

Kennedy Valdis was at home, timing himself as he dismantled and reassembled his shiny, black Heckler & Koch, MP5K 9mm fully automatic submachine gun, going through his well-timed gestures over and over when he saw a shadowy figure of a person on the other side of his apartment’s frosted glass door.

The shadow bent low, slipped a piece of paper through the gap at the bottom of the door and disappeared.

With a cigarette dangling precariously from his mouth, Kennedy placed the weapon on his coffee table and walked over to the door. He picked up and unfolded the note which, as he immediately noticed, was written in the typical chicken scratch of post-New Era, ray-induced dyslexia:

YUOR ATETNDNACE IS RQEIUERD. A MITING HAS BEEN SHCDELEUD FOR TMOMRORWW AT THE UASUL PLAYSE. BE TEHRE @ TOO PM. WE’LL BE ECXPENTIG U. TURTUHFLULY YORZ...

After he set the note ablaze with a lighter and tossed it into a nearby ashtray, Kennedy crouched down to pet his dog Erebus, a strong, beautiful black Labrador mix. Kennedy ran his fingers firmly through the dog’s warm, thick fur.

Erebus tried to attend to his master as best he could, his tongue dangling out, as usual — he had been hit by the ray as a puppy and suffered serious brain lesions. Years earlier, a few days after the powerful initial ray had struck, Kennedy had found Erebus convulsing on the street, taken him in, and slowly nursed him back to health. Alas, the dog’s attention and motor deficits as well as his periodic seizures would be permanent.

“Good boy,” Kennedy intoned, “If only you had found some shelter before the fuckin’ ray hit... But it’s ok, you’re a good boy, aren’t you?”

Erebus licked the top of his master’s hand, glanced up blankly at Kennedy for a moment, placed his head back on his paws and closed his eyes.

“Motherfuckers,” Kennedy hissed under his breath, “Fuck Sweeni Vlac and his War on Deception.” Just then, Erebus turned on his side and began to convulse, his eyes rolling backwards.

“It’s ok, boy, it’s just another seizure — it’ll be over soon,” Kennedy soothed Erebus and tried his best to stabilize him as uncontrollable muscle movements rippled through his little body, making the dog bounce like a drop of water on a hot skillet.

•••

71

The next day, Kennedy went to the meeting place as instructed. It was the basement of an abandoned church, on the outskirts of the city.

Naturally, since the beginning of The New Era, churches had been abandoned. Honest priests were mostly spared, given only minor beatings for their lies about God and faith, and they were permitted to find another occupation, whereas the chronically dishonest priests met the gruesome fate of being torn to pieces by their congregation on the first Sunday after the ray had been deployed. Either way, churches no longer held a claim to truth, no more than the courts, both made redundant by Sweeni Vlac’s powerful ray.

This particular church was now the temporary headquarters of the group that Vlac referred to as ‘The Out-liars,’ consisting of those who had managed to protect themselves from the ray.

Trying his best to go unnoticed, Kennedy skipped over a

fence and walked through a cemetery before finding himself at the backdoor of the rather imposing stone structure.

When Kennedy approached, the large oak door swung open and he was quickly ushered to the basement by a guard.

“Are you armed?” asked the guard.

“Yes,” replied Kennedy, “Just a sidearm, and this...” said Kennedy, pointing to his right fist with his left index finger.

“I was asked not to take any chances, Mr. Valdis,” was the guard’s retort. “Fine, take it,” Kennedy shot back as he handed the man his pistol.

After he was waved through, another set of heavy wooden doors were opened to reveal a grand salon with a checkered floor, surrounded by large, heavy stone columns.

On the wall behind the table was a quote from Hesiod’s *Theogony*, inscribed into a hanging wooden plaque and boldly written in proper, pre-New Era script:

“Shepherds of the wilderness, wretched things of shame, mere bellies, we know how to speak many false things as though they were true; but we know, when we will, to utter true things.”

“Have you seen the view from atop Mount Ida, Noble Shepherd?” a female voice called out, trying to announce the words, despite profound deafness.

“I have, but I don’t like the air up there,” Kennedy verbalized, “Too thick with rays!”

“You didn’t recognize me, my dear child?” the woman asked, now signing her words with her hands as she emerged from the shadows.

The woman, who was dressed in flowing gold and purple robes, now extended her arms, inviting Kennedy to embrace her.

72



“Alethea! My goodness, the years have been kind to you!” Kennedy started gesturing in sign language, his hands moving frantically.

“Don’t mock me, young man!” Alethea responded in sign, smiling, the creases on her face and blotches on her rapidly signing hands revealing her advanced age.

She briefly disengaged from the hug, grasping Kennedy by both his arms, smiling as she looked him up and down, and then pulled him back in for a tighter embrace.

“You’ve grown even stronger,” she signed when they disengaged again.

“Well, it’s been a while since you’ve seen me,” Kennedy moved his hands to express himself.

“From the moment I covered your head with ‘The Cloak of Thoth,’ I knew you would be the prodigal son!” Alethea beamed.

“I can never forget that day, seven years ago when I first laid eyes on you,” she signed, “The image of you, an awkward teenager wandering the streets, totally unaware of the ray that was about to scorch your cerebral cortex... Your image was, oddly, one of defiance mixed with innocence in the face of unspeakable barbarity.”

“You saved me from the ray, Alethea, there’s no doubt about that — my neurons are eternally grateful!” Kennedy smiled and bowed gallantly.

“And what beautiful neurons you must have, my child!” declared Alethea.

“Come, I want you to meet someone,” she signed while leading Kennedy towards the front of the room.

“Kennedy Valdis, this is Yu Li Ying, from the Han Confederacy. He’s not familiar with sign language.”

“Call me Tommy,” said the man, extending his hand.

Another man interpreted what the man was saying in sign language for Alethea.

“Yu Li Ying? Tommy?... ‘*You lying to me?!*’” Are you kidding me?!” Kennedy exclaimed.

“That’s not actually my name,” the man shot back, throwing hands up in innocence.

“Well done, my child — his name was intended as a test,” exclaimed Alethea, “Forgive me!”

“You must understand, we can’t take any chances these days,” she signed to Kennedy passionately, “If you had been exposed to any booster rays that Vlac likes to dispense randomly at concerts and other gatherings, you would have tried to attack our guest and your brain wouldn’t even have been able to figure out a simple pun like that — we had to make sure you hadn’t been compromised.”

“I see,” signed a mildly dejected Kennedy, holding out a ‘Y’ hand with the wrist tilted slightly backward, palm pointing forward, moving his hand downward a bit forward then back up and down again, the distance of his hand from his body revealing the fact that he had acquired sign language later in life.

...

“Tommy has taken great personal risks to find us,” Alethea signed to Kennedy, “Nevertheless, I’m not sure I can say that I trust him just yet...”

“Yes, Tommy is my real name,” assured the man, “I *am* from the Han Confederacy and I come in peace.”

“Well, for one thing, there are no foreigners allowed in Vlac’s kingdom, unless they agree to be zapped — and who the fuck would want that?” Kennedy barked, still a bit annoyed

that he had been put to a test.

“That’s easy... I snuck in. In fact, there are many ways of entering and exiting Vlac’s fortress without being caught by the ray at the border provided you put your mind to it,” said the man, pointing to his head with his index finger.

“Luckily for him, one of our people found him before he got himself into any trouble,” Alethea signed, dismissively nodding her head in Tommy’s direction.

“As I told Madame Alethea, I have verifiable intelligence that Sweeni Vlac is planning to deploy his ray on a global scale. We’ve intercepted dialogues between Vlac’s Truth and Veracity Party and upper level officials in the Han Confederacy — we believe some of our people have somehow been *converted* to Truthism. My mission was to sneak in, notify you, and offer any assistance I could.”

“How can we be sure that Mr. ‘You Lyin’ Tommy’ over here isn’t actually leading us on?” Kennedy signed to Alethea.

“Bring out The Numbskulls!” Alethea commanded with a flourishing of her hands, putting her hand up to her ear and waving it side to side to indicate who she was referring to.

In a matter of seconds, guards paraded out several undernourished, pathetic looking, heavily chained individuals who had been exposed to the heaviest of Vlac’s ray and suffered the most horrendous physical disfigurements combined with severe brain injury.

“Human lie detectors,” Alethea signed with disgust, “Although they’re repulsive and antithetical to all that we stand for, we keep a few on hand for exactly these types of situations.”

“Oh shit!” Kennedy reeled, unable to look at them.

“Now, Tommy, please tell us everything, from the beginning, if you will,” Alethea managed to intone clearly despite her

profound deafness signing simultaneously from habit, “As you can see, lying is not an option. Be forewarned, should you bend the truth in the slightest, you will find yourself locked in a small room with these monstrous — and very hungry — Numbskulls!”

“I have absolutely no intention to deceive you,” responded Tommy, unfazed by The Numbskulls.

•••

“So, I suppose he was telling the truth,” Kennedy signed to Alethea, reluctant to fully accept the verdict delivered by the group of drooling Numbskulls who had remained serene throughout Yu’s informal deposition.

“Unless he’s found a way to fool our Numbskulls,” Alethea signed back, lifting a contemplative eyebrow.

77 “Vlac needs to be stopped,” Kennedy stressed, “We can’t allow that madman to expose innocent people in other countries to his fucking ray.”

“I’m glad to hear you say that, my child. We’ve been training you all these years for this moment — you need to storm the Central Command Complex and take out Vlac, once and for all.”

“I thought you’d never ask!” Kennedy signed gleefully.

“There’s no one else who can pull this off, my child — all our hopes rest on you.”

“I’ve been looking forward to this day,” Kennedy smiled.

“I don’t need to tell you how deranged Vlac is. You saw what he did to Earl Hughes, Jr..”

“Hughes?”

“Yes, Hughes wasn’t one of us, you know that don’t you? He

was set up by Vlac.”

“I had an inkling. But how the fuck could he have been set up?”

“We think Vlac might have a ray that can reverse the brain damage,” Alethea signed, “And he uses it on his high level officials... He needs sacrificial lambs and places an army of buffers between himself and the people to cover his own deception.”

“Well, that was a real win for Vlac,” Kennedy signed back, “Not only did he frame Hughes for embezzling money that was destined for his own accounts, he also used Hughes to launch a crusade against us and justify further deployments of the ray.”

“Excellent, my child, you’ve figured it out! But the events also raise a complication,” Alethea signed with her hands, “After the Hughes debacle, they’ve placed brain scanners in all public buildings and they’re checking everyone to make sure their left temporal lobe is thoroughly scarred.”

78

“That’s not good.”

“Fortunately for us, our new friend from the Han Confederacy has brought us a nifty piece of technology that can fool the scanners... However, it will require some minor brain surgery, Kennedy — I hope you’re okay with that.”

“Oh sure, implanting foreign technology into my brain, what could go wrong?!” Kennedy signed while smiling playfully, “Let’s go for it!”

“I’m leaving you in the capable hands of our doctors — the only medics left in the land — I trust them with my life, and so should you.”

And with that, Alethea turned and walked out of the room.

•••

“Mr. Valdis, wake up!” Kennedy heard the phrase being repeated, chiming and echoing through his brain.

“The surgery was a success,” the doctor grinned, “Your reflexes seem fine and I’ll need to give you a verbal and written test to make sure your language skills are intact, but it seems everything is in order.”

“Great, doc, but I’m still a bit disoriented.”

“That’s just a side effect of the anesthesia — should be gone in a few minutes,” said the doctor, “Now, Mr. Valdis, even though the surgery went well, we can’t be certain that the device will fool the scanners. You see, we don’t have any of their machines here to do a test run.”

“If Tommy says it’ll work, then it’ll work,” Kennedy replied, recalling Tommy’s honest testimony in front of The Numbskulls.

79 “Amazing piece of technology, really,” said the doctor.

Kennedy, noticing the scan on the wall, asked, “Is that my brain scan?”

“Indeed it is,” the doctor explained, “You see the dark patch over here on the left hemisphere — that’s the lesion Vlac’s ray produces,” said the doctor.

“And notice here,” he continued, “the thickened nerve projections into the amygdala, in the limbic system... Even though you haven’t been zapped, the device we implanted at the base of your skull fools all types of scanners to display the telltale scars of the ray, fortunately, without the horrific behavioural side-effects.”

“I’ve always wondered, doc — how does a black spot on the brain turn people into raving, cannibalistic lunatics when they hear a lie?”

“Well, that’s easy,” replied the doctor, “When we listen to

spoken language, our brains try to make sense of the words, which drowns out the tonal quality of what’s being said. Vlac’s ray scars the language comprehension areas, amplifying the tonal qualities of what people hear, allowing them to detect the subtle tonal trademarks of a lie. And with the thickening of associative pathways into the midbrain, this brings out uncontrollable, animalistic rage in a person when they’re lied to.”

“*‘The ray of truth will set you free,’* that’s how Vlac describes it, doc!” cackled Kennedy with sarcasm.

“The ray is a devious and very specific method of mutilating the human brain, Kennedy. And to do it to millions, without accounting for differences in brain size and unique morphology of cerebral sulci and gyri, causing widespread damage... Well, that’s just criminally insane.”

As if on cue, Alethea walked into the recuperation area where Kennedy was now sitting up on the edge of his hospital bed, nurses removing various tubes from his body.

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“I was told the surgery went well,” she signed.

“I’m good to go,” declared a triumphant Kennedy.

“There’s a final bit of training that you require before embarking on this mission, my child,” Alethea added, “Once you’re finished here, I’ll be waiting for you downstairs.”

•••

“We’ve spent years developing this device,” Alethea confided to Kennedy.

“We call it ‘The Simulatrix,’” she explained, spelling out the letters one by one in sign language, her eyes pointing to a helmet studded with electrodes attached to a box, “When you put this on, you will enter Vlac’s brain and get a glimpse of how his twisted mind works — you will gain access, albeit briefly, to his memories and innermost thoughts.”

“You will need this knowledge to *outsmart* him,” she added with emphasis.

With that, she placed the helmet gently on Kennedy’s head and instructed him to relax.

“Just sit back, my child, the machine will do the rest. When you’re done, a car will come for you and take you to Vlac’s compound in the Central Command Complex.”

With that, Alethea kissed Kennedy delicately on the cheek and wished him luck, “The next time we meet, this fucking New Era will be over,” she signed, “It will remain only as a nightmare in our collective memories.”

“Either that or I’ll be dead,” signed Kennedy, eliciting a frown from Alethea.

“I will not let you down,” he corrected, moving his fingers and hands deftly to express himself, as his eyes went blank and he fell deeply into the abyss of Vlac’s convoluted mind.

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Hours later, a dark sedan dropped Kennedy off at the Central Command Complex. Kennedy exited the vehicle calmly, heading straight for the main doors.

Once inside, he found himself in an expansive atrium humming with activity.

He took a moment to look around while trying not to appear conspicuous. On the main wall, written larger than life in Latin was the phrase, *Veritas radium mea* — ‘The truth is my ray.’ The phrase was flanked by The Truth and Veracity Party’s emblem, a red satellite dish aimed at the sky.

All the other signs in the building were written in the regular, post-ray dyslexia.

Kennedy proceeded directly to the security checkpoint to

gain access to the Truth and Veracity Party’s inner sanctum.

“We’re required to ask, have you had any brain surgery recently?” asked a guard.

Kennedy was stunned by the question. He knew the guards were dimwits, selected for their ferocity when confronted with a lie, but he was half certain he’d be found out if he were questioned deeply.

“Brain surgery?” he parroted the guard, incredulously.

A few more guards wandered over, probably sensing the faint tones of deceit in the air, surrounding Kennedy in a semi-circular fashion.

Just then, to the side, a man who had just been caught in a serious lie seconds ago was being devoured by guards, each one taking turns biting his flesh, causing spurts of fresh, crimson arterial blood to splatter everywhere. A few of the guards who had come to screen Kennedy drifted off to take in the grisly scene, which gave them a perverse sense of pleasure.

That unfortunate man, now on his way to a painful martyrdom, was no doubt sent by Alethea to serve as a distraction.

Kennedy mumbled a soft ‘thank you’ under his breath to his guardian angel — Alethea could help him up to this point, but from now on, Kennedy would be on his own.

“In answer to your question, officer,” Kennedy said coolly, regaining the guards’ attention, “You know very well that practically no one has the ability to perform such complex medical procedures in our glorious New Era.”

That seemed to do the trick.

The remaining guards began to calm down when he

responded with simple truisms.

Fuck it, Kennedy thought to himself, from now on it nothing but the truth.

“What’s the purpose of your visit?” another guard snarled.

“I’m here on an important mission — and after I’m done, our country will be a much better place,” Kennedy replied.

The guards relaxed some more.

“One final question — are you in possession of any arms?”

“Absolutely,” Kennedy said, pointing to his left and right fists, in turn with the index finger of his opposite hands.

The guards laughed and drooled a bit, ultimately waving him through, commanding him to move along.

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Once inside the labyrinthine complex, Kennedy found he could navigate the corridors easily thanks to having experienced a simulation of Vlac’s mind.

He made his way directly to Vlac’s office on the top floor, easily passing through another checkpoint by telling the truth that he was there to complete a critical mission.

When he arrived outside Vlac’s office, Vlac’s male secretary asked if Kennedy had an appointment.

With great dexterity and swiftness, Kennedy grabbed the back of the secretary’s head and smashed it into the desk, rendering him unconscious. Then he tied the man up, gagged him, and shoved him into a supply closet.

For Kennedy, the moment of truth had arrived — Sweeni Vlac was behind the next set of doors.

Kennedy kicked the doors open and stormed in.

He immediately recognized the skinny figure of the frail dictator standing behind his desk looking out the window, his back turned to Kennedy.

“I was expecting you,” Vlac said, enunciating the words slowly and deliberately, “I’m not armed — you wouldn’t shoot an unarmed man in the back, would you, Mr. Valdis? ...Much less the Supreme Leader and Great Saviour of this nation?”

“Your scanners are good, but your info was received just a tad too late, otherwise I wouldn’t be holding you at gunpoint,” said Kennedy, “Now move away from the desk and come around to this side!”

“I suppose there is no use reasoning with you, pointing out the strides we have made in creating a truthful society. I suppose you want to throw that all away — typical anarchist that you are, insolent *Out-liar*.” Vlac hissed like a snake.

“You’re right, asshole, there’s no point,” Kennedy glared, “I won’t be swayed by your highbrow, Truthist bullshit. All I need are my two eyes to see the damage you’ve done to the people down there.”

“This is where your little misadventure ends, anarchist!” Vlac declared.

A sudden flash of metal in Vlac’s hand made Kennedy instinctively dive behind a heavy column, but he was a millisecond too late — the ray had grazed him and he felt a faint numbness at the base of his skull.

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“The brain wars have hardly begun! My ray will redefine humanity in ways that an insignificant, mendacious rebel like yourself can hardly imagine, fool!” Vlac yelled, pointing the ray gun at Kennedy.

Kennedy raised his arms to protect his face.

“You should’ve shot me when you had the opportunity, you degenerate anarchist,” said Vlac menacingly, “Now tell me, vermin, who sent you here and where are your fellow Out-liars hiding!?”

“Or what!? You gonna eat me?” Kennedy spat blood, lowering his arms.

“See this weapon in my hand? Another shot from it will turn you into a dribbling idiot,” Vlac hissed.

Just then, Vlac’s guards entered the office, weapons ready.

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“I’ll handle this scumbag myself,” Vlac turned his head to yell in their direction.

Before anyone could act, however, Kennedy’s dog Erebus burst through the door growling and latched his jaws onto one of the guard’s arms, bringing him down.

Taking advantage of the distraction, Kennedy swivelled on his back, executing a type of break dance maneuver, and with a swift, singular movement, retrieved his machine gun and began to spray the guards with bullets.

The guards fell, one by one.

Then he jumped up onto his feet and kicked the ray gun out of the aging dictator’s hand.

Kennedy looked Vlac in the eye and delivered a powerful



punch to his face, knocking him out cold.

Finally, he called Erebus over and pet his dog vigorously, “Good boy!” he exclaimed.

“But I know I got you once with my ray,” Vlac managed to say as he regained consciousness, still in a partial daze.

“The implant protected me,” Kennedy replied, “You have some powerful enemies in the Han Confederacy and they are even more committed than your enemies here.”

“The Han — they’re animals,” Vlac spewed.

After a bit of a struggle, Vlac suddenly realized that he was restrained in his desk chair — Kennedy had tied him down tightly.

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87 Kennedy walked over to a television camera in Vlac’s office and flipped the switch, making the cameras go live, instantly broadcasting to every TV set in the realm.

“You’re a snake Vlac, and now everyone’s going to see exactly what you really are...”

“Fuck you, you dishonest, *Out-liar* piece of shit!” Vlac managed, spit flying from his mouth like venom.

“We’ll see who’s the dishonest one,” Kennedy said, looking directly at the lens of the camera. “The people love me — I’m their Supreme Leader!” screamed Vlac.

“Then, won’t you tell the good people, Supreme Leader, about your secret bank accounts under various aliases,” Kennedy demanded.

“Secret what!? What accounts?”

“Tell them your real name, then — it’s Calvin Eews! Sweeni

Vlac is merely your name read backwards! No one noticed that clever lie, because technically, it’s not really a lie.”

“No!”

“You’re no scientist — you were a preacher before you became ‘Supreme Leader!’ That’s right, Calvin, tell them how you stole the plans of the ray and killed the originators, who were planning to use it to heal people!”

“You are insane!”

“How about telling the people about all your mistresses and how you have been deceiving your wife!”

“Absurd!”

“Tell them that you can reverse the effects of the ray from those you see fit and use them to get what you want!”

Vlac was silent this time.

“Go on, tell the people how you used Earl Hughes Jr. to line your own pockets!”

“I did no such thing,” Vlac mumbled.

After this final denial, one of Vlac’s guards, barely alive and bleeding profusely, became enraged and began to slowly claw his way towards Vlac, intending to attack him.

Kennedy stood over the guard and put him out of his misery with a clean shot between the eyes.

•••

“You see, it’s no use, Vlac,” said Kennedy, turning to Vlac, “The whole world is watching and you’re sending unconscious signals despite your best efforts — the emperor is naked and your human lie detectors know that you’ve been deceiving them!”

88

“Now, tell the people how you never used the ray on yourself, you cowardly, hypocritical scumbag,” commanded Kennedy.

“I did, but I did — I was the first guinea pig... to — to — to prove its safety and efficacy!” Vlac squirmed.

“Well, in that case, I was among the first group of men to set foot on the moon,” said Kennedy.

“What? What are you talking about?”

“Yes, my mother was Mona Lisa; she was a model and she posed for DaVinci,” Kennedy continued, telling one obvious lie after another.

Vlac smiled nervously, “I don’t see what you’re getting at,” he said.

“I just lied to you, twice! And they were big lies!” Kennedy responded, “And you didn’t even flinch — admit that you’re a fraud and you might leave this room alive.”

“I’m finished,” said Vlac, hanging his head low.

Vlac followed this up with a final, pusillanimous attempt to escape his fate: “Listen, I’ll make you the new Minister of Truth — it seems you’re a decent person!” he told Kennedy, his eyes begging for mercy, “You can have all the money you want!”

Kennedy let out a hearty laugh.

“It’s over, Vlac. If you want to avoid a slow, agonizing death at my hands, you’re going to tell me what I need to do to reverse the brain damage caused by the ray,” Kennedy demanded.

After Vlac had told him what he needed to know, Kennedy guided him down the halls of the Central Command Complex and brought him outside, where a large crowd had gathered, growling.

“After I’m done here, I’m going to reverse the polarity of the ray and heal the people whose brains you’ve damaged,” said Kennedy turning to Vlac, “But I’m afraid the end of the New Era won’t arrive fast enough to save your worthless ass!”

With that, Kennedy threw the dictator into the crowd, watching with satisfaction as he was torn to pieces by monstrous human lie detectors of his own making. ■



Frolicsome Engines:

The Long Prehistory of Artificial Intelligence

by

Jessica Riskin

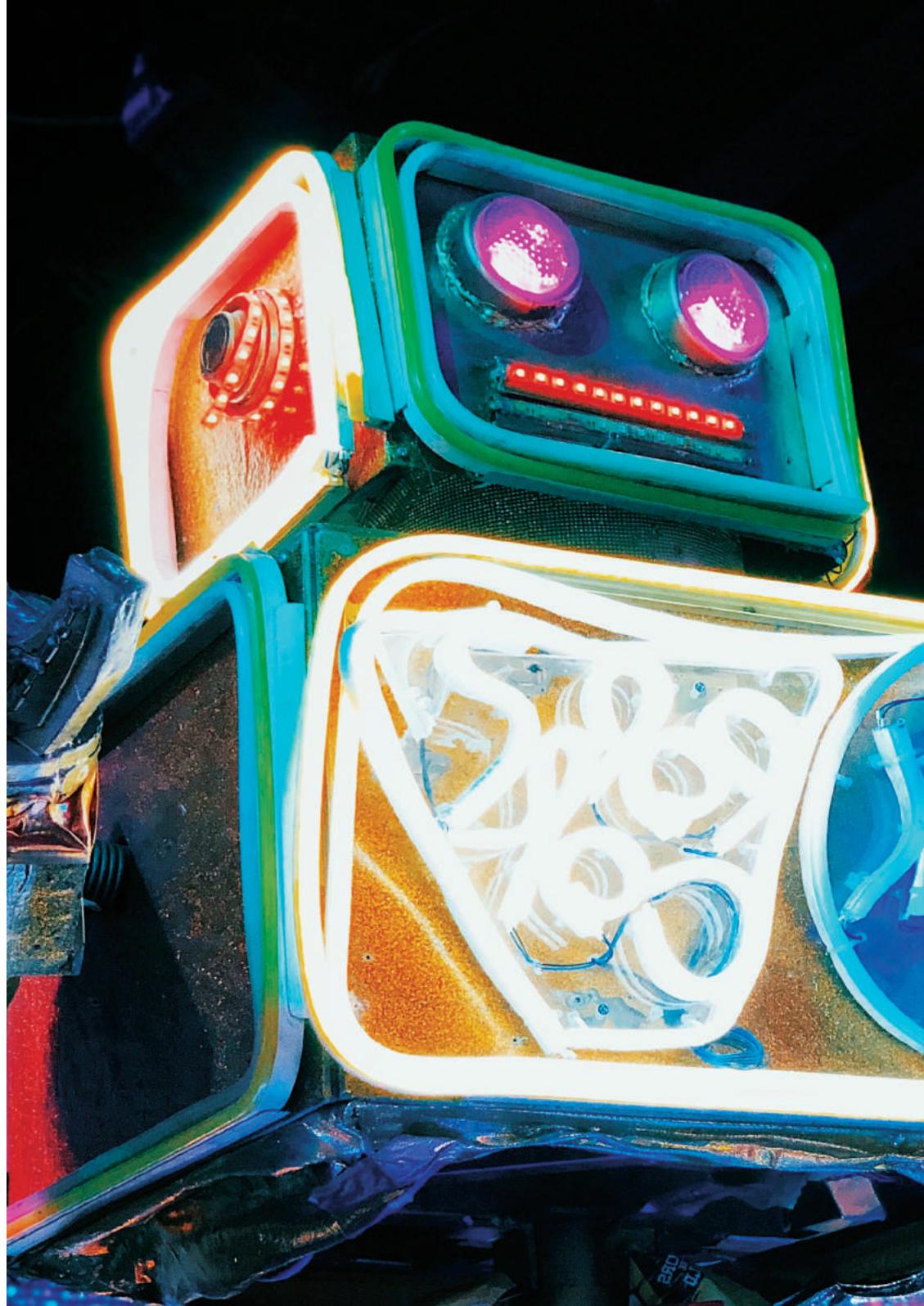
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How old are the fields of robotics and artificial intelligence? Many might trace their origins to the mid-twentieth century, and the work of people such as Alan Turing, who wrote about the possibility of machine intelligence in the '40s and '50s, or the MIT engineer Norbert Wiener, a founder of cybernetics. But these fields have prehistories — traditions of machines that imitate living and intelligent processes — stretching back centuries and, depending on how you count, even millennia.

The word “robot” made its first appearance in a 1920 play by the Czech writer Karel Čapek entitled *R.U.R.*, for *Rossum’s Universal Robots*. Deriving his neologism from the Czech word “*robota*,” meaning “drudgery” or “servitude,” Čapek used “robot” to refer to

a race of artificial humans who replace human workers in a futurist dystopia. (In fact, the artificial humans in the play are more like clones than what we would consider robots, grown in vats rather than built from parts).

There was, however, an earlier word for artificial humans and animals, “*automaton*,” stemming from Greek roots meaning “self-moving.” This etymology was in keeping with Aristotle’s definition of living beings as those things that could move themselves at will. Self-moving machines were inanimate objects that seemed to borrow the defining feature of living creatures: self-motion. The first-century-AD engineer Hero of Alexandria described lots of automata. Many involved elaborate networks of siphons that activated various



actions as the water passed through them, especially figures of birds drinking, fluttering, and chirping.

The siphon would have had a particular attraction to the ancient automaton-maker, in that it makes water travel upward, counter to what it would otherwise do. According to Aristotle, while living things moved themselves at will, inanimate things moved according to their natures: heavy things, made of earth or water, descended, while light things, made of air or fire, ascended. A siphon, by allowing water to ascend, appears to violate Aristotle's principle, and it also tends to work intermittently, creating the illusion of wilful behaviour.



Waterworks, including but not limited to ones using siphons, were probably the most important category of automata in antiquity and the middle ages. Flowing water conveyed motion to a figure or set of figures by means of levers or pulleys or tripping mechanisms of various sorts. A late twelfth-century example by an Arabic automaton-maker named Al-Jazari is a peacock fountain for hand washing, in which flowing water triggers little figures to offer the washer first a dish of perfumed soap powder, then a hand towel.

Such hydraulic automata became ubiquitous on the grounds of palaces and wealthy estates. So-called "frolicsome engines" were to be found as early as the late thirteenth century at the French chateau of Hesdin, the account books of which mention mechanical monkeys, "an elephant and a he-goat." Over the next two centuries, the chateau collection expanded to include "3 personages that spout water and wet people at will;" a "machine for wetting ladies when they step on it;" an "engien [sic] which, when its knobs are touched, strikes in

the face those who are underneath and covers them with black or white [flour or coal dust];" a "window where, when people wish to open it, a personage in front of it wets people and closes the window again in spite of them;" a "lectern on which there is a book of ballades, and, when they try to read it, people are all covered with black, and, as soon as they look inside, they are all wet with water;" a "mirror where people are sent to look at themselves when they are besmirched, and, when they look into it, they are once more all covered with flour, and all whitened," and so on, and so on.

By the time the French essayist and diarist Michel de Montaigne went traveling through Europe in 1580–81, hydraulic automata had grown so commonplace that he grew bored, though he continued dutifully to record them in his travel diary. At one palace, for example, he saw sprays of water from "brass jets" activated by springs. "While the ladies are busy watching the fish play, you have only to release some spring: immediately all these jets spurt out thin, hard

streams of water to the height of a man's head, and fill the petticoats and thighs of the ladies with this coolness."

Twenty years later, the French King Henri IV hired the Italian engineer Tomaso Francini to build him some waterworks for the royal palace at Saint Germain en Laye. Francini built hydraulic grottoes devoted to the Greek pantheon and their adventures: Mercury played a trumpet and Orpheus his lyre; Perseus freed Andromeda from her dragon. There were automaton blacksmiths, weavers, millers, carpenters, knife-grinders, fishermen, and farriers conducting the obligatory watery attacks on spectators.

Even more than in royal gardens and on noble estates, medieval and early Renaissance automata appeared in churches and cathedrals. Automaton Christs — muttering, blinking, grimacing on the Cross — were especially popular. A mechanical Christ on a crucifix, known as the Rood of Grace, attracted pilgrims to Boxley Abbey in Kent

during the fifteenth century. This Jesus “was made to move the eyes and lipps by stringes of haire.” The Rood could move its hands and feet, nod its head, roll its eyes, and show “a well contented or displeased minde: byting the lippe, and gathering a frowning, forward, and disdainful face, when it would pretend offence: and shewing a most milde, amiable, and smyling cheere and countenance, when it would seeme to be well pleased.”

Mechanical devils were also to be found. Poised in sacristies, they made horrible faces, howled, and stuck out their tongues. The Satan-machines rolled their eyes and flailed their arms and wings; some even had moveable horns and crowns.

The Florentine architect Filippo Brunelleschi even mechanized Paradise itself: “a Heaven full of living and moving figures could be seen as well as countless lights, flashing on and off like lightning.” While elsewhere, elaborately engineered hells rumbled with thunder and flashed with lightning, spewing forth writhing automaton serpents and dragons.



These machines helped inspire the idea that perhaps automata accomplished something deeper than merely entertaining tricks: perhaps they genuinely modelled the workings of nature. The French philosopher René Descartes made this case powerfully during the 1640s, arguing that the entire world, including living bodies, was essentially machinery composed of moving parts and could be understood in just the way a clockmaker understands a clock. His work was foundational to modern science in general, and to modern physiology in particular. In developing his mechanist model of science, Descartes invoked the lifelike

machines all around him. Indeed, he lived for a time in Saint Germain en Laye and almost certainly visited the hydraulic grottoes of Henri IV, which he described in detail.

With the sixteenth-century advent of the pinned cylinder — a barrel with pins or bars sticking out, such as in a music box — even more complex lifelike machines were possible. Around this time, a new word also arose to describe human-like machines in particular: “android,” derived from Greek roots meaning “man-like.” This was the coinage of Gabriel Naudé, French physician and librarian, and personal doctor to none other than the automaton-loving Louis XIII.

Pinned cylinders were the programming devices in automata and automatic organs from around 1600. In 1650, the German polymath Athanasius Kircher offered an early design of a hydraulic organ with automata, governed by a pinned cylinder and including a dancing skeleton.

Of course, it’s an anachronism to call sixteenth- and seventeenth-century pinned

cylinders “programming” devices. To be sure, there is a continuous line of development from these pinned cylinders to the punch cards used in nineteenth-century automatic looms (which automated the weaving of patterned fabrics), to the punch cards used in early computers, to a silicon chip. The designers of the automatic loom used automata and automatic musical instruments as their model; then Charles Babbage — the English mathematician who designed the first mechanical computers during the 1830s, the Analytical and Difference Engines — in turn used the automatic loom as his model. Indeed, one might consider a pinned cylinder to be a sequence of pins and spaces, just as a punch card is a sequence of holes and spaces, or zeroes and ones. However, it is important to remember that neither Babbage, nor the designers of the automatic loom, nor the automaton makers thought of these devices in terms of programming or information, concepts which did not exist until the mid-twentieth century. For example, ideas about the division of labor inspired the automatic looms of the

Industrial Revolution as well as Babbage's calculating engines — they were machines intended primarily to separate mindless from intelligent forms of work.

With pinned cylinders, beginning in the early part of the eighteenth century, people began to design automata that actually enacted the tasks they appeared to perform. The first simulative automata were designed in the 1730s by a Frenchman named Jacques Vaucanson, and quickly became the talk of Europe. Two were musicians, a "Piper" and a "Flutist." The flutist had lips that flexed in four directions, delicate jointed fingers, and lungs made of bellows that gave three different blowing pressures. It was the first automaton musician actually to play an instrument, rather than being a music box with a decorative figure. It played a real flute: you could even bring it your own.

Vaucanson's third automaton was the notorious "Defecating Duck." While it flapped its wings and cavorted duckishly, its main attraction was that it swallowed bits of corn or grain and excreted them at the other end in a changed form.

(This part of the act was a fake: the corn that went in the front remained hidden for surreptitious removal, while the rear end was preloaded).

Although none of Vaucanson's automata survive, their cousins do. Among these are three androids designed in the 1770s by a Swiss clock-making family named Jaquet-Droz: a lady "Musician" and two little boys, a "Writer" and a "Draughtsman." The "Writer" can be arranged to write any message of up to forty characters; the "Draughtsman" sketches four pictures in charcoal; and the "Musician" plays several airs on a harpsichord. The trio are eerily lifelike, and still hold court in Neuchatel, Switzerland. Their eyes follow their fingers as they work, the "Draughtsman" blows the charcoal dust from his page periodically, and the "Musician" seems to sigh with emotion as she plays (she actually breathes for an hour before and after the act, giving spectators a certain frisson as they arrive and depart).

Later on in the eighteenth century, engineers and automaton makers became concerned with trying to mechanize two processes deemed the epitome of living

intelligence: speech and chess playing. A flurry of talking heads in the 1770s, '80s and '90s was triggered by a prize competition sponsored by the St. Petersburg Academy of Sciences for a machine that could produce the sound of vowels. People went far beyond just vowels. A Frenchman named Mical designed a pair of talking heads in 1778.

They contained "artificial glottises arranged over taut membranes," but their dialogue in praise of Louis XVI was rather dull: "The King gives Peace to Europe," intoned the first head; "Peace crowns the King with Glory," replied the second; and so on.

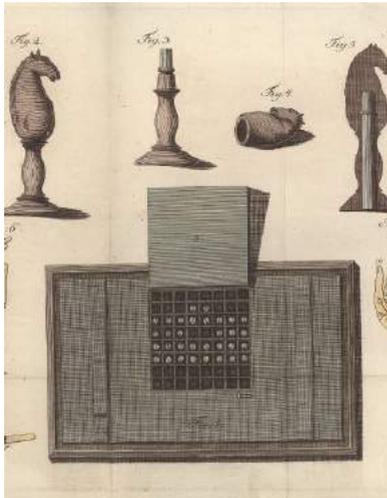
About a decade later, a Hungarian engineer named Wolfgang von Kempelen designed a speaking machine using an ivory glottis, bellows for lungs, a leather vocal tract with a hinged tongue, a rubber oral cavity and mouth, and a nose with two little pipes as nostrils. Its pronouncements were more whimsical than those of Mical's talking heads: "my wife is my friend," for example, and "come with me to Paris."

Kempelen was more famous

for another "automaton" that he designed and built in 1769, the chess-playing Turk. This life-sized model was exhibited all over Europe and America by Kempelen himself and then by others until its demise in a fire in 1854; in the course of its long career, reportedly beating both Napoleon and Charles Babbage. Although aspects of its movement — the motion of the arms, head, etc. — were mechanical, it was not, of course, a full automaton. The crucial chess-playing aspect was the work of a succession of skillful and diminutive human chess players concealed in its pedestal, something all but admitted by Kempelen, who said his main achievement had been to create an illusion. People no doubt knew it was a hoax, but they were fascinated anyway, because it dramatized the question of the age: whether a machine could reason, and relatedly, whether the human mind might itself be a kind of machine.

Edgar Allan Poe was taken by the question and in 1836 wrote an essay about Kempelen's Turk and Babbage's Difference Engine. He believed a machine could calculate, because calculation was a fixed and determinate

process, but not that a machine could play chess because, he said, chess was indeterminate: the machine would have to respond to its opponent's moves. So Babbage's machine was genuine but Kempelen's fraudulent.



droid musicians, artists, writers, and talking heads of the eighteenth century? They can certainly be seen as the ancestors of modern projects in robotics and artificial intelligence. But they were also expressions of a very different mode of understanding. Rather than embodying the concepts of programming, feedback, or information so important today, they were born from other ideas: animate versus inanimate matter, wilful versus constrained motion, mindless versus intelligent labor. It is hard to imagine that our own conceptual frameworks will one day seem as remote and exotic as an Aristotelian account of Hero's siphons seems to us, but they surely will. Can knowing this perhaps help us to imagine what might come to replace information, programming, and feedback as the key concepts for understanding life, sentience, mechanism, and mind? ■

How should we regard Hero of Alexandria's siphon-driven birds, the medieval automaton Christs, the Renaissance frolicsome engines, the an-

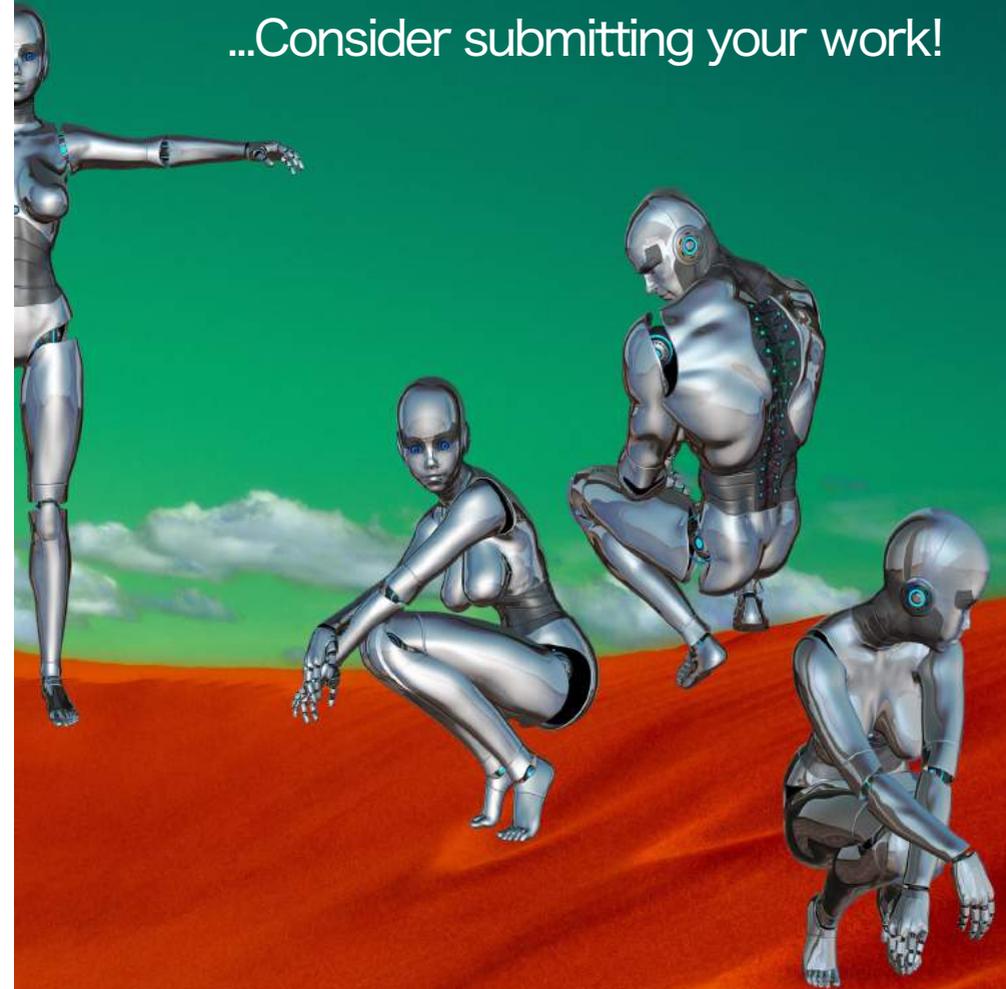


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