

# THE CYBERIAD

## BY STANISLAW LEM

This tale is just one of the many adventures of Trurl and Klapaucius that STANISLAW LEM has very kindly, and very selflessly, recorded for us in his new book, 'The Cyberiad', which will be published by Secker and Warburg in September. The main characters are a couple of 'cosmic constructors' who are consistently trying to out-invent each other. In this episode Trurl attempts to restore his reputation, after building a calculating machine that makes two plus two equal seven, by inventing a machine that writes poetry. The idea is a great success but, although it wins the admiration of Klapaucius, it has some quite disastrous repercussions.

Trurl had once had the misfortune to build an enormous calculating machine that was capable of only one operation, namely the addition of two and two, and that it did incorrectly. The machine also proved to be extremely stubborn, and the quarrel that ensued between it and its creator almost cost the latter his life. From that time on Klapaucius teased Trurl unmercifully, making comments at every opportunity, until Trurl decided to silence him once and for all by building a machine that could write poetry. First Trurl collected eight hundred and twenty tons of books on cybernetics and twelve thousand tons of the finest poetry, then sat down to read it all. Whenever he felt he just couldn't take another chart or equation, he would switch over to verse, and vice versa. After a while it became clear to him that the construction of the machine itself was child's play in comparison with the writing of the programme. The programme found in the head of an average poet, after all was written by the poet's civilisation, and that civilisation was in turn programmed by the civilisation that preceded it, and so on to the very Dawn of Time, when those bits of information that concerned the poet-to-be were still swirling about in the primordial chaos of the cosmic deep. Hence in order to programme a poetry machine, one would first have to repeat the entire Universe from the beginning—or at least a good piece of it.

Anyone else in Trurl's place would have given up then and there, but our intrepid constructor was nothing daunted. He built a machine and fashioned a digital model of the Void, an Electrostatic Spirit to move upon the face of the electrolytic waters, and he introduced the parameter of light, a protogalactic cloud or two, and by degrees worked his way up to the First Ice Age—Trurl could move at this rate because his machine was able, in one five-billionth of a second, to simulate one hundred septillion events at forty octillion different locations simultaneously. And if anyone questions these figures, let him work it out for himself.

Next Trurl began to model Civilisation, the striking of

fires with flints and the tanning of hides, and he provided for dinosaurs and floods, bipodality and taillessness, then made the palaeopleface (*Albuminidus supierialis*), which begat the paleface, which begat the gadget, and so it went, from aeon to millennium, in the endless hum of electrical currents and eddies. Often the machine turned out to be too small for the computer simulation of a new epoch, and Trurl would have to tack on an auxiliary unit—until he ended up, at last, with a veritable metropolis of tubes and terminals, circuits and shunts, all so tangled and involved that the devil himself couldn't have made head or tail of it. But Trurl managed somehow, he only had to go back twice—once, almost to the beginning, when he discovered that Abel had murdered Cain and not Cain Abel (the result, apparently, of a defective face), and once, only three hundred million years back to the middle of the Mesozoic stages, when after going from fish to amphibian to reptile to mammal, something odd took place among the primates and instead of great apes he came out with grey drapes. A fly, it seems, had gotten into the machine and shorted out the polyphase step-down directional widget. Otherwise everything went like a dream. Antiquity and the Middle Ages were recreated, then the period of revolutions and reforms—which gave the machine a few nasty jolts—and then civilisation progressed in such leaps and bounds that Trurl had to hose down the coils and cores repeatedly to keep them from overheating.

Towards the end of the twentieth century the machine began to tremble, first sideways, then lengthwise—for no apparent reason. This alarmed Trurl; he brought out cement and grappling irons just in case. But fortunately these weren't needed; instead of jumping in his moorings, the machine settled down and soon had left the twentieth century far behind. Civilisations came and went thereafter in fifty-thousand-year intervals; these were the fully intelligent beings from whom Trurl himself stemmed. Spool upon spool of computerised history was filled and ejected into storage bins; soon there were so many spools that, even if you stood at the top of the machine with high-power binoculars, you wouldn't see the end of them. And all to construct some versifier! But then, such is the way of scientific fanaticism. At last the programmes were ready; all that remained was to pick out the most applicable—else the electropoet's education would take several million years at the very least.

During the next two weeks Trurl fed general instructions into his future electropoet, then set up all the necessary logic circuits, emotive elements, semantic centres. He was

about to invite Klapaucius to attend a trial run, but thought better of it and started the machine himself. It immediately proceeded to deliver a lecture on the grinding of crystallographical surfaces as an introduction to the study of sub-molecular magnetic anomalies. Trurl bypassed half the logic circuits and made the emotive more electromagnetic; the machine sobbed, went into hysterics, then finally said, blubbering terribly, what a cruel, cruel world this was. Trurl intensified the semantic fields and attached a strength of character component; the machine informed him that from now on he would carry out its every wish and to begin with add six floors to the nine it already had, so it could better meditate upon the meaning of existence. Trurl installed a philosophical throttle instead; the machine fell silent and sulked. Only after endless pleading and cajoling was he able to get it to recite something: 'I had a little froggy.' That appeared to exhaust its repertoire. Trurl adjusted, modulated, expostulated, disconnected, ran checks, reconnected, reset, did everything he could think of, and the machine presented him with a poem that made him thank heaven Klapaucius wasn't there to laugh—imagine, simulating the whole Universe from scratch, not to mention Civilisation in every particular, and to end up with such dreadful doggerel! Trurl put in six cliché endings, but they snapped like matches; he had to make them out of pure corundum steel. This seemed to work, so he jacked the semanticity up all the way, plugged in an alternating rhyme generator—which nearly ruined everything, since the machine resolved to become a missionary among desituate tribes on far-flung planets. But at the very last minute, just as he was ready to give up and take a hammer to it, Trurl was struck by an inspiration; tossing out all the logic circuits, he replaced them with self-regulating egocentripetal narcissists. The machine simpered a little, whimpered a little, laughed bitterly, complained of an awful pain on its third floor, said that in general it was fed up, though, life was beautiful but men were such beasts and how sorry they'd all be when it was dead and gone. Then it asked for pen and paper. Trurl sighed with relief, switched it off and went to bed. The next morning he went to see Klapaucius. Klapaucius, hearing that he was invited to attend the debut of Trurl's electronic bard, dropped everything and followed—so eager was he to be an eyewitness to his friend's humiliation.

Trurl let the machine warm up first, kept the power low, ran up the metal stairs several times to take readings (the machine was like the engine of a giant steamer galleyed, with rows of rivets, dials and valves on every tier), till

finally, satisfied all the decimal places were where they ought to be, he said yes, it was ready now, and why not start with something simple. Later, of course, when the machine had gotten the feel of it, Klappaucius could ask it to produce poetry on absolutely whatever topic he liked.

Now the potentiometers indicated the machine's lyrical capacitance was charged to maximum, and Trurl, so nervous his hands were shaking, threw the master switch. A voice, slightly husky but remarkably vibrant and bewitching, said, "Phlogisticosh. Rhomothriglyph. Floop."

"Is that it?" inquired Klappaucius after a pause, extremely polite. Trurl only bit his lip, gave the machine a few kicks of current, and tried again. This time the voice came through much more clearly; it was a thrilling baritone, solemn yet intriguingly sensual:

Pev't o' tay merlugin gumin gots,  
Unlie yun furly pläezen ye,  
Comfre un' ayzze, ayzze oit,  
Bither de furloss bochre Nee!

"Am I missing something?" said Klappaucius, calmly watching a panic-stricken Trurl struggling at the controls. Finally Trurl waved his arms in despair, dashed clattering several flights up the metal stairs, got down on all fours and crawled into the machine through a trapdoor; he hammered away inside, swearing like a maniac, tightened something, pried at something, crawled out again and ran frantically to another tier. At long last he let out a cry of triumph and threw a burnt tube over his shoulder—it bounced off the railing and fell to the floor, shattering at the feet of Klappaucius. But Trurl didn't bother to apologise; he quickly put in a new tube, wiped his hands on a chammy cloth and hollered down for Klappaucius to try it now. The following words rang out.

Mockles! Fent on silpen tree,  
Blockards three-a-feening,  
Mockles, what silps came to thee  
In thy pantry dreaming?

"Well, that's an improvement!" shouted Trurl, not entirely convinced. "The last line particularly, did you notice?"

"If this is all you have to show me . . ." said Klappaucius, the very soul of politeness.

"Damn!" said Trurl and again disappeared inside the machine. There was a fierce banging and clanging, the sputtering of shorted wires and the muttering of an even shorter temper, then Trurl stuck his head out of a trapdoor on the third story and yelled, "Now try it!"

Klappaucius complied. The electronic bard shuddered from stem to stern and began:

Oft, in that wickless chalet all begorn,  
Where whilom sougled the mossy sappoport  
And you were wont to bong—



Trurl yanked out a few cables in a fury, something rattled and wheezed, the machine fell silent. Klapsaucus laughed so hard he had to sit on the floor. Then suddenly, as Trurl was rushing back and forth, there was a crackle, a click, and the machine with perfect pose said:

The Petty and the Small  
Are overcome with gail  
When Genius, having faltered, fails to fall.

Klapsaucus too, I ween,  
Will turn the deepest green  
To bear such flaxless verse from Trurl's machine.

"There you are, an epigram! And wonderfully apropos!" laughed Trurl, raising down the metal stairs and flinging himself delightedly into his colleague's arms. Klapsaucus, quite taken aback, was no longer laughing.

"What, that?" he said. "That's nothing. Besides, you had it all set up beforehand."

"Set up?"  
"Oh, it's quite obvious . . . the ill-judged hostility, the poverty of thought, the crudeness of execution."

"All right, then ask it something else! Whatever you like! Go on! What are you waiting for? Afraid?"

"Just a minute," said Klapsaucus, annoyed. He was trying to think of a request as difficult as possible, aware that any argument on the quality of the verse the machine might be able to produce would be hard if not impossible to settle either way. Suddenly he brightened and said,

"Have it compose a poem—a poem about a haircut!"  
"Oh, noble, tragic, timeless, full of love, tragedy, rebirth, quiet heroism in the face of certain doom! Six lines, cleverly rhymed, and every word beginning with the letter 'I'!"

"And why not throw in a full exposition of the general theory of nonlinear automata while you're at it?" growled Trurl. "You can't give it such idiotic . . ."

"But he didn't finish. A melodious voice filled the hall with the following:

Seduced, shaggy Samson snored,  
She scissored short, Sorely shorn,  
Soon shackled slave, Samson sighed,  
Silently scheming,  
Sightlessly seeking  
Some savage, spectacular suicide.

"Well, what do you say to that?" asked Trurl, his arms folded proudly. But Klapsaucus was already shouting,

"Now all in g! A sonnet, trochaic hexameter, about an old cyclotron who kept sixteen artificial mistresses, blue and radioactive, had four wings, three purple pavilions, two lacquered chests, each containing exactly one thousand medallions bearing the likeness of Czar Morducing the Headless . . ."

"Grinding gleeful gears, Gerontogrom grabbed/Giggling gyrocoptail-goals," began the machine, but Trurl leaped to the console, shut off the power and turned, defending the machine with his body.

"Enough!" he said, hoarse with indignation. "How dare you waste a great talent on such drivel? Either give it decent poems to write or I call the whole thing off!"

"What, those aren't decent poems?" protested Klapsaucus. "Certainly not! I didn't build a machine to solve ridiculous crossword puzzles! That's back work, not Great Art! Just give it a topic, any topic, as difficult as you like . . ."

Klapsaucus thought, and thought some more. Finally he nodded and said,

"Very well. Let's have a love poem, lyrical, pastoral, and expressed in the language of pure mathematics. Tensor algebra mainly, with a little topology and higher calculus, if need be. But with feeling, you understand, and in the cybernetic spirit!"

"Love and tensor algebra? Have you taken leave of your senses?" Trurl began, but stopped, for his electronic bard was already declaiming:

Come, let us hasten to a higher plane,  
Where dyads tread the fairy fields of Venn,  
The indices bedded from one to n  
Commingled in an endless Markov chain!

Come, every frustum longs to be a cone,  
And every vector dreams of matrices.  
Hark to the gentle cadence of the breeze:  
It whispers of a more ergodic zone.

In Riemann, Hilbert or in Banach space  
Let superscripts and subscripts go their ways.  
Our asymptotics no longer out of phase,  
We shall encounter, counting, face to face.

I'll grant thee random access to my heart,  
Thou'll tell me all the constants of thy love;  
And so we shall all love's lemmas prove,  
And in our bound partition never part.

For what did Cauchy know, or Christoffel,  
Or Fourier, or any Boole or Euler,  
Wielding their compasses, their pens and rulers,  
Of thy supernal sinusoidal spell?

Cancel me not—for what then shall remain?  
Abscissa, some mantissa, modules, modes,  
A root or two, a torus and a node:  
The inverse of my verse, a null domain.

Ellipse of bliss, converge, O lips divinal  
The product of our scalars is defined!  
Cyberaid draws night, and the skew mind  
Cuts capers like a happy haversine.

I see the eigenvalue in thine eye,  
I hear the tensor tensor in thy sigh.  
Bernoulli would have been content to die,  
Had he but known such  $\cos^2 \alpha \cos 2 \alpha!$

This concluded the poetic competition, since Klapsaucus suddenly had to leave, saying he would return shortly with more topics for the machine; but he never did, afraid that in so doing, he might give Trurl more cause to boast. Trurl of course let it be known that Klapsaucus had fled in order to hide his envy and chagrin. Klapsaucus meanwhile spread the word that Trurl had more than one screw loose on the subject of that so-called mechanical versifier.

Not much time went by before news of Trurl's computer laureate reached the genuine—that is, the ordinary—poets. Deeply offended, they resolved to ignore the machine's existence. A few, however, were curious enough to visit Trurl's electronic bard in secret. It received them courteously, in a hall piled high with closely written paper (for it worked day and night without pause). Now these poets were all avant-garde, and Trurl's machine wrote only in the traditional manner; Trurl, no connoisseur of poetry, had relied heavily on the classics in setting up its programme. The machine's guests jeered and left in triumph. The machine was self-programming, however, and in addition had a special ambition-amplifying mechanism with glory-seeking circuits, and very soon a great change took place. Its poems became difficult, ambiguous, so intricate and charged with meaning that they were totally incomprehensible. When the next group of poets came to mock and laugh, the machine replied with an improvisation that was so modern, it took their breath away, and the second poem seriously weakened a certain sonneteer who had two State awards to his name, not to mention a statue in the city park. After that, no poet could resist the fatal urge to cross lyrical swords with Trurl's electronic bard. They came from far and wide, carrying trunks and suitcases full of manuscripts. The machine would let each challenger recite, instantly grasp the algorithm of his verse, and use it to compose an answer in exactly the same style, only two hundred and twenty to three hundred and forty-seven times better.

The machine quickly grew so adept at this, that it could cut down a first-class rhapodist with no more than one or two quatrains. But the worst of it was, all the third-rate poets emerged unscathed; being third-rate, they didn't know good poetry from bad and consequently had no inkling of their crushing defeat. One of them, true, broke his leg when, on the way out, he tripped over an epic poem the machine had just completed, a prodigious work beginning with the words:

Arms, and machines I sing, that, forc'd by fate,  
And haughty Homo's unrelenting hate,  
Expell'd and extirp'd, left the Terran shore . . .

The true poets, on the other hand, were decimated by Trurl's electronic bard, though it never laid a finger on them. First an aged elegist, then two modernists committed suicide, leaping off a cliff that unfortunately happened to lie hard by the road leading from Trurl's place to the nearest train station.

There were many poet protests staged, demonstrations, demands that the machine be served an injunction to cease and desist. But no one else appeared to care. In fact, magazine editors generally approved: Trurl's electronic bard writing under several thousand different pseudonyms, if once, had a poem for every occasion, of fit whatever length might be required, and of such high quality that the magazine would be torn from hand to hand by eager readers. On the street one could see enraptured faces, bemused smiles, sometimes even hear a quiet sob. Everyone knew the poems of Trurl's electronic bard, the air sang with the distance rhymes. Not infrequently, those citizens of a greater sensitivity, struck by a particularly marvellous metaphor or assurance, would actually fall into a faint. But this colossus of inspiration was prepared even for that eventuality; it would immediately supply the necessary number of restorative roundlets.

Trurl himself had no little trouble in connection with his invention. The classicists, generally elderly, were fairly harmless; they confined themselves to throwing stones through his windows and smearing the sides of his house with an unmentionable substance. But it was much worse with the younger poets. One, for example, as powerful in body as his verse was in imagery, beat Trurl to a pulp. And while the constructor lay in the hospital, events marched on. Not a day passed without a suicide or a funeral; picket lines formed around the hospital; one could hear gunfire in the distance—instead of manuscripts in their suitcases, more and more poets were bringing rifles to defeat Trurl's electronic bard. But the bullets merely bounced off its calm exterior. After his return from the hospital, Trurl, weak and desperate, finally decided one night to dismantle the homeostatic Howler had created.

But when he approached the machine, limping slightly, it noticed the pliers in his hand and the grim glitter in his eye, and delivered such an eloquent, impassioned plea for mercy, that the constructor burst into tears, threw down his tools and hurried back to his room, weeping through new work of genius: an ocean aster that filled the hall chest-high from end to end and rustled incessantly.

The following month Trurl received a bill for the electricity consumed by the machine and almost fell off his chair. If only he could have consulted his old friend Klapsaucus! But Klapsaucus was nowhere to be found. So Trurl had to come up with something by himself. One day he unplugged the machine, took it apart, loaded it on to a ship, flew to a certain small asteroid, and there assembled it again, giving it an atomic pile for its source of creative energy.

Then he sneaked home. But that wasn't the end of it. The electronic bard, deprived now of the possibility of having its masterpieces published, began to broadcast them on all wave lengths, which soon sent the passengers and crews of passing rockets into states of stanzic stupefaction, and more delicate souls were seized with severe attacks of aesthetic ecstasy besides. Having determined the cause of this disturbance, the Cosmic Fleet Command issued Trurl an official request for the immediate termination of his device, which was seriously impairing the health and well-being of all travellers.

At that point Trurl went into hiding, so they dropped a team of technicians on the asteroid to gag the machine's output unit. It overwhelmed them with a few deflators, however, and the mission had to be abandoned. Dead technicians were sent next, but the machine employed pantomime. After that, there began to be talk of an eventual punitive expedition, of bombing the electroport into submission. But just then some ruler from a neighbouring star system came, bought the machine and hauled it off, asteroid and all, to his kingdom.

Now Trurl could appear in public again and breathe easy. True, lately there had been supernovae exploding on the southern horizon, the like of which no one had ever seen before, and there were rumours that this had something to do with poetry. According to one report, that same ruler, moved by some strange whim, had ordered his astro-engineers to connect the electronic bard to a constellation of white supergiants, thereby transforming each line of verse into a stupendous solar prominence; thus the Greatest Poet in the Universe was able to transmit its thermocauler creations to all the illimitable reaches of space at once. But even if there were any truth to this, it was all too far away to bother Trurl, who vowed by everything that was ever held sacred, never again to make a cybernetic model of the Muse.

TRURL'S  
ELECTRONIC  
MUSE