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Charles Angoff, ADVISORY EDITOR

George Salter, ART DIRECTOR

We are indebted to Czechoslovakia for innumerable items without which life would be poorer: the beer of Pilsen, the political thinking of Masaryk and Benes, the music of Dvořák and Smetana, the voice of Emmy Destina . . . and the word tobot. It seems unbelievable that it is only 30 years since that invaluable word entered the English language from the Czech in the translation of Karel Čapek's play R. U. R.; surely few loan words have ever become so firmly naturalized in American writing. The late Mr. Capek, with the musical taste which seems to be part of the heritage of all Czechs, would have been particularly pleased, we think, with Herbert Goldstone's suggestive footnote on the possible future relation of robots and music.

7) irtuoso

by HERBERT GOLDSTONE

"Sir?"

The Maestro continued to play, not looking up from the keys. "Yes, Rollo?"

"Sir, I was wondering if you would explain this apparatus to me." The Maestro stopped playing, his thin body stiffly relaxed on the bench.

His long supple fingers floated off the keyboard.

"Apparatus?" He turned and smiled at the robot, "Do you mean the piano, Rollo?"

"This machine that produces varying sounds. I would like some information about it, its operation and purpose. It is not included in my reference data."

The Maestro lit a cigarette. He preferred to do it himself. One of his first orders to Rollo when the robot was delivered two days before had been to disregard his built-in instructions on the subject.

"I'd hardly call a piano a machine, Rollo," he smiled, "although technically you are correct. It is actually, I suppose, a machine designed to produce sounds of graduated pitch and tone, singly or in groups.

"I assimilated that much by observation," Rollo replied in the brassy baritone which no longer sent tiny tremors up the Maestro's spine, "Wires of different thickness and tautness struck by felt-covered hammers activated by manually operated levers arranged in a horizontal panel."

"A very cold-blooded description of one of man's nobler works," the Maestro remarked drily. "You make Mozart and Chopin mere laboratory

technicians."

"Mozart? Chopin?" The duralloy sphere that was Rollo's head shone stark and featureless, its immaculate surface unbroken but for twin vision lenses. "The terms are not included in my memory banks."

"No, not yours, Rollo," the Maestro said softly. "Mozart and Chopin are not for vacuum tubes and fuses and copper wire. They are for flesh and

blood and human tears."
"I do not understand," Rollo droned.

"Well," the Maestro said, smoke curling lazily from his nostrils, "they are two of the humans who compose, or design successions of notes—varying sounds, that is, produced by the piano or by other instruments, machines, that produce other twoes of sounds of fixed pitch and tone.

machines, that produce other types of sounds of need pitch and tone.

"Sometimes these instruments, as we call them, are played, or operated, individually; sometimes in groups — orchestras, as we refer to them — and the sounds blend together, they harmonize. That is they have an orderly mathematical relationship to each other which results in —"

The Maestro threw up his hands.

"I never imagined," he chuckled, "that I would some day struggle so mightily, and so futilely, to explain music to a robot!" "Music?"

"Yes, Rollo. The sounds produced by this machine and others of the same category are called music."

"What is the purpose of music, sir?"

"Purpose?"

The Maestro crushed the cigarette in an ash tray. He turned to the keyboard of the concert grand and flexed his fingers briefly.

"Listen, Rollo,"

The wraith-like fingers glided and wove the opening bars of Clair de Lune, slender and delicate as spider silk. Rollo stood rigid, the fluorescent over the music rack casting a bluish jeweled sheen over his towering bulk, shimmerine in the amber vision lenses.

The Maestro drew his hands back from the keys and the subtle thread of

melody melted reluctantly into silence.

"Claude Debussy," the Maestro said. "One of our mechanics of an era long passed. He designed that succession of tones many years ago. What do you think of it?"

Rollo did not answer at once.

"The sounds were well formed," he replied finally. "They did not jar my auditory senses as some do."

The Maestro laughed, "Rollo, you may not realize it, but you're a won-

derful critic."

VIRTIOSO

"This music, then," Rollo droned. "Its purpose is to give pleasure to humans?"

"Exactly," the Maestro said. "Sounds well formed, that do not jar the auditory senses as some do. Marvelous! It should be carved in marble over the entrance of New Carnegie Hall."

"I do not understand. Why should my definition -?"

The Maestro waved a hand. "No matter, Rollo. No matter."

"Yes, Rollo?"

"Those sheets of paper you sometimes place before you on the piano. They are the plans of the composer indicating which sounds are to be produced by the piano and in what order?"

"Just so. We call each sound a note, combinations of notes we call chords."

"Each dot, then, indicates a sound to be made?"

"Perfectly correct, my man of metal."

Rollo stared straight ahead. The Maestro felt a peculiar sense of wheels turning within that impregnable sphere.

"Sir, I have scanned my memory banks and find no specific or implied instructions against it. I should like to be taught how to produce these notes on the piano. I request that you feed the correlation between these dots and the levers of the panel into my memory banks."

The Maestro peered at him, amazed, A slow grin traveled across his face.

"Donel" he exclaimed. "It's been many years since pupils helped gray these ancient locks, but I have the feeling that you, Rollo, will prove a most fascinating student. To instill the Muse into metal and machinery . . . I accept the challenge, gladly!"

He rose, touched the cool latent power of Rollo's arm.

"Sit down here, my Rolleindex Personal Robot, Model M-3. We shall start Beethoven spinning in his grave - or make musical history!"

More than an hour later, the Maestro yawned and looked at his watch. "It's late," he spoke into the end of the yawn. "These old eyes are not tircless like yours, my friend." He touched Rollo's shoulder. "You have the complete fundamentals of musical notation in your memory banks, Rollo. That's a good night's lesson, particularly when I recall how long it took me to acquire the same amount of information. Tomorrow we'll attempt to put those awesome fingers of yours to work."

He stretched. "I'm going to bed," he said. "Will you lock up and put out the lights?" Rollo rose from the bench. "Yes, sir," he droned. "I have a request."

"What can I do for my star pupil?"

"May I attempt to create some sounds with the keyboard tonight? I will do so very softly so as not to disturb you."

"Tonight? Aren't you -?" Then the Maestro smiled. "You must pardon me, Rollo. It is still a bit difficult for me to realize that sleep has no meaning for you."

He hesitated, rubbing his chin. "Well, I suppose a good teacher should not discourage impatience to learn. All right, Rollo, but please be careful." He patted the polished mahogany. "This piano and I have been together for many years. I'd hate to see its teeth knocked out by those sledge hammer digits of yours. Lightly, my friend, very lightly."

"Yes sir."

The Maestro fell asleep with a faint smile on his lips, dimly aware of the shy, tentative notes that Rollo was coaxing forth.

Then gray fog closed in and he was in that half-world where reality is dreamlike and dreams are real. It was soft and feathery and lavender clouds and sounds rolling and washing across his mind in flowing waves.

Where? The mist drew back a bit and he was in red velvet and deep and the music swelled and broke over him

He smiled

My recording, Thank you, thank you, thank -

The Maestro snapped erect, threw the covers aside.

He sat on the edge of the bed, listening.

He groped for his robe in the darkness, shoved bony feet into his slippers. He crept, trembling uncontrollably, to the door of his studio and stood

there, thin and brittle in the robe, The light over the music rack was an eerie island in the brown shadows of the studio. Rollo sat at the keyboard, prim, inhuman, rigid, twin lenses focused somewhere off into the shadows.

The massive feet working the pedals, arms and hands flashing and glinting - they were living entities, separate, somehow, from the machined perfection of his body.

The music rack was empty.

A copy of Beethoven's Appassionata lay closed on the bench. It had been, the Maestro remembered, in a pile of sheet music on the piano.

Rollo was playing it.

Playing? He was creating it, breathing it, drawing it through silver flame. Time became meaningless, suspended in mid air.

The Maestro didn't realize he was weeping until Rollo finished the sonata. The robot turned to look at the Maestro, "The sounds," he droned.

"They pleased you?"

The Maestro's lips quivered, "Yes, Rollo," he replied at last, "They pleased me." He fought the lump in his throat.

He picked up the music in fingers that shook.

"This," he murmured, "Already?"

"It has been added to my store of data," Rollo replied. "I applied the principles you explained to me to these plans. It was not very difficult."

The Maestro swallowed as he tried to speak. "It was not very difficult

. . ." he repeated softly.

The old man sank down slowly onto the bench next to Rollo, stared silently at the robot as though seeing him for the first time.

Rollo got to his feet.

The Maestro let his fingers rest on the keys, strangely foreign now.

"Music!" he breathed. "I may have heard it that way in my soul! I know Reethoven did!"

He looked up at the robot, a growing excitement in his face.

"Rollo," he said, his voice straining to remain calm. "You and I have some work to do tomorrow on your memory banks."

Sleep did not come again that night. He strode briskly into the studio the next morning. Rollo was vacuuming

the carpet. The Maestro preferred carpets to the new dust-free plastics, which felt somehow profane to his feet.

The Maestro's house was, in fact, an oasis of anachronisms in a desert of contemporary antiseptic efficiency.

"Well, are you ready for work, Rollo?" he asked. "We have a lot to do. you and I. I have such plans for you, Rollo - great plans!" Rollo, for once, did not reply.

"I have asked them all to come here this afternoon," the Maestro went on. "Conductors, concert pianists, composers, my manager. All the giants of music, Rollo. Wait until they hear you play!"

Rollo switched off the vacuum and stood quietly.

"You'll play for them right here this afternoon." The Maestro's voice was high-pitched, breathless, "The Appassionata again, I think, Yes, that's it. I must see their faces!

"Then we'll arrange a recital to introduce you to the public and the critics and then a major concerto with one of the big orchestras. We'll have it telecast around the world, Rollo. It can be arranged.

"Think of it, Rollo, just think of it! The greatest piano virtuoso of all

time . . . a robot! It's completely fantastic and completely wonderful.

I feel like an explorer at the edge of a new world!"

He walked feverishly back and forth. "Then recordings, of course. My entire repertoire, Rollo, and more. So much more!"

"Sir?"

The Maestro's face shone as he looked up at him. "Yes, Rollo?"

"In my built-in instructions, I have the option of rejecting any action which I consider harmful to my owner." The robot's words were precise, carefully selected. "Last night you wept. That is one of the indications I am instructed to consider in making my decisions."

The Maestro gripped Rollo's thick, superbly moulded arm.

"Rollo, you don't understand. That was for the moment. It was petty of me, childish!"

"I beg your pardon, sir, but I must refuse to approach the piano again." The Maestro stared at him, unbelieving, pleading.

"Rollo, you can't! The world must hear you!"

"No. sir." The amber lenses almost seemed to soften.

"The piano is not a machine," that powerful inhuman voice droned. "To me, ves. I can translate the notes into sounds at a glance. From only a few I

am able to grasp at once the composer's conception. It is easy for me." Rollo towered magnificently over the Maestro's bent form.

"I can also grasp," the brassy monotone rolled through the studio, "that this . . . music is not for robots. It is for man. To me it is easy, yes . . . It was not meant to be easy."