

TWILIGHT

by John W. Campbell

"Speaking of hitch-hikers," said Jim Bendell in a rather bewildered way, "I picked up a man the other day that certainly was a queer cuss." He laughed, but it wasn't a real laugh. "He told me the queerest yarn I ever heard. Most of them tell you how they lost their good jobs and tried to find work out here in the wide spaces of the West. They don't seem to realize how many people we have out here. They think all this great beautiful country is uninhabited."

Jim Bendell's a real estate man, and I knew how he could go on. That's his favorite line, you know. He's real worried because there's a lot of homesteading plots still open out in our state. He talks about the beautiful country, but he never went farther into the desert than the edge of town. 'Fraid of it actually. So I sort of steered him back on the track.

"What did he claim, Jim? Prospector who couldn't find land to prospect?"

"That's not very funny, Bart. No; it wasn't only what he claimed. He didn't even claim it, just said it. You know, he didn't say it was true, he just said it. That's what gets me. I know it ain't true, but the way he said it—Oh, I don't know."

By which I knew he didn't. Jim Bendell's usually pretty careful about his English—real proud of it. When he slips, that means he's disturbed. Like the time he thought the rattlesnake was a stick of wood and wanted to put it on the fire.

Jim went on: And he had funny clothes, too. They looked like silver, but they were soft as silk. And at night they glowed just a little.

I picked him up about dusk. Really picked him up. He was lying off

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about ten feet from the South Road. I thought, at first, somebody had hit him, and then hadn't stopped. Didn't see him very clearly, you know. I picked him up, put him in the car, and started on. I had about three hundred miles to go, but I thought I could drop him at Warren Spring with Doc Vance. But he came to in about five minutes, and opened his eyes. He looked straight off, and he looked first at the car, then at the Moon. "Thank God!" he says, and then looks at me. It gave me a shock. He was beautiful. No; he was handsome.

He wasn't either one. He was magnificent. He was about six feet two, I think, and his hair was brown, with a touch of red-gold. It seemed like fine copper wire that's turned brown. It was crisp and curly. His forehead was wide, twice as wide as mine. His features were delicate, but tremendously impressive; his eyes were gray, like etched iron, and bigger than mine—a lot.

That suit he wore—it was more like a bathing suit with pajama trousers. His arms were long and muscled smoothly as an Indian's. He was white, though, tanned lightly with a golden, rather than a brown, tan.

But he was magnificent. Most wonderful man I ever saw. I don't know, damn it!

"Hello!" I said. "Have an accident?"

"No; not this time, at least."

And his voice was magnificent, too. It wasn't an ordinary voice. It sounded like an organ talking, only it was human.

"But maybe my mind isn't quite steady yet. I tried an experiment. Tell me what the date is, year and all, and let me see," he went on.

"Why—December 9, 1932," I said.

And it didn't please him. He didn't like it a bit. But the wry grin that came over his face gave way to a chuckle.

"Over a thousand—" he says reminiscently. "Not as bad as seven million. I shouldn't complain."

"Seven million what?"

"Years," he said, steadily enough. Like he meant it. "I tried an experiment once. Or I will try it. Now I'll have to try again. The experiment was—in 3059. I'd just finished the release experiment. Testing space then. Time—it wasn't that, I still believe. It was space. I felt myself caught in that field, but I couldn't pull away. Field gamma-H 481, intensity 935 in the Pellman range. It sucked me in, and I went out.

"I think it took a short cut through space to the position the solar system will occupy. Through a higher dimension, effecting a speed exceeding light and throwing me into the future plane."

He wasn't telling me, you know. He was just thinking out loud. Then he began to realize I was there.

"I couldn't read their instruments, seven million years of evolution changed everything. So I overshot my mark a little coming back. I belong in 3059."

"But tell me, what's the latest scientific invention of this year?"

He startled me so, I answered almost before I thought.

"Why, television, I guess. And radio and airplanes."

"Radio—good. They will have instruments."

"But see here—who are you?"

"Ah—I'm sorry. I forgot," he replied in that organ voice of his. "I am Ares Sen Kenlin. And you?"

"James Waters Bendell."

"Waters—what does that mean? I do not recognize it."

"Why—it's a name, of course. Why should you recognize it?"

"I see—you have not the classification, then. 'Sen' stands for science."

"Where did you come from, Mr. Kenlin?"

"Come from?" He smiled, and his voice was slow and soft. "I came out of space across seven million years or more. They had lost count—the men had. The machines had eliminated the unneeded service. They didn't know what year it was. But before that—my home is in Neva'th City in the 3059."

That's when I began to think he was a nut.

"I was an experimenter," he went on. "Science, as I have said. My father was a scientist, too, but in human genetics. I myself am an experimenter. He proved his point, and all the world followed suit. I was the first of the new race.

"The new race—oh, holy destiny—what has—what will—

"What is its end? I have seen it—almost. I saw them—the little men—bewildered—lost. And the machines. Must it be—can't anything sway it?"

"Listen—I heard this song."

He sang the song. Then he didn't have to tell me about the people. I knew them. I could hear their voices, in the queer, crackling, un-English words. I could read their bewildered longings. It was in a minor key, I think. It called, it called and asked, and hunted hopelessly. And over it all the steady rumble and whine of the unknown, forgotten machines.

The machines that couldn't stop, because they had been started, and the little men had forgotten how to stop them, or even what they were for, looking at them and listening—and wondering. They couldn't read

or write any more, and the language had changed, you see, so that the phonic records of their ancestors meant nothing to them.

But that song went on, and they wondered. And they looked out across space and they saw the warm, friendly stars—too far away. Nine planets they knew and inhabited. And locked by infinite distance, they couldn't see another race, a new life.

And through it all—two things. The machines. Bewildered forgetfulness. And maybe one more. Why?

That was the song, and it made me cold. It shouldn't be sung around people of today. It almost killed something. It seemed to kill hope. After that song—I—well, I believed him.

When he finished the song, he didn't talk for a while. Then he sort of shook himself.

You won't understand (he continued). Not yet—but I have seen them. They stand about, little misshapen men with huge heads. But their heads contain only brains. They had machines that could think—but somebody turned them off a long time ago, and no one knew how to start them again. That was the trouble with them. They had wonderful brains. Far better than yours or mine. But it must have been millions of years ago when they were turned off, too, and they just haven't thought since then. Kindly little people. That was all they knew.

When I slipped into that field it grabbed me like a gravitational field whirling a space transport down to a planet. It sucked me in—and through. Only the other side must have been seven million years in the future. That's where I was. It must have been in exactly the same spot on Earth's surface, but I never knew why.

It was night then, and I saw the city a little way off. The Moon was shining on it, and the whole scene looked wrong. You see, in seven million years, men had done a lot with the positions of the planetary bodies, what with moving space liners, clearing lanes through the asteroids, and such. And seven million years is long enough for natural things to change positions a little. The Moon must have been fifty thousand miles farther out. And it was rotating on its axis. I lay there a while and watched it. Even the stars were different.

There were ships going out of the city. Back and forth, like things sliding along a wire, but there was only a wire of force, of course. Part of the city, the lower part, was brightly lighted with what must have been mercury vapor glow, I decided. Blue-green. I felt sure men didn't live there—the light was wrong for eyes. But the top of the city was so sparsely lighted.

Then I saw something coming down out of the sky. It was brightly

lighted. A huge globe, and it sank straight to the center of the great black-and-silver mass of the city.

I don't know what it was, but even then I knew the city was deserted. Strange that I could even imagine that, I who had never seen a deserted city before. But I walked the fifteen miles over to it and entered it. There were machines going about the streets, repair machines, you know. They couldn't understand that the city didn't need to go on functioning, so they were still working. I found a taxi machine that seemed fairly familiar. It had a manual control that I could work.

I don't know how long that city had been deserted. Some of the men from the other cities said it was a hundred and fifty thousand years. Some went as high as three hundred thousand years. Three hundred thousand years since human foot had been in that city. The taxi machine was in perfect condition, functioned at once. It was clean, and the city was clean and orderly. I saw a restaurant and I was hungry. Hungrier still for humans to speak to. There were none, of course, but I didn't know.

The restaurant had the food displayed directly, and I made a choice. The food was three hundred thousand years old, I suppose. I didn't know, and the machines that served it to me didn't care, for they made things synthetically, you see, and perfectly. When the builders made those cities, they forgot one thing. They didn't realize that things shouldn't go on forever.

It took me six months to make my apparatus. And near the end I was ready to go; and, from seeing those machines go blindly, perfectly, on in orbits of their duties with the tireless, ceaseless perfection their designers had incorporated in them, long after those designers and their sons, and their sons' sons had no use for them—

When Earth is cold, and the Sun has died out, those machines will go on. When Earth begins to crack and break, those perfect, ceaseless machines will try to repair her—

I left the restaurant and cruised about the city in the taxi. The machine had a little, electric-power motor, I believe, but it gained its power from the great central power radiator. I knew before long that I was far in the future. The city was divided into two sections, a section of many strata where machines functioned smoothly, save for a deep humming beat that echoed through the whole city like a vast unending song of power. The entire metal framework of the place echoed with it, transmitted it, hummed with it. But it was soft and restful, a reassuring beat.

There must have been thirty levels above ground, and twenty more below, a solid block of metal walls and metal floors and metal and glass and force machines. The only light was the blue-green glow of the

mercury vapor arcs. The light of mercury vapor is rich in high-energy-quanta, which stimulate the alkali metal atoms to photo-electric activity. Or perhaps that is beyond the science of your day? I have forgotten.

But they had used that light because many of their worker machines needed sight. The machines were marvelous. For five hours I wandered through the vast power plant on the very lowest level, watching them, and because there was motion, and that pseudo-mechanical life, I felt less alone.

The generators I saw were a development of the release I had discovered—when? The release of the energy of matter, I mean, and I knew when I saw that for what countless ages they could continue.

The entire lower block of the city was given over to the machines. Thousands. But most of them seemed idle, or, at most, running under light load. I recognized a telephone apparatus, and not a single signal came through. There was no life in the city. Yet when I pressed a little stud beside the screen on one side of the room, the machine began working instantly. It was ready. Only no one needed it any more. The men knew how to die, and be dead, but the machines didn't.

Finally I went up to the top of the city, the upper level. It was a paradise.

There were shrubs and trees and parks, glowing in the soft light that they had learned to make in the very air. They had learned it five million years or more before. Two million years ago they forgot. But the machines didn't, and they were still making it. It hung in the air, soft, silvery light, slightly rosy, and the gardens were shadowy with it. There were no machines here now, but I knew that in daylight they must come out and work on these gardens, keeping them a paradise for masters who had died, and stopped moving, as they could not.

In the desert outside the city it had been cool, and very dry. Here the air was soft, warm and sweet with the scent of blooms that men had spent several hundreds of thousands of years perfecting.

Then somewhere music began. It began in the air, and spread softly through it. The Moon was just setting now, and as it set, the rosy-silver glow waned and the music grew stronger.

It came from everywhere and from nowhere. It was within me. I do not know how they did it. And I do not know how such music could be written.

Savages make music too simple to be beautiful, but it is stirring. Semisavages write music beautifully simple, and simply beautiful. Your Negro music was your best. They knew music when they heard it and sang it as they felt it. Semicivilized peoples write great music. They are

proud of their music, and make sure it is known for great music. They make it so great it is top-heavy.

I had always thought our music good. But that which came through the air was the song of triumph, sung by a mature race, the race of man in its full triumph! It was man singing his triumph in majestic sound that swept me up; it showed me what lay before me; it carried me on.

And it died in the air as I looked at the deserted city. The machines should have forgotten that song. Their masters had, long before.

I came to what must have been one of their homes; it was a dimly-seen doorway in the dusky light, but as I stepped up to it, the lights which had not functioned in three hundred thousand years illuminated it for me with a green-white glow, like a firefly, and I stepped into the room beyond. Instantly something happened to the air in the doorway behind me; it was as opaque as milk. The room in which I stood was a room of metal and stone. The stone was some jet-black substance with the finish of velvet, and the metals were silver and gold. There was a rug on the floor, a rug of just such material as I am wearing now, but thicker and softer. There were divans about the room, low and covered with these soft metallic materials. They were black and gold and silver, too.

I had never seen anything like that. I never shall again, I suppose, and my language and yours were not made to describe it.

The builders of that city had right and reason to sing that song of sweeping triumph, triumph that swept them over the nine planets and the fifteen habitable moons.

But they weren't there any more, and I wanted to leave. I thought of a plan and went to a subtelephone office to examine a map I had seen. The old World looked much the same. Seven or even seventy million years don't mean much to old Mother Earth. She may even succeed in wearing down those marvellous machine cities. She can wait a hundred million or a thousand million years before she is beaten.

I tried calling different city centers shown on the map. I had quickly learned the system when I examined the central apparatus.

I tried once—twice—thrice—a round dozen times. Yawk City, Lunon City, Paree, Shkago, Singpor, others. I was beginning to feel that there were no more men on all earth. And I felt crushed, as at each city the machines replied and did my bidding. The machines were there in each of those far vaster cities, for I was in the Neva City of their time. A small city. Yawk City was more than eight hundred kilometers in diameter.

In each city I had tried several numbers. Then I tried San Frisco. There was some one there, and a voice answered and the picture of a

human appeared on the little glowing screen. I could see him start and stare in surprise at me. Then he started speaking to me. I couldn't understand, of course. I can understand your speech, and you mine, because your speech of this day is largely recorded on records of various types and has influenced our pronunciation.

Some things are changed; names of cities, particularly, because names of cities are apt to be polysyllabic, and used a great deal. People tend to elide them, shorten them. I am in—Nee-vah-dah—as you would say? We say only Neva. And Yawk State. But it is Ohio and Iowa still. Over a thousand years, effects were small on words, because they were recorded.

But seven million years had passed, and the men had forgotten the old records, used them less as time went on, and their speech varied till the time came when they could no longer understand the records. They were not written any more, of course.

Some men must have arisen occasionally among that last of the race and sought for knowledge, but it was denied them. An ancient writing can be translated if some basic rule is found. An ancient voice though—and when the race has forgotten the laws of science and the labor of mind.

So his speech was strange to me as he answered over that circuit. His voice was high in pitch, his words liquid, his tones sweet. It was almost a song as he spoke. He was excited and called others. I could not understand them, but I knew where they were. I could go to them.

So I went down from the paradise of gardens, and as I prepared to leave, I saw dawn in the sky. The strange-bright stars winked and twinkled and faded. Only one bright rising star was familiar—Venus. She shone golden now. Finally, as I stood watching for the first time that strange heaven, I began to understand what had first impressed me with the wrongness of the view. The stars, you see, were all different.

In my time—and yours, the solar system is a lone wanderer that by chance is passing across an intersection point of Galactic traffic. The stars we see at night are the stars of moving clusters, you know. In fact our system is passing through the heart of the Ursa Major group. Half a dozen other groups center within five hundred light-years of us.

But during those seven millions of years, the Sun had moved out of the group. The heavens were almost empty to the eye. Only here and there shone a single faint star. And across the vast sweep of black sky swung the band of the Milky Way. The sky was empty.

That must have been another thing those men meant in their songs—felt in their hearts. Loneliness—not even the close, friendly stars. We have stars within half a dozen light-years. They told me that their in-

struments, which gave directly the distance to any star, showed that the nearest was one hundred and fifty light-years away. It was enormously bright. Brighter even than Sirius of our heavens. And that made it even less friendly, because it was a blue-white supergiant. Our sun would have served as a satellite for that star.

I stood there and watched the lingering rose-silver glow die as the powerful blood-red light of the Sun swept over the horizon. I knew by the stars now, that it must have been several millions of years since my day; since I had last seen the Sun sweep up. And that blood-red light made me wonder if the Sun itself was dying.

An edge of it appeared, blood-red and huge. It swung up, and the color faded, till in half an hour it was the familiar yellow-gold disk. It hadn't changed in all that time.

I had been foolish to think that it would. Seven million years—that is nothing to Earth, how much less to the Sun? Some two thousand thousand thousand times it had risen since I last saw it rise. Two thousand thousand thousand days. If it had been that many years—I might have noticed a change.

The universe moves slowly. Only life is not enduring; only life changes swiftly. Eight short millions of years. Eight days in the life of Earth—and the race was dying. It had left something: machines. But they would die, too, even though they could not understand. So I felt. I—may have changed that. I will tell you. Later.

For when the Sun was up, I looked again at the sky and the ground, some fifty floors below. I had come to the edge of the city.

Machines were moving on that ground, leveling it, perhaps. A great wide line of gray stretched off across the level desert straight to the east. I had seen it glowing faintly before the Sun rose—a roadway for ground machines. There was no traffic on it.

I saw an airship slip in from the east. It came with a soft, muttering whine of air, like a child complaining in sleep, it grew to my eyes like an expanding balloon. It was huge when it settled in a great port-slip in the city below. I could hear now the clang and mutter of machines, working on the materials brought in, no doubt. The machines had ordered raw materials. The machines in other cities had supplied. The freight machines had carried them here.

San Frisco and Jacksville were the only two cities on North America still used. But the machines went on in all the others, because they couldn't stop. They hadn't been ordered to.

Then high above, something appeared, and from the city beneath me, from a center section, three small spheres rose. They, like the freight ship, had no visible driving mechanisms. The point in the sky above,

like a black star in a blue space, had grown to a moon. The three spheres met it high above. Then together they descended and lowered into the center of the city, where I could not see them.

It was a freight transport from Venus. The one I had seen land the night before had come from Mars, I learned.

I moved after that and looked for some sort of a taxi-plane. They had none that I recognized in scouting about the city. I searched the higher levels, and here and there saw deserted ships, but far too large for me, and without controls.

It was nearly noon—and I ate again. The food was good.

I knew then that this was a city of the dead ashes of human hopes. The hopes not of a race, not the whites, nor the yellow, nor the blacks, but the human race. I was mad to leave the city. I was afraid to try the ground road to the west, for the taxi I drove was powered from some source in the city, and I knew it would fail before many miles.

It was afternoon when I found a small hangar near the outer wall of the vast city. It contained three ships. I had been searching through the lower strata of the human section—the upper part. There were restaurants and shops and theatres there. I entered one place where, at my entrance, soft music began, and colors and forms began to rise on a screen before me.

They were the triumph songs in form and sound and color of a mature race, a race that had marched steadily upward through five millions of years—and didn't see the path that faded out ahead, when they were dead and had stopped, and the city itself was dead—but hadn't stopped. I hastened out of there—and the song that had not been sung in three hundred thousand years died behind me.

But I found the hangar. It was a private one, likely. Three ships. One must have been fifty feet long and fifteen in diameter. It was a yacht, a space yacht, probably. One was some fifteen feet long and five feet in diameter. That must have been the family air machine. The third was a tiny thing, little more than ten feet long and two in diameter. I had to lie down within it, evidently.

There was a periscopic device that gave me a view ahead and almost directly above. A window that permitted me to see what lay below—and a device that moved a map under a frosted-glass screen and projected it onto the screen in such a way that the cross-hairs of the screen always marked my position.

I spent half an hour attempting to understand what the makers of that ship had made. But the men who made that were men who held behind them the science and knowledge of five millions of years and the perfect machines of those ages. I saw the release mechanism that powered it. I

understood the principles of that and, vaguely, the mechanics. But there were no conductors, only pale beams that pulsed so swiftly you could hardly catch the pulsations from the corner of the eye. They had been glowing and pulsating, some half dozen of them, for three hundred thousand years at least; probably more.

I entered the machine, and instantly half a dozen more beams sprang into being; there was a slight suggestion of a quiver, and a queer strain ran through my body. I understood in an instant, for the machine was resting on gravity nullifiers. That had been my hope when I worked on the space fields I discovered after the release.

But they had had it for millions of years before they built that perfect deathless machine. My weight entering it had forced it to readjust itself and simultaneously to prepare for operation. Within, an artificial gravity equal to that of Earth had gripped me, and the neutral zone between the outside and the interior had caused the strain.

The machine was ready. It was fully fueled, too. You see they were equipped to tell automatically their wants and needs. They were almost living things, every one. A caretaker machine kept them supplied, adjusted, even repaired them when need be, and when possible. If it was not, I learned later, they were carried away in a service truck that came automatically; replaced by an exactly similar machine; and carried to the shops where they were made, and automatic machines made them over.

The machine waited patiently for me to start. The controls were simple, obvious. There was a lever at the left that you pushed forward to move forward, pulled back to go back. On the right a horizontal, pivoted bar. If you swung it left, the ship spun left; if right, the ship spun right. If tipped up, the ship followed it, and likewise for all motions other than backward and forward. Raising it bodily raised the ship, as depressing it depressed the ship.

I lifted it slightly, a needle moved a bit on a gauge comfortably before my eyes as I lay there, and the floor dropped beneath me. I pulled the other control back, and the ship gathered speed as it moved gently out into the open. Releasing both controls into neutral, the machine continued till it stopped at the same elevation, the motion absorbed by air friction. I turned it about, and another dial before my eyes moved, showing my position. I could not read it, though. The map did not move, as I had hoped it would. So I started toward what I felt was west.

I could feel no acceleration in that marvelous machine. The ground simply began leaping backward, and in a moment the city was gone. The map unrolled rapidly beneath me now, and I saw that I was moving south of west. I turned northward slightly, and watched the compass. Soon I understood that, too, and the ship sped on.

I had become too interested in the map and the compass, for suddenly there was a sharp buzz and, without my volition, the machine rose and swung to the north. There was a mountain ahead of me; I had not seen, but the ship had.

I noticed then what I should have seen before—two little knobs that could move the map. I started to move them and heard a sharp clicking, and the pace of the ship began decreasing. A moment and it had steadied at a considerably lower speed, the machine swinging to a new course. I tried to right it, but to my amazement the controls did not affect it.

It was the map, you see. It would either follow the course, or the course would follow it. I had moved it and the machine had taken over control of its own accord. There was a little button I could have pushed—but I didn't know. I couldn't control the ship until it finally came to rest and lowered itself to a stop six inches from the ground in the center of what must have been the ruins of a great city. Sacramento, probably.

I understood now, so I adjusted the map for San Frisco, and the ship went on at once. It steered itself around a mass of broken stone, turned back to its course, and headed on, a bullet-shaped, self-controlled dart.

It didn't descend when it reached San Frisco. It simply hung in the air and sounded a soft musical hum. Twice. Then it waited. I waited, too, and looked down.

There were people here. I saw the humans of that age for the first time. They were little men—bewildered—dwarfed, with heads disproportionately large. But not extremely so.

Their eyes impressed me most. They were huge, and when they looked at me there was a power in them that seemed sleeping, but too deeply to be roused.

I took the manual controls then and landed. And no sooner had I got out, than the ship rose automatically and started off by itself. They had automatic parking devices. The ship had gone to a public hangar, the nearest, where it would be automatically serviced and cared for. There was a little call set I should have taken with me when I got out. Then I could have pressed a button and called it to me—wherever I was in that city.

The people about me began talking—singing almost—among themselves. Others were coming up leisurely. Men and women—but there seemed no old and few young. What few young there were, were treated almost with respect, carefully taken care of lest a careless footstep on their toes or a careless step knock them down.

There was reason, you see. They lived a tremendous time. Some lived as long as three thousand years. Then—they simply died. They didn't

grow old, and it never had been learned why people died as they did. The heart stopped, the brain ceased thought—and they died. But the young children, children not yet mature, were treated with the utmost care. But one child was born in the course of a month in that city of one hundred thousand people. The human race was growing sterile.

And I have told you that they were lonely? Their loneliness was beyond hope. For, you see, as man strode toward maturity, he destroyed all forms of life that menaced him. Disease. Insects. Then the last of the insects, and finally the last of the man-eating animals.

The balance of nature was destroyed then, so they had to go on. It was like the machines. They started them—and now they can't stop. They started destroying life—and now it wouldn't stop. So they had to destroy weeds of all sorts, then many formerly harmless plants. Then the herbivora, too, the deer and the antelope and the rabbit and the horse. They were a menace, they attacked man's machine-tended crops. Man was still eating natural foods.

You can understand. The thing was beyond their control. In the end they killed off the denizens of the sea, also, in self-defense. Without the many creatures that had kept them in check, they were swarming beyond bounds. And the time had come when synthetic foods replaced natural. The air was purified of all life about two and a half million years after our day, all microscopic life.

That meant that the water, too, must be purified. It was—and then came the end of life in the ocean. There were minute organisms that lived on bacterial forms, and tiny fish that lived on the minute organisms, and small fish that lived on the tiny fish, and big fish that lived on the small fish—and the beginning of the chain was gone. The sea was devoid of life in a generation. That meant about one thousand and five hundred years to them. Even the sea plants had gone.

And on all Earth there was only man and the organisms he had protected—the plants he wanted for decoration, and certain ultra-hygienic pets, as long-lived as their masters. Dogs. They must have been remarkable animals. Man was reaching his maturity then, and his animal friend, the friend that had followed him through a thousand millenniums to your day and mine, and another four thousand millenniums to the day of man's early maturity, had grown in intelligence. In an ancient museum—a wonderful place, for they had, perfectly preserved, the body of a great leader of mankind who had died five and a half million years before I saw him—in that museum, deserted then, I saw one of those canines. His skull was nearly as large as mine. They had simple ground machines that dogs could be trained to drive, and they held races in which the dogs drove those machines.

Then man reached his full maturity. It extended over a period of a full million years. So tremendously did he stride ahead, the dog ceased to be a companion. Less and less were they wanted. When the million years had passed, and man's decline began, the dog was gone. It had died out.

And now this last dwindling group of men still in the system had no other life form to make its successor. Always before when one civilization toppled, on its ashes rose a new one. Now there was but one civilization, and all other races, even other species, were gone save in the plants. And man was too far along in his old age to bring intelligence and mobility from the plants. Perhaps he could have in his prime.

Other worlds were flooded with man during that million years—the million years. Every planet and every moon of the system had its quota of men. Now only the planets had their populations, the moons had been deserted. Pluto had been left before I landed, and men were coming from Neptune, moving in toward the Sun, and the home planet, while I was there. Strangely quiet men, viewing, most of them, for the first time, the planet that had given their race life.

But as I stepped from that ship and watched it rise away from me, I saw why the race of man was dying. I looked back at the faces of those men, and on them I read the answer. There was one single quality gone from the still-great minds—minds far greater than yours or mine. I had to have the help of one of them in solving some of my problems. In space, you know, there are twenty coordinates, ten of which are zero, six of which have fixed values, and the four others represent our changing, familiar dimensions in space-time. That means that integrations must proceed in not double, or triple, or quadruple—but ten integrations.

It would have taken me too long. I would never have solved all the problems I must work out. I could not use their mathematics machines; and mine, of course, were seven million years in the past. But one of those men was interested and helped me. He did quadruple and quintuple integration, even quadruple integration between varying exponential limits—in his head.

When I asked him to. For the one thing that had made man great had left him. As I looked in their faces and eyes on landing I knew it. They looked at me, interested at this rather unusual-looking stranger—and went on. They had come to see the arrival of a ship. A rare event, you see. But they were merely welcoming me in a friendly fashion. They were not curious! Man had lost the instinct of curiosity.

Oh, not entirely! They wondered at the machines, they wondered at the stars. But they did nothing about it. It was not wholly lost to them yet, but nearly. It was dying. In the six short months I stayed with them,

I learned more than they had learned in the two or even three thousand years they had lived among the machines.

Can you appreciate the crushing hopelessness it brought to me? I, who love science, who see in it, or have seen in it, the salvation, the raising of mankind—to see those wondrous machines, of man's triumphant maturity, forgotten and misunderstood. The wondrous, perfect machines that tended, protected, and cared for those gentle, kindly people who had—forgotten.

They were lost among it. The city was a magnificent ruin to them, a thing that rose stupendous about them. Something not understood, a thing that was of the nature of the world. It was. It had not been made; it simply was. Just as the mountains and the deserts and the waters of the seas.

Do you understand—can you see that the time since those machines were new was longer than the time from our day to the birth of the race? Do we know the legends of our first ancestors? Do we remember their lore of forest and cave? The secret of chipping a flint till it had a sharp-cutting edge? The secret of trailing and killing a saber-toothed tiger without being killed oneself?

They were now in similar straits, though the time had been longer, because the languages had taken a long step towards perfection, and because the machines maintained everything for them through generation after generation.

Why, the entire planet of Pluto had been deserted—yet on Pluto the largest mines of one of their metals were located; the machines still functioned. A perfect unity existed throughout the system. A unified system of perfect machines.

And all those people knew was that to do a certain thing to a certain lever produced certain results. Just as men in the Middle Ages knew that to take a certain material, wood, and place it in contact with other pieces of wood heated red, would cause the wood to disappear, and become heat. They did not understand that wood was being oxidized with the release of the heat of formation of carbon dioxide and water. So those people did not understand the things that fed and clothed and carried them.

I stayed with them there for three days. And then I went to Jacksonville. Yawk City, too. That was enormous. It stretched over—well, from well north of where Boston is today to well south of Washington—that was what they called Yawk City.

I never believed that, when he said it, said Jim, interrupting himself. I knew he didn't. If he had I think he'd have bought land somewhere along there and held for a rise in value. I know Jim. He'd have the idea that seven million years was something like seven hundred, and maybe his great-grandchildren would be able to sell it.

Anyway, went on Jim, he said it was all because the cities had spread so. Boston spread south. Washington, north. And Yawk City spread all over. And the cities between grew into them.

And it was all one vast machine. It was perfectly ordered and perfectly neat. They had a transportation system that took me from the North End to the South End in three minutes. I timed it. They had learned to neutralize acceleration.

Then I took one of the great space liners to Neptune. There were still some running. Some people, you see, were coming the other way.

The ship was huge. Mostly it was a freight liner. It floated up from Earth, a great metal cylinder three quarters of a mile long, and a quarter of a mile in diameter. Outside the atmosphere it began to accelerate. I could see Earth dwindle. I have ridden one of our own liners to Mars, and it took me, in 3048, five days. In half an hour on this liner Earth was just a star, with a smaller, dimmer star near it. In an hour we passed Mars. Eight hours later we landed on Neptune. M'reen was the city. Large as the Yawk City of my day—and no one living there.

The planet was cold and dark—horribly cold. The sun was a tiny, pale disk, heatless and almost lightless. But the city was perfectly comfortable. The air was fresh and cool, moist with the scent of growing blossoms, perfumed with them. And the whole giant metal framework trembled just slightly with the humming, powerful beat of the mighty machines that had made and cared for it.

I learned from records I deciphered, because of my knowledge of the ancient tongue that their tongue was based on, and the tongue of that day when man was dying, that the city was built three million, seven hundred and thirty thousand, one hundred and fifty years after my birth. Not a machine had been touched by the hand of man since that day.

Yet the air was perfect for man. And the warm, rose-silver glow hung in the air here and supplied the only illumination.

I visited some of their other cities where there were men. And there, on the retreating outskirts of man's domain, I first heard the Song of Longings, as I called it.

And another, The Song of Forgotten Memories. Listen:

He sang another of those songs. There's one thing I know, declared Jim. That bewildered note was stronger in his voice, and by that time I guess I pretty well understood his feelings. Because, you have to remember, I heard it only secondhand from an ordinary man, and Jim had heard it from an eye-and-ear witness that was not ordinary, and heard it in that organ voice. Anyway, I guess Jim was right when he said: "He wasn't any ordinary man." No ordinary man could think of those songs. They weren't right. When he sang that song, it was full of more of those plain-

tive minors. I could feel him searching his mind for something he had forgotten, something he desperately wanted to remember—something he knew he should have known—and I felt it eternally elude him. I felt it get further away from him as he sang. I heard that lonely, frantic searcher attempting to recall that thing—that thing that would save him.

And I heard him give a little sob of defeat—and the song ended. Jim tried a few notes. He hasn't a good ear for music—but that was too powerful to forget. Just a few hummed notes. Jim hasn't much imagination, I guess, or when that man of the future sang to him he would have gone mad. It shouldn't be sung to modern men; it isn't meant for them. You've heard those heart-rending cries some animals give, like human cries, almost? A loon, now—he sounds like a lunatic being murdered horribly.

That's just unpleasant. That song made you feel just exactly what the singer meant—because it didn't just sound human—it was human. It was the essence of humanity's last defeat, I guess. You always feel sorry for the chap who loses after trying hard. Well, you could feel the whole of humanity trying hard—and losing. And you knew they couldn't afford to lose, because they couldn't try again.

He said he'd been interested before. And still not wholly upset by those machines that couldn't stop. But that was too much for him.

I knew after that, he said, that these weren't men I could live among. They were dying men, and I was alive with the youth of the race. They looked at me with the same longing, hopeless wonder with which they looked at the stars and the machines. They knew what I was, but couldn't understand.

I began to work on leaving.

It took six months. It was hard because my instruments were gone, of course, and theirs didn't read in the same units. And there were few instruments, anyway. The machines didn't read instruments; they acted on them. They were sensory organs to them.

But Reo Lantal helped where he could. And I came back.

I did just one thing before I left that may help. I may even try to get back there sometime. To see, you know.

I said they had machines that could really think? But that someone had stopped them a long time ago, and no one knew how to start them?

I found some records and deciphered them. I started one of the last and best of them and started it on a great problem. It is only fitting it should be done. The machine can work on it, not for a thousand years, but for a million, if it must.

I started five of them actually, and connected them together as the records directed.

They are trying to make a machine with something that man had lost.

It sounds rather comical. But stop to think before you laugh. And remember that Earth as I saw it from the ground level of Neva City just before Reo Lantal threw the switch.

Twilight—the sun has set. The desert out beyond, in its mystic, changing colors. The great, metal city rising straight-walled to the human city above, broken by spires and towers and great trees with scented blossoms. The silvery-rose glow in the paradise of gardens above.

And all the great city-structure throbbing and humming to the steady gentle beat of perfect, deathless machines built more than three million years before—and never touched since that time by human hands. And they go on. The dead city. The men that have lived, and hoped, and built—and died to leave behind them those little men who can only wonder and look and long for a forgotten kind of companionship. They wander through the vast cities their ancestors built, knowing less of them than the machines themselves.

And the songs. Those tell the story best, I think. Little, hopeless, wondering men amid vast unknowing, blind machines that started three million years before—and just never knew how to stop. They are dead—and can't die and be still.

So I brought another machine to life, and set it to a task which, in time to come, it will perform.

I ordered it to make a machine which would have what man had lost. A curious machine.

And then I wanted to leave quickly and go back. I had been born in the first full light of man's day. I did not belong in the lingering, dying glow of man's twilight.

So I came back. A little too far back. But it will not take me long to return—accurately this time.

"Well, that was his story," Jim said. "He didn't tell me it was true—didn't say anything about it. And he had me thinking so hard I didn't even see him get off in Reno when we stopped for gas.

"But—he wasn't an ordinary man," repeated Jim, in a rather belligerent tone.

Jim claims he doesn't believe the yarn, you know. But he does; that's why he always acts so determined about it when he says the stranger wasn't an ordinary man.

No, he wasn't, I guess. I think he lived and died, too, probably, sometime in the thirty-first century. And I think he saw the twilight of the race, too.