



INSTINCT

by Lester del Rey

Senthree waved aside the slowing scooter and lengthened his stride down the sidewalk; he had walked all the way from the rocket port, and there was no point to a taxi now that he was only a few blocks from the bio-labs. Besides, it was too fine a morning to waste in riding. He sniffed at the crisp, clean fumes of gasoline appreciatively and listened to the music of his hard heels slapping against the concrete.

It was good to have a new body again. He hadn't appreciated what life was like for the last hundred years or so. He let his eyes rove across the street toward the blue flame of a welding torch and realized how long it had been since his eyes had really appreciated the delicate beauty of such a flame. The wise old brain in his chest even seemed to think better now.

It was worth every stinking minute he'd spent on Venus. At times like this, one could realize how good it was to be alive and to be a robot.

Then he sobered as he came to the old bio-labs. Once there had been plans for a fine new building instead of the old factory in which he had started it all four hundred years ago. But somehow, there'd never been time for that. It had taken almost a century before they could master the technique of building up genes and chromosomes into the zygote of a simple fish that would breed with the natural ones. Another century had gone by before they produced Oscar, the first artificially made pig. And there they 'seemed to have stuck. Sometimes it seemed to Senthree that they were no nearer recreating Man than they had been when they started.

He dilated the door and went down the long hall, studying his reflection in the polished walls absently. It was a good body. The black enamel was perfect and every joint of the metal case spelled new techniques and luxurious fitting. But the old worries were beginning to settle. He grunted at Oscar LXXII, the lab mascot, and received an answering grunt. The pig came over to root at his feet, but he had no time for that. He turned into the main lab room, already taking on the worries of his job.

It wasn't hard to worry as he saw the other robots. They were clustered about some object on a table, dejection on every gleaming back. Senthree shoved Ceofor and Beswun aside and moved up. One look was enough. The female of the eleventh couple lay there in the strange stiffness of protoplasm that had died, a horrible grimace on her face.

"How long—and what happened to the male?" Senthree asked.

Ceofor swung to face him quickly. "Hi, boss. You're late. Hey, new body!"

Senthree nodded, as they came grouping around, but his words were automatic as he explained about falling in the alkali pool on Venus and ruining his worn body completely. "Had to wait for a new one. And then the ship got held up while we waited for the Arcturus superlight ship to land. They'd found half a dozen new planets to colonize, and had to spread the word before they'd set down. Now, what about the creatures?"

"We finished educating about three days ago," Ceofor told him. Ceofor was the first robot trained hi Sen-three's technique of gene-building and the senior assistant. "Expected you back then, boss. But . . . well, see for yourself. The man is still alive, but he won't be long."

Senthree followed them back to another room and looked through the window. He looked away quickly. It had been another failure. The man was crawling about the floor on hands and knees, falling half the time to his stomach, and drooling. His garbled mouthing made no sense.



"Keep the news robots out," he ordered. It would never do to let the public see this. There was already too much of a cry against homovivifying, and the crowds were beginning to mutter something about it being unwise to mess with vanished life forms. They seemed actually afraid of the legendary figure of Man.

"What luck on Venus?" one of them asked, as they began the job of carefully dissecting the body of the female failure to look for the reason behind the lack of success.

"None. Just another rumor. I don't think Man ever established self-sufficient colonies. If he did, they didn't survive. But I found something else—something the museum would give a fortune for. Did my stuff arrive?"

"You mean that box of tar? Sure, it's over there hi the corner."

Senthree let the yielding plastic of his mouth smile at them as he strode toward it. They had already ripped off the packing, and now he reached up for a few fine wires in the tar. It came off as he pulled, loosely repacked over a thin layer of wax. At that, he'd been lucky to sneak it past customs. This was the oldest, crudest, and biggest robot discovered so far—perhaps one of the fabulous Original Models. It stood there rigidly, staring out of its pitted, expressionless face. But the plate on its chest had been scraped carefully clean, and Senthree pointed it out to them.

MAKEPEACE ROBOT, SER. 324MD2991. SURGEON.

"A mechanic for Man bodies," Beswun translated. "But that means . . ."

"Exactly." Senthree put it into words. "It must know how Man's body was built—if it has retained any memory. I found it in a tarpit by sheer accident, and it seems to be fairly well preserved. No telling whether there were any magnetic fields to erode memories, of course, and it's all matted inside. But if we can get it to working ..."

Beswun took over. He had been trained as a physicist before the mysterious lure of the bio-lab had drawn him here. Now he began wheeling the crude robot away. If he could get it into operation, the museum could wait. The recreation of Man came first!

Senthree pulled x-ray lenses out of a pouch and replaced the normal ones in his eyes before going over to join the robots who were beginning dissection. Then he switched them for the neutrino detector lenses that had made this work possible. The neutrino was the only particle that could penetrate the delicate protoplasmic cells without ruining them and yet permit the necessary millions of tunes magnification. It was a fuzzy image, since the neutrino spin made such an insignificant field for the atomic nuclei to work on that few were deflected. But through them, he could see the vague outlines of the pattern within the cells. It was as they had designed the original cell—there had been no reshuffling of genes in handling. He switched to his micromike hands and began the delicate work of tracing down the neuron connections. There was only an occasional mutter as one of the robots beside him switched to some new investigation.

The female should have lived! But somewhere, in spite of all their care, she had died. And now the male was dying. Eleven couples—eleven failures. Senthree was no nearer finding the creators of his race than he had been centuries before.

Then the radio in his head buzzed its warning and he let it cut in, straightening from his work. "Senthree."

"The Director is in your office. Will you report at once?"

"Damn!" The word had no meaning, but it was strangely satisfying at times. What did old Emptinine want ... or wait again, there'd been a selection while he was on Venus investigating the rumors of Man. Some young administrator—Arpeten—had the job now.

Ceofor looked up guiltily, obviously having tuned in.



"I should have warned you. We got word three days ago he was coming, but forgot it in reviving the couple. Trouble?"

Senthree shrugged, screwing his normal lenses back in and trading to the regular hands. They couldn't have found out about the antique robot. They had been seen by nobody else. It was probably just sheer curiosity over some rumor that they were reviving the couple. If his appropriation hadn't been about exhausted, Senthree would have told him where to go; but now was hardly the time, with a failure on one hand and a low credit balance on the other. He polished his new head quickly with the aid of one of the walls for a mirror and headed toward his office.

But Arpeten was smiling. He got to his feet as the bio-lab chief entered, holding out a well-polished hand. "Dr. Senthree. Delighted. And you've got an interesting place here. I've already seen most of it. And that pig— they tell me it's a descendant of a boar out of your test tubes."

"Incubation wombs. But you're right—the seventy-second generation."

"Fascinating." Arpeten must have been reading too much of that book *Proven Points to Popularity* they'd dug up in the ruins of Hudson ten years before, but it had worked. He was the Director. "But tell me. Just what good are pigs?"

Senthree grinned, in spite of himself. "Nobody knows. Men apparently kept a lot of them, but so far as I can see they are completely useless. They're clever, in a way. But I don't think they were pets. Just another mystery."

"Umm. Like men. Maybe you can tell me what good Man will be. I've been curious about that since I saw your appropriations. But nobody can answer."

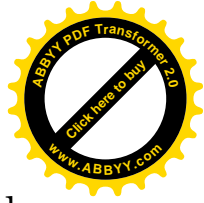
"It's in the records," Senthree told him sharply. Then he modified his voice carefully. "How well do you know your history? I mean about the beginning."

"Well ..."

He probably knew some of it, Senthree thought. They all got part of it as legends. He leaned back in his seat now, though, as the biochemist began the old tale of the beginning as they knew it. They knew that there had been Man a million years before them. And somebody—Asimov or Asenion, the record wasn't quite clear—had apparently created the first robot. They had improved it up to about the present level. Then there had been some kind of a contest in which violent forces had ruined the factories, most of the robots, and nearly all of the Men. It was believed from the fragmentary records that a biological weapon had killed the rest of man, leaving only the robots.

Those first robots, as they were now known, had had to start on a ruined world from scratch—a world where mines were exhausted, and factories were gone. They'd learned to get metals from the seas, and had spent years and centuries slowly rebuilding the machines to build new robots. There had been only two of them when the task was finished, and they had barely time enough to run one new robot off and educate him sketchily. Then they had discharged finally, and he had taken up rebuilding the race. It was almost like beginning with no history and no science. Twenty millennia had passed before they began to rebuild a civilization of their own.

"But why did Man die?" Senthree asked. "That's part of the question. And are we going to do the same? We know we are similar to Man. Did he change himself in some way that ruined him? Can we change ourselves safely? You know that there are a thousand ways we could improve ourselves. We could add anti-gravity, and get rid of our cumbersome vehicles. We could add more arms. We could eliminate our useless mouths and talk by radio. We could add new circuits to our brains. But we don't dare. One school says that



nobody can build a better race than itself, so Man must have been better than we are—and if he made us this way, there was a reason. Even if the psychologists can't understand some of the circuits in our brains, they don't dare touch them.

"We're expanding through the universe—but we can't even change ourselves to fit the new planets. And until we can find the reasons for Man's disappearance, that makes good sense. We know he was planning to change himself. We have bits of evidence. And he's dead. To make it worse, we have whole reels of education tape that probably contain all the answers— but information is keyed to Man's brain, and we can't respond to it. Give us a viable Man, and he can interpret that. Or we can find out by comparison what we can and cannot do. I maintain we can do a lot."

Arpeten shook his head doubtfully. "I suppose you think you know why he died!"

"I think so, yes. Instinct! That's a built-in reaction, an unlearned thought. Man had it. If a man heard a rattlesnake, he left the place in a hurry, even though he'd never heard it before. Response to that sound was built into him. No tape impressed it, and no experience was needed. We know the instincts of some of the animals, too—and one of them is to struggle and kill—like the ants who kill each other off. I think Man did just that. He couldn't get rid of his instincts when they were no longer needed, and they killed him. He should have changed—and we can change. But I can't tell that from animals. I need intelligent life, to see whether instinct or intelligence will dominate. And robots don't have instincts—I've looked for even one sign of something not learned individually, and can't find it. It's the one basic difference between us. Don't you see, Man is the whole key to our problem of whether we can change or not without risking extermination?"

"Umm." The director sounded noncommittal. "Interesting theory. But how are you going to know you have Man?"

Senthree stared at the robot with more respect. He tried to explain, but he had never been as sure of that himself as he might. Theoretically, they had bones and bits of preserved tissue. They had examined the gene pattern of these, having learned that the cells of the individual contain the same pattern as that of the zygote. And they had other guides—man's achievements, bits of his literature. From these, some working theories could be made. But he couldn't be quite sure—they'd never really known whether man's pigment was dark brown, pinkish orange, white, or what; the records they had seemed to disagree on this.

"We'll know when we get an intelligent animal with instinct," he said at last. "It won't matter exactly whether he is completely like Man or not. At least it will give us a check on things we must know. Until then, we'll have to go on trying. You might as well know that the last experiment failed, though it was closer. But in another hundred years . . ."

"So." Arpeten's face became bland, but he avoided the look of Senthree. "I'm afraid not. At least for a while. That's what I came about, you know. We've just had word of several new planets around Arcturus, and it will take the major allocation of our funds to colonize these. New robots must be built, new ships—oh, you know. And we're retrenching a bit on other things. Of course, if you'd succeeded . . . but perhaps it's better you failed. You know how the sentiment against reviving Man has grown."

Senthree growled bitterly. He'd seen how it was carefully nurtured—though he had to admit it seemed to be easy to create. Apparently most of the robots were afraid of Man—felt he would again take over, or something. Superstitious fools.

"How much longer?" he asked.



"Oh, we won't cut back what you have, Dr. Senthree. But I'm afraid we simply can't allocate more funds. When this is finished, I was hoping to make you biological investigator, incidentally, on one of the planets. There'll be work enough. . . . Well, it was a pleasure." He shook hands again, and walked out, his back a gleaming ramrod of efficiency and effectiveness.

Senthree turned back, his new body no longer moving easily. It could already feel the harsh sands and unknown chemical poisons of investigating a new planet—the futile, empty carding of new life that could have no real purpose to the robots. No more appropriations! And they had barely enough funds to meet the current bills.

Four hundred years—and a ship to Arcturus had ended it in three months. Instinct, he thought again—given life with intelligence and instinct together for one year, and he could settle half the problems of his race, perhaps. But robots could not have instincts. Fifty years of study had proven that.

Beswun threw up a hand in greeting as he returned, and he saw that the dissection was nearly complete, while the antique robot was activated. A hinge on its ludicrous jaw was moving, and rough, grating words were coming out. Senthree turned to the dissecting bench, and then swung back as he heard them.

"Wrong . . . wrong," it was muttering. "Can not live. Is not good brain. No pineal. Medulla good, but not good cerebrum. Fissures wrong. Maybe pituitary disfunction? No. How can be?" It probed doubtfully and set the brain aside. "Mutation maybe. Very bad. Need Milliken mike. See nucleus of cells. Maybe just freak, maybe new disease."

Senthree's fingers were taut and stiff as he fished into his bag and came out with a set of lenses. Beswun shook his head and made a waiting sign. He went out at a run, to come back shortly with a few bits of metal and the shavings from machining still on his hands. "Won't fit—but these adapters should do it. There, 324MD2991. Now come over here where you can look at it over this table—that's where the—uh, rays are."

He turned back, and Senthree saw that a fine wire ran from one adapter. "He doesn't speak our bio-terminology, Senthree. We'll have to see the same things he does. There—we can watch it on the screen. Now, 324MD2991, you tell us what is wrong and point it out. Are your hands steady enough for that?"

"Hands one-billionth inch accurate," the robot creaked; it was a meaningless noise, though they had found the unit of measure mentioned. But whatever it meant, the hands were steady enough. The microprobe began touching shadowy bunches of atoms, droning and grating. "Freak. Very bad freak. How he lived? Would stop tropoblast, not attach to uterus. Ketone—no ketone there. Not understand. How he live?"

Ceofor dashed for their chromosome blanks and began lettering in the complex symbols they used. For a second, Senthree hesitated. Then he caught fire and began making notes along with his assistant. It seemed to take hours; it probably did. The old robot had his memory intact, but there were no quick ways for him to communicate. And at last, the antique grunted in disgust and turned his back on them. Beswun pulled a switch.

"He expects to be discharged when not in use. Crazy, isn't it?" the physicist explained. "Look, boss, am I wrong, or isn't that close to what we did on the eleventh couple?"

"Only a few genes different in three chromosomes. We were close. But—umm, that's ridiculous. Look at all the brain tissue he'd have—and a lot of it unconnected. And here—that would put an extra piece on where big and little intestines join—a perfect focal point for infection. It isn't efficient biological engineering. And yet—umm—most animals do have just that kind of engineering. I think the old robot was right—this would be Man!" He



looked at their excited faces, and his shoulders sank. "But there isn't time. Not even time to make a zygote and see what it would look like. Our appropriations won't come through."

It should have been a bombshell, but he saw at once that they had already guessed it. Ceofor stood up slowly.

"We can take a look, boss. We've got the sperm from the male that failed—all we have to do is modify those three, instead of making up a whole cell. We might as well have some fun before we go out looking for sand fleas that secrete hydrofluoric acid and menace our colonies. Come on, even in your new body I'll beat you to a finished cell!"

Senthree grinned ruefully, but he moved toward the creation booth. His hands snapped on the little time field out of pure habit as he found a perfect cell. The little field would slow time almost to zero within its limits, and keep any damage from occurring while he worked. It made his own work difficult, since he had to force the probe against that, but it was insulated to some extent by other fields.

Then his hands took over. For a time he worked and thought, but the feeling of the protoplasm came into them, and his hands were almost one with the life stuff, sensing its tiny responses, inserting another link onto a chain, supplanting an atom of hydrogen with one of the hydroxyl radicals, wielding all the delicate chemical manipulation. He removed the defective genes and gently inserted the correct ones. Four hundred years of this work lay behind him—work he had loved, work which had meant the possible evolution of his race into all it might be.

It had become instinct to him—instinct in only a colloquial sense, however; this was learned response, and real instinct lay deeper than that, so deep that no reason could overcome it and that it was automatic even the first time. Only Man had had instinct and intelligence—stored somehow in this tiny cell that lay within the time field.

He stepped out, just as Ceofor was drawing back in a dead heat. But the younger robot inspected Senthree's cell, and nodded. "Less disturbance and a neater job on the nucleus—I can't see where you pierced the wall. Well, if we had thirty years—even twenty—we could have Man again—or a race. Yours is male and mine female. But there's no time. . . . Shall I leave the time field on?"

Senthree started to nod.

Then he swung to Beswun. "The time field. Can it be reversed?"

"You mean to speed time up within it? No, not with that model. Take a bigger one. I could build you one in half an hour. But who'd want to speed up time with all the troubles you'd get? How much?"

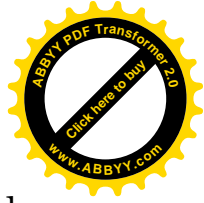
"Ten thousand—or at least seven thousand times! The period is up tomorrow when disbursements have to be made. I want twenty years in a day."

Beswun shook his head. "No. That's what I was afraid of. Figure it this way: you speed things up ten thousand times and that means the molecules in there speed up just that much, literally. Now 273° times ten thousand—and you have more than two million degrees of temperature. And those molecules have energy! They come busting out of there. No, can't be done."

"How much can you do?" Senthree demanded.

Beswun considered. "Ten times—maybe no more than nine. That gives you all the refractories would handle, if we set it up down in the old pit under the building—you know, where they had the annealing oven."

It wasn't enough; it would still take two years. Senthree dropped onto a seat, vagrantly wondering again how this queer brain of his that the psychologists studied futilely could



make him feel tired when his body could have no fatigue. It was probably one of those odd circuits they didn't dare touch.

"Of course, you can use four fields," Beswun stated slowly. "Big one outside, smaller one, still smaller, and smallest inside that. Fourth power of nine is about sixty-six hundred. That's close—raise that nine a little and you'd have your twenty years in a day. By the time it leaked from field to field, it wouldn't matter. Take a couple of hours."

"Not if you get your materials together and build each shell inside the other—you'll be operating faster each step then," Ceofor shouted. "Somebody'll have to go in and stay there a couple of our minutes toward the end to attach the educator tapes—and to revive the couple!"

"Take power," Beswun warned.

Senthree shrugged. Let it. If the funds they had wouldn't cover it, the Directorate would have to make it up, once it was used. Besides, once Man was created, they couldn't fold up the bio-labs. "I'll go in," he suggested.

"My job," Ceofor told him flatly. "You won the contest in putting the cells right."

Senthree gave in reluctantly, largely because the younger robot had more experience at reviving than he did. He watched Beswun assemble the complicated net of wires and become a blur as he seemed to toss the second net together almost instantly. The biochemist couldn't see the third go up—it was suddenly there, and Beswun was coming out as it flashed into existence. He held up four fingers, indicating all nets were working.

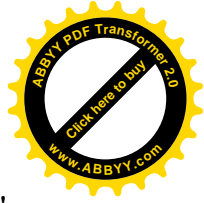
Ceofor dashed in with the precious cells for the prepared incubators that would nurture the bodies until maturity, when they would be ready for the educators. His body seemed to blur, jerk, and disappear. And almost at once he was back.

Senthree stood watching for a moment more, but there was nothing to see. He hesitated again, then turned and moved out of the building. Across the street lay his little lodging place, where he could relax with his precious two books—almost complete—that had once been printed by Man. Tonight he would study that strange bit of Man's history entitled *Gather, Darkness*, with its odd indications of a science that Man had once had which had surpassed even that of the robots now. It was pleasanter than the incomprehensibility of the mysteriously titled *Mein Kampf*. He'd let his power idle, and mull over it, and consider again the odd behavior of male and female who made such a complicated business of mating. That was probably more instinct—Man, it seemed, was filled with instincts.

For a long time, though, he sat quietly with the book on his lap, wondering what it would be like to have instincts. There must be many unpleasant things about it. But there were also suggestions that it could be pleasant. Well, he'd soon know by observation, even though he could never experience it. Man should have implanted one instinct in a robot's brain, at least, just to show what it was like.

He called the lab once, and Ceofor reported that all was doing nicely, and that both children were looking quite well. Outside the window, Senthree heard a group go by, discussing the latest bits of news on the Arcturus expedition. At least in that, Man had failed to equal the robots. He had somehow died before he could find the trick of using identity exchange to overcome the limitation imposed by the speed of light.

Finally he fell to making up a speech that he could deliver to the Director, Arpenten, when success was in his hands. It must be very short—something that would stick in the robot's mind for weeks, but carrying everything a scientist could feel on proving that those who opposed him were wrong. Let's see. ...



The buzzer on the telescreen cut through his thoughts, and he flipped it on to see Ceofor's face looking out. Senthree's spirits dropped abruptly as he stared at the younger robot.

"Failure? No!"

The other shook his head. "No. At least, I don't know. I couldn't give them full education. Maybe the tape was uncomfortable. They took a lot of it, but the male tore his helmet off and took the girl's off. Now they just sit there, rubbing their heads and staring around."

He paused, and the little darkened ridges of plastic over his eyes tensed. "The time speed-up is off. But I didn't know what to do."

"Let them alone until I get there. If it hurts them, we can give them the rest of it later. How are they otherwise?"

"I don't know. They look all right, boss." Ceofor hesitated, and his voice dropped. "Boss, I don't like it. There's something wrong here. I can't quite figure out what it is, but it isn't the way I expected. Hey, the male just pushed the female off her seat. Do you think their destructive instinct . . . ? No, she's sitting down on the floor now, with her head against him, and holding one of his hands. Wasn't that part of the mating ritual in one of the books?"

Senthree started to agree, a bit of a smile coming onto his face. It looked as if instinct were already in operation.

But a strange voice cut him off. "Hey, you robots, when do we eat around here?"

They could talk! It must have been the male. And if it wasn't the polite thanks and gratitude Senthree had expected, that didn't matter. There had been all kinds of Men in the books, and some were polite while others were crude. Perhaps forced education from the tapes without fuller social experience was responsible for that. But it would all adjust in time.

He started to turn back to Ceofor, but the younger robot was no longer there, and the screen looked out on a blank wall. Senthree could hear the loud voice crying out again, rough and harsh, and there was a shrill, whining sound that might be the female. The two voices blended with the vague mutter of robot voices until he could not make out the words.

He wasted no time in trying. He was already rushing down to the street and heading toward the labs. Instinct—the male had already shown instinct, and the female had responded. They would have to be slow with the couple at first, of course—but the whole answer to the robot problems lay at hand. It would only take a little time and patience now. Let Arpeten sneer, and let the world dote on the Arcturus explorers. Today, biochemistry had been, crowned king with the magic of intelligence combined with instinct as its power.

Ceofor came out of the lab at a run with another robot behind him. The young robot looked dazed, and there was another emotion Senthree could not place. The older biochemist nodded, and the younger one waved quickly. "Can't stop now. They're hungry." He was gone at full speed.

Senthree realized suddenly that no adequate supply of fruit and vegetables had been provided, and he hadn't even known how often Man had to eat. Or exactly what. Luckily, Ceofor was taking care of that.

He went down the hall, hearing a tumult of voices, with robots apparently spread about on various kinds of hasty business. The main lab where the couple was seemed quiet. Senthree hesitated at the door, wondering how to address them. There must be no questioning now. Today he would not force himself on them, nor expect them to



understand his purposes. He must welcome them and make them feel at ease in this world, so strange to them with their prehistoric tape education. It would be hard at first to adjust to a world of only robots, with no other Man people. The matter of instinct that had taken so long could wait a few days more.

The door dilated in front of him and he stepped into the lab, his eyes turning to the low table where they sat. They looked healthy, and there was no sign of misery or uncertainty that he could see, though he could not be sure of that until he knew them better. He could not even be sure it was a scowl on the male's face as the Man turned and looked at him.

"Another one, eh? Okay, come up here. What you want?"

Then Senthree no longer wondered how to address the Man. He bowed low as he approached them, and instinct made his voice soft and apologetic as he answered.

"Nothing, Master. Only to serve you."