

MICROCOSMIC GOD

by Theodore Sturgeon

Here is a story about a man who had too much power, and a man who took too much, but don't worry; I'm not going political on you. The man who had the power was named James Kidder and the other was his banker.

Kidder was quite a guy. He was a scientist and he lived on a small island off the New England coast all by him-self. He wasn't the dwarfed little gnome of a mad scientist you read about. His hobby wasn't personal profit, and he wasn't a megalomaniac with a Russian name and no scruples. He wasn't insidious, and he wasn't even particularly subversive. He kept his hair cut and his nails clean and lived and thought like a reasonable human being. He was slightly on the baby-faced side; he was inclined to be a hermit; he was short and plump and brilliant. His specialty was biochemistry, and he was always called *Mr. Kidder*. Not "Dr." Not "Professor." Just *Mr. Kidder*.

He was an odd sort of apple and always had been. He had never graduated from any college or university because he found them too slow for him, and too rigid in their approach to education. He couldn't get used to the idea that perhaps his professors knew what they were talking about. That went for his texts, too. He was always asking questions, and didn't mind very much when they were embarrassing. He considered Gregor Mendel a bungling liar, Darwin an amusing philosopher, and Luther Burbank a sensationalist. He never opened his mouth without leaving his victim feeling breathless. If he was talking to someone who had knowledge, he went in there and got it, leaving his victim breathless. If he was talking to someone whose knowledge was already in his possession, he only asked repeatedly, "How do you know?" His most delectable pleasure was cutting a fanatical eugenicist into conversational ribbons. So people left him alone and never, never asked him to tea. He was polite, but not politic.

He had a little money of his own, and with it he leased the island and built himself a laboratory. Now I've mentioned that he was a biochemist. But being what he was, he couldn't keep his nose in his own field. It wasn't too remarkable when he made an intellectual excursion wide enough to perfect a method of crystallizing Vitamin B₁ profitably by the ton-if anyone wanted it by the ton. He got a lot of money for it. He bought his island outright and put eight hundred men to work on an acre and a half of his ground, adding to his laboratory and building equipment. He got to messing around with sisal fiber, found out how to fuse it, and boomed the banana industry by producing a practically unbreakable cord from the stuff.

You remember the popularizing demonstration he put on at Niagara, don't you? That business of running a line of the new cord from bank to bank over the rapids and suspending a ten-ton truck from the middle of it by razor edges resting on the cord? That's why ships now moor themselves with what looks like heaving line, no thicker than a lead pencil, that can be coiled on reels like garden hose. Kidder made cigarette money out of that, too. 'He went out and bought himself a cyclotron with part of it.

After that money wasn't money any more. It was large numbers in little books.

Kidder used little amounts of it to have food and equipment sent out to him, but after a while that stopped, too. His bank dispatched a messenger by seaplane to find out if Kidder was still alive. The man returned two days later in a bemused state, having been amazed something awesome at the things he'd seen out there. Kidder was alive, all right, and he was turning out a surplus of good food in an astonishingly simplified syn-thetic form. The bank wrote immediately and wanted to know if Mr. Kidder, in his own interest, was willing to release the secret of his dirtless farming. Kidder replied that he would be glad to, and enclosed the formulas. In a P.S. he said that he hadn't sent the information ashore because he hadn't realized anyone would be interested. That from a man who was responsible for the greatest sociological change in the second half of the twentieth century-factory farming. It made him richer; I mean it made his bank richer. He didn't give a rap.

Kidder didn't really get started until about eight months after the messenger's visit. For a biochemist who couldn't even be called "Doctor" he did pretty well. Here is a par-tial list of the things that he turned out:

A commercially feasible plan for making an aluminum alloy stronger than the best steel so that it could be used as a structural metal. . .

An exhibition gadget he called a light pump, which worked on the theory that light is a form of matter and therefore subject to physical and electromagnetic laws. Seal a room with a single source, beam a cylindrical vibratory magnetic field to it from the pump, and the light will be led down it. Now pass the light through Kidder's "lens"-a ring which perpetuates an electric field along the lines of a high-speed iris-typo camera shutter. Below this is the heart of the light pump-a ninety-eight-per-cent efficient light absorber, crystalline, which, in a sense, *loses* the light in its internal facets. The effect of darkening the room with this apparatus is slight but measurable. Pardon my layman's language, but that's the general idea.

Synthetic chlorophyll-by the barrel.

An airplane propeller efficient at eight times sonic speed.

A cheap goo you brush on over old paint, let harden, and then peel off like strips of cloth. The old paint comes with it. That one made friends fast.

A self-sustaining atomic disintegration of uranium's iso-tope 238, which is two hundred times as plentiful as the old stand-by, U-235.

That will do for the present. If I may repeat myself; for a biochemist who couldn't even be called "Doctor," he did pretty well.

Kidder was apparently unconscious of the fact that he held power enough on his little island to become master of the world. His mind simply didn't run to things like that. As long as he was left alone with his experiments, he was well content to leave the rest of the world to its own clumsy and primitive devices. He couldn't be reached except by a radiophone of his own design, and the only counterpart was locked in a vault of his Boston bank. Only one man could operate it. The extraordinarily sensitive transmitter would respond only to Conant's own body vibrations. Kidder had instructed Conant that he was not to be disturbed except by messages of the greatest moment. His ideas and patents, what Conant could pry out of him, were released under pseudonyms known only to Conant- Kidder didn't care.

The result, of course, was an infiltration of the most astonishing advancements since the dawn of civilization. The nation profited-the world profited. But most of all, the bank profited. It began to get a little oversize. It began getting its fingers into other pies. It grew more fingers and had to bake more figurative pies. Before many years had passed, it was so big that, using Kidder's many weapons, it almost matched Kidder in power.

Almost.

Now stand by while I squelch those fellows in the lower left-hand corner who've been saying all this while that Kidder's slightly improbable; that no man could ever perfect himself in so many ways in so many sciences.

Well, you're right. Kidder was a genius-granted. But his genius was not creative. He was, to the core, a student. He applied what he knew, what he saw, and what he was taught. When first he began working in his new laboratory on his island he reasoned something like this:

"Everything I know is what I have been taught by the sayings and writings of people who have studied the say-ings and writings of people who have-and so on. Once in a while someone stumbles on something new and he or someone cleverer uses the idea and disseminates it. But for each one that finds something really new, a couple of million gather and pass on information that is already current. I'd know more if I could get the jump on evolu-tionary trends. It takes too long to wait for the accidents that increase man's knowledge-my knowledge. If I had ambition enough now to figure out how to travel ahead in time, I could skim the surface of the future and just dip down when I saw something interesting. But time isn't that way. It can't be left behind or tossed ahead. What else is left?

"Well, there's the proposition of speeding intellectual evolution so that I can observe what it cooks up. That seems a bit inefficient. It would involve more labor to discipline human minds to that extent than it would to simply apply myself along those lines. But I can't apply myself that way. No man can.

"I'm licked. I can't speed myself up, and I can't speed other men's minds up. Isn't there an alternative? There must be-somewhere, somehow, there's got to be an answer."

So it was on this, and not on eugenics, or light pumps, or botany, or atomic physics, that James Kidder applied himself. For a practical man he found the problem slightly on the metaphysical side; but he attacked it with typical thoroughness, using his own peculiar brand of logic. Day after day he wandered over the island, throwing shells im-potently at sea gulls and swearing richly. Then came a time when he sat indoors and brooded. And only then did he get feverishly to work.

He worked in his own field, biochemistry, and concen-trated mainly on two things-genetics and animal metab-olism. He learned, and filed away in his insatiable mind, many things having nothing to do with the problem at hand, and very little of what he wanted. But he piled that little on what little he knew or guessed, and in time had quite a collection of known factors to work with. His approach was characteristically unorthodox. He did things on the order of multiplying apples by pears, and balancing equations by adding log V-i to one side and °° to the other. He made mistakes, but only one of a kind, and later, only one of a species. He

spent so many hours at his microscope that he had quit work for two days to get rid of a hallucination that his heart was pumping his own blood through the mike. He did nothing by trial and error because he disapproved of the method as sloppy.

And he got results. He was lucky to begin with and even luckier when he formularized the law of probability and reduced it to such low terms that he knew almost to the item what experiments not to try. When the cloudy, viscous semifluid on the watch glass began to move itself he knew he was on 'the right track. When it began to seek food on its own he began to be excited. When it divided and, in a few hours, redivided, and each part grew and divided again, he was triumphant, for he had created life.

He nursed his brain children and sweated and strained over them, and he designed baths of various vibrations for them, and inoculated and dosed and sprayed them. Each move he made taught him the next And out of his tanks and tubes and incubators came amoebalike creatures, and then ciliated animalcules, and more and more rapidly he produced animals with eye spots, nerve cysts, and then-victory of victories-a real blastopod, possessed of many cells instead of one. More slowly he developed a gastropod, but once he had it, it was not too difficult for him to give it organs, each with a specified function, each inheritable.

Then came cultured mollusklike things, and creatures with more and more perfected gills. The day that a non-descript thing wriggled up an inclined board out of a tank, threw flaps over its gills and feebly breathed air, Kidder quit work and went to the other end of the island and got disgustingly drunk. Hangover and all, he was soon back in the lab, forgetting to eat, forgetting to sleep, tearing into his problem.

He turned into a scientific byway and ran down his other great triumph-accelerated metabolism. He extracted and refined the stimulating factors in alcohol, cocoa, heroin, and Mother Nature's prize dope runner, *cannabis indica*. Like the scientist who, in analyzing the various clotting agents for blood treatments, found that oxalic acid and oxalic acid alone was, the active factor, Kidder isolated the accelerators and decelerators, the stimulants and soporifics, in every substance that ever undermined a man's morality and/or caused a "noble experiment." In 'the process he found one thing he needed badly-a colorless elixir that made sleep the unnecessary and avoidable waster of time it should be. Then and there he went on a twenty-four-hour shift.

He artificially synthesized the substances he had isolated, and in doing so sloughed away a great many useless components. He pursued the subject along the lines of radiations and vibrations. He discovered something in the longer reds which, when projected through a vessel full of air vibrating in the supersonics, and then polarized, speeded up the heartbeat of small animals twenty to one.

They ate twenty times as much, grew twenty times as fast, and-died twenty times sooner than they should have.

Kidder built a huge hermetically sealed room. Above it was another room, the same length and breadth but not quite as high. This was his control chamber. The large room was divided into four sealed sections, each with its individual miniature cranes and derricks-handling ma-chinery of all kinds. There were also trapdoors fitted with air locks leading from the upper to the lower room.

By this time the other laboratory had produced a warm-blooded, snake-skinned quadruped with an astonishingly rapid life cycle—a generation every eight days, a life span of about fifteen. Like the echidna, it was oviparous and mammalian. Its period of gestation was six hours; the eggs hatched in three; the young reached sexual maturity in another four days. Each female laid four eggs and lived just long enough to care for the young after they hatched. The male generally died two or three hours after mating. The creatures were highly adaptable. They were small— not more than three inches long, two inches to the shoulder from the ground. Their forepaws had three digits and a triple-jointed, opposed thumb. They were attuned to life in an atmosphere, with a large ammonia content. Kidder bred four of the creatures and put one group in each section of the sealed room.

Then he was ready. With his controlled atmospheres he varied temperatures, oxygen content, humidity. He killed them off like flies with excesses of, for instance, carbon dioxide, and the survivors bred their physical resistance into the next generation. Periodically he would switch the eggs from one sealed section to another to keep the strains varied. And rapidly, under these controlled conditions, the creatures began to evolve.

This, then, was the answer to his problem. He couldn't speed up mankind's intellectual advancement enough to have it teach him the things his incredible mind yearned for. He couldn't speed himself up. So he created a new race—a race which would develop and evolve so fast that it would surpass the civilization of man; and from them he would learn.

They were completely in Kidder's power. Earth's normal atmosphere would poison them, as he took care to demonstrate to every fourth generation. They would make no attempt to escape from him. They would live their lives and progress and make their little trial-and-error experiments hundreds of times faster than man did. They had the edge on man, for they had Kidder to guide them. It took man six thousand years really to discover science, three hundred to put it to work. It took Kidder's creatures two hundred days to equal man's mental attainments. And from then on—Kidder's spasmodic output made the late, great Tom Edison look like a home handicrafter.

He called them Neoterics, and he teased them into working for him. Kidder was inventive in an ideological way; that is, he could dream up impossible propositions providing he didn't have to work them out. For example, he wanted the Neoterics to figure out for themselves how to build shelters out of porous material. He created the need for such shelters by subjecting one of the sections to a high-pressure rainstorm which flattened the inhabitants. The Neoterics promptly devised waterproof shelters out of the thin waterproof material he piled in one corner.

Kidder immediately blew down the flimsy structures with a blast of cold air. They built them up again so that they resisted both wind and rain. Kidder lowered the temperature so abruptly that they could not adjust their bodies to it. They heated their shelters with tiny braziers. Kidder promptly turned up the heat until they began to roast to death. After a few deaths, one of their bright boys figured out how to build a strong insulant house by using three-ply rubberoid, with the middle layer perforated thousands of times to create tiny air pockets.

Using such tactics, Kidder forced them to develop a highly advanced little culture. He caused a drought in one section and a liquid surplus in another, and then opened the partition between them. Quite a spectacular war was fought, and Kidder's notebooks filled with information about military tactics and weapons. Then there was the vaccine they developed against the common cold—the reason why that affliction has been absolutely stamped out in the world today, for it was one of the things that Conant, the bank president, got hold of. He spoke to Kidder over the radiophone one winter afternoon with a voice so hoarse from laryngitis that Kidder sent him a vial of vaccine and told him briskly not to ever call him again in such a disgustingly inaudible state. Conant had it analyzed and again Kidder's accounts and the bank's swelled.

At first, Kidder merely supplied the materials he thought they might need, but when they developed an intelligence equal to the task of fabricating their own from the elements at hand, he gave each section a stock of raw materials. The process for really strong aluminum was developed when he built in a huge plunger in one of the sections, which reached from wall to wall and was designed to descend at the rate of four inches a day until it crushed whatever was at the bottom. The Neoterics, in self-defense, used what strong material they had in hand to stop the inexorable death that threatened them. But Kidder had seen to it that they had nothing but aluminum oxide and a scattering of other elements, plus plenty of electric power. At first they ran up dozens of aluminum pillars; when these were crushed and twisted they tried shaping them so that the soft metal would take more weight. When that failed they quickly built stronger ones; and when the plunger was halted, Kidder removed one of the pillars and analyzed it. It was hardened aluminum, stronger and tougher than molybdenum steel.

Experience taught Kidder that he had to make certain changes to increase his power over the Neoterics before they got too ingenious. There were things that could be done with atomic power that he was curious about; but he was not willing to trust his little superscientists with a thing like that unless they could be trusted to use it strictly according to Hoyle. So he instituted a rule of fear. The most trivial departure from what he chose to consider the right way of doing things resulted in instant death of half a tribe. If he was trying to develop a Diesel-type power plant, for instance, that would operate without a flywheel, and a bright young Neoteric used any of the materials for architectural purposes, half the tribe immediately died. Of course, they had developed a written language; it was Kidder's own. The teletype in a glass-enclosed area in a corner of each section was a shrine. Any directions that were given on it were obeyed, or else. . . . After this innovation, Kidder's work was much simpler. There was no need for any indirection. Anything he wanted done was done. No matter how impossible his commands, three or four generations of Neoterics could find a way to carry them out.

This quotation is from a paper that one of Kidder's highspeed telescopic cameras discovered being circulated among the younger Neoterics. It is translated from the highly simplified script of the Neoterics.

“These edicts shall be followed by each Neoteric upon pain of death, which punishment will be inflicted by the tribe upon the individual to protect the tribe against him.

Priority of interest and tribal and individual effort is to be given the commands that appear on the word machine.

“Any misdirection of material or power, or use thereof for any other purpose than the carrying out of the ma-chine’s commands, unless no command appears, shall be punishable by death.

“Any information regarding the problem at hand, or ideas or experiments which might conceivably bear upon it, are to become the property of the tribe.

“Any individual failing to cooperate in the tribal effort, or who can be termed guilty of not expending his full efforts in the work, or the suspicion thereof shall be subject to the death penalty.”

Such are the results of complete domination. This paper impressed Kidder as much as it did because it was completely spontaneous. It was the Neoterics’ own creed, developed by them for their own greatest good.

And so at last Kidder had his fulfillment. Crouched in the upper room, going from telescope to telescope, running off slowed-down films from his high speed cameras, he found himself possessed of a tractable, dynamic source of information. Housed in the great square building with its four half-acre sections was a new, world, to which he was god.

Conant’s mind was similar to Kidder’s in that its approach to any problem was along the shortest distance between any two points, regardless of whether that approach was along the line of most or least resistance. His rise to the bank presidency was a history of ruthless moves whose only justification was that they got him what he wanted. Like an over-efficient general, he would never vanquish an enemy through sheer force of numbers alone. He would also skillfully flank his enemy, not on one side, but on both. Innocent bystanders were creatures deserving no consideration.

The time he took over a certain thousand-acre property, for instance, from a man named Grady, he was not satisfied with only the title to the land. Grady was an airport owner-had been all his life, and his father before him. Conant exerted every kind of pressure on the man and found him unshakable. Finally judicious persuasion led the city officials to dig a sewer right across the middle of the field, quite efficiently wrecking Grady’s business. Knowing that this would supply Grady, who was a wealthy man, with motive for revenge, Conant took over Grady’s bank at half again its value and caused it to fold up. Grady lost every cent he had and ended his life in an asylum. Conant was very proud of his tactics.

Like many another who had had Mammon by the tail, Conant did not know when to let go. His vast organization yielded him more money and power than any other concern in history, and yet he was not satisfied. Conant and money were like Kidder and knowledge. Conant’s pyramided enterprises were to him what the Neoterics were to Kidder. Each had made his private world, each used it for his instruction and profit. Kidder, though, disturbed nobody but his Neoterics. Even so, Conant was not wholly villainous. He was a shrewd man, and had discovered early the value of pleasing people. No man can rob successfully over a period of years without pleasing the people he robs. The technique for doing this is highly involved, but master it and you can start your own mint.

Conant's one great fear was that Kidder would some day take an interest in world events and begin to become opinionated. Good heavens-the potential power he had! A little matter like swinging an election could be managed by a man like Kidder as easily as turning over in bed.

The only thing he could do was to call him periodically and see if there was anything that Kidder needed to keep himself busy. Kidder appreciated this. Conant, once in a while, would suggest something to Kidder that intrigued him, something that would keep him deep in his hermit-age for a few weeks. The light pump was one of the re-sults of Conant's imagination. Conant bet him it couldn't be done. Kidder did it.

One afternoon Kidder answered the squeal of the radiophone's signal. Swearing-mildly, he shut off the film he was watching and crossed the compound to the old laboratory. He went to the radiophone, threw a switch. The squealing stopped.

"Well?"

"Hello," said Conant. "Busy?"

"Not very," said Kidder. He was delighted with the pictures his camera had caught, showing the skillful work of a gang of Neoterics synthesizing rubber out of pure sulphur. He would rather have liked to tell Conant about it, but somehow he had never got around to telling Conant about the Neoterics, and he didn't see why he should start now.

Conant said, "Er . . . Kidder, I was down at the club the other day and a bunch of us were filling up an evening with loose talk. Something came up which might interest you."

"What?"

"Couple of the utilities boys there. You know the power setup in this country, don't you? Thirty per cent atomic, the rest hydroelectric, Diesel and steam?"

"I hadn't known," said Kidder, who was as innocent as a babe of current events.

"Well, we were arguing about what chance a new power source would have. One of the men there said it would be smarter to produce a new power and then talk about it. Another one waived that; said he couldn't name that new power, but he could describe it. Said it would have to have everything that present power sources have, plus one or two more things. It could be cheaper, for instance. It could be more efficient. It might supercede the others by being, easier to carry from the power plant to the consumer. See what I mean? Any one of these factors might prove a new source of power competitive to the others. What I'd like to see is a new power with *all* of these factors. What do you think of it?"

"Not' impossible."

"Think not?"

"I'll try it."

"Keep me posted." Conant's transmitter clicked off. The switch was a little piece of false front that Kidder had built into the set, which was something that Conant didn't know. The set switched itself off when Conant moved from it. After the switch's sharp crack, Kidder heard the banker mutter, "If he does it, I'm all set. If he doesn't, at least the crazy fool will keep himself busy on the island."

Kidder eyed the radiophone, for an instant with raised eyebrow; and then

shrugged them down again with his shoulders. It was quite evident that Conant had something up his sleeve, but Kidder wasn't worried. Who on earth would want to disturb him? He wasn't bothering anybody. He went back to the Neoterics' building, full of the new power idea.

Eleven days later Kidder called Conant and gave specific instructions on how to equip his receiver with a fac-simile set which would enable Kidder to send written matter over the air. As soon as, this was done and Kidder informed, the biochemist for once in his life spoke at some length.

"Conant-you implied that a new power source that would be cheaper, more efficient and more easily transmitted than any now in use did not exist. You might be interested in the little generator I have just set up.

"It has power, Conant-unbelievable power. Broadcast. A beautiful little tight beam. Here-catch this on the fac-simile recorder." Kidder slipped a sheet of paper under the clips of his transmitter and it appeared on Conant's set. "Here's the wiring diagram for a power receiver. Now listen. The beam is so tight, so highly directional, that not three-thousandths of one per cent of the power would be lost in a, two-thousand-mile transmission. The power system is closed. That is, any drain on the beam returns a signal along it to the transmitter, which automatically steps up to increase the power output. It has a limit, but it's way up. And something else. This little gadget of mine can send out eight different beams with a total horsepower output of around eight thousand per minute per beam. From each beam you can draw enough power to turn the page of a book or fly a superstratosphere plane. Hold on-I haven't finished yet. Each beam, as I told you before, returns a signal from receiver to transmitter. This not only controls the power output of the beam, but directs it. Once contact is made, the beam will never let go. It will follow the receiver anywhere. You can power land, air or water vehicles with it, as well as any stationary plant. Like it?"

Conant, who was a banker and not a scientist, wiped his shining pate with the back of his hand and said, "I've never known you to steer me wrong yet, Kidder. How about the cost of this thing?"

"High." said Kidder promptly. "As high as an atomic plant. But there are no high-tension lines, no wires, no pipelines, no nothing. The receivers are little more complicated than a radio set. Transmitter is-well, that's quite a job."

"Didn't take you long," said Conant.

"No," said Kidder, "it didn't, did it?" It was, the lifework of nearly twelve hundred highly cultured people, but Kidder wasn't going into that. "Of course, the one I have here's just a model."

Conant's voice was strained. "A-model? And it delivers-"

"Over sixty-thousand horsepower," said Kidder gleefully. "Good heavens! In a full sized machine-why, one transmitter would be enough to-" The possibilities of the thing choked Conant for a moment. "How is it fueled?"

"It isn't," said Kidder. "I won't begin to explain it I've tapped a source of power of unimaginable force. It's-well, big. So big that it can't be misused."

"What?" snapped Conant. "What do you mean by that?" Kidder cocked an eyebrow. Conant *had* something up his sleeve, then. At this second indication of it, Kidder, the least suspicious of men, began to put himself on guard. "I mean just

what I say," he said evenly. "Don't try too hard to understand me-I barely savvy it myself. But the source of this power is a monstrous resultant caused by the un-balance of two previously equalized forces. Those equalized forces are cosmic in quantity. Actually, the forces are those which make suns, crush atoms the way they crushed those that compose the companion of Sirius. It's not anything you can fool with."

"I don't-" said Conant, and his voice ended puzzledly.

"I'll give you a parallel of it," said Kidder. "Suppose you take two rods, one in each hand. Place their tips together and push. As long as your pressure is directly along their long axes, the pressure is equalized; right and left hands cancel each other. Now I come along; I put out one finger and touch the rods ever so lightly where they come to-gether. They snap out of line violently; you break a couple of knuckles. The resultant force is at right angles to the original forces you exerted. My power transmitter is on the same principle. It takes an infinitesimal amount of energy to throw those forces out of line. Easy enough when you know how to do it. The important question is whether or not you can control the resultant when you get it. I can."

"I-see." Conant indulged in a four-second gloat. "Heaven help the utility companies. I don't intend to. Kidder-I want a full-size power transmitter."

Kidder clucked into the radiophone. "Ambitious, aren't you? I haven't a staff out here, Conant-you know that. And I can't be expected to build four or five thousand tons of apparatus myself."

"I'll have five hundred engineers and laborers out there in forty-eight hours."

"You will not. Why bother me with it? I'm quite happy here, Conant, and one of the reasons is that I've got no one to get in my hair."

"Oh, now, Kidder-don't be like that-I'll pay you-"

"You haven't got that much money," said Kidder briskly. He flipped the switch on his set. *His* switch worked.

Conant was furious. He shouted into the phone several times, then began to lean on the signal button. On his island, Kidder let the thing squeal and went back to his projection room. He was sorry he had sent the diagram of the receiver to Conant. It would have been interesting to power a plane or a car with the model transmitter he had taken from the Neoterics. But if Conant was going to be that way about it-well, anyway, the receiver would be no good without the transmitter. Any radio engineer would understand the diagram, but not the beam which activated it. And Conant wouldn't get his beam.

Pity he didn't know Conant well enough.

Kidder's days were endless sorties into learning. He never slept, nor did his Neoterics. He ate regularly every five hours, exercised for half an hour in every twelve. He did not keep track of time, for it meant nothing to him. Had he wanted to know the date, or the year, even, he knew he could get it from Conant. He didn't care, that's all. The time that was not spent in observation was used in developing new problems for the Neoterics. His thoughts just now ran to defense. The idea was born in his con-versation with Conant; now the idea was primary, its motivation something of no importance. The Neoterics were working on a vibration

field of quasi-electrical nature. Kidder could see little practical value in such a thing-an invisible wall which would kill any living thing which touched it. But still-the idea was intriguing.

He stretched and moved away from the telescope in the upper room through which he had been watching his crea-tions at work. He was profoundly happy here in the large control room. Leaving it to go to the old laboratory for a bite to eat was a thing he hated, to do. He felt like bidding it good-by each time he walked across the compound, and saying a glad hello when he returned. A little amused at himself, he went out.

There was a black blob-a distant power boat-a few miles off the island, toward the mainland. Kidder stopped and stared distastefully at it. A white petal of spray was affixed to each side of the black body-it was coming toward him. He snorted, thinking of the time a yachtload of silly fools had landed out of curiosity one afternoon, spewed themselves over his beloved island, peppered him with lame-brained questions, and thrown his nervous equilibrium out for days. Lord, how he hated *people!*

The thought of unpleasantness bred two more thoughts that played half-consciously with his mind as he crossed the compound and entered the old laboratory. One was that perhaps it might be wise to surround his buildings with a field of force of some kind and post warnings for tres-passers. The other thought was of Conant and the vague uneasiness the man had been sending to him through the radiophone these last weeks. His suggestion, two days ago, that a power plant be built on the island-horrible idea!

Conant rose from a laboratory bench as Kidder walked in.

They looked at each other wordlessly for a long moment Kidder hadn't seen the bank president in years. The man's presence, he found, made his scalp crawl.

"Hello," said Conant genially. "You're looking fit."

Kidder grunted. Conant eased his unwieldy body back onto the bench and said, "Just to save you the energy of asking questions, Mr. Kidder, I arrived two hours ago on, a small boat. Rotten way to travel. I wanted to be a sur-prise to you; my two men rowed me the last couple of miles. You're not very well equipped here for defense, are you? Why, anyone could slip up on you the way I did."

"Who'd want to?" growled Kidder. The man's voice edged annoyingly into his brain. He spoke too loudly for such a small room; at least, Kidder's hermit's ears felt that way. Kidder shrugged and went about preparing a light meal for himself.

"Well," drawled the banker. "I 'might want to.'" He drew out a Dow-metal cigar case. "Mind if I smoke?"

"I do," said Kidder sharply.

Conant laughed easily and put the cigars away. "I might," he said, "want to urge you to let me build that power station on this island."

"Radiophone work?"

"Oh, yes. But now that I'm here you can't switch me off. Now-how about it?"

"I haven't changed my mind."

"Oh, but you should, Kidder, you should. Think of it- think of the good it would do for the masses of people that are now paying exorbitant power bills!"

"I hate the masses! Why do you have to build here?"

"Oh, that. It's an ideal location. You own the island; work could begin here without causing any comment whatsoever. The plant would spring full-fledged on the power markets of the country, having been built in secret. The island can be made impregnable."

"I don't want to be bothered."

"We wouldn't bother you. We'd build on the north end of the island-a mile and a quarter from you and your work. Ah-by the way-where's the model of the power transmitter?"

Kidder, with his mouth full of synthesized food, waved a hand at a small table on which stood the model, a four-foot, amazingly intricate device of plastic and steel and tiny coils.

Conant rose and went over to look at it. "Actually works, eh?" He sighed deeply and said, "Kidder, I really hate to do this, but I want to build that plant rather badly.

"Carson! Robbins!"

Two bull-necked individuals stepped out from their hiding places in the corners of the room. One idly dangled a revolver by its trigger guard. Kidder looked blankly from one to the other of them.

"These gentlemen will follow my orders implicitly, Kid-der. In half an hour a party will land here-engineers, contractors. They will start surveying the north end of the island for the construction of the power plant. These boys here feel about the same way I do as far as you are concerned. Do we proceed with your cooperation or without it? It's immaterial to me whether or not you are left alive to continue your work. My engineers can duplicate your model."

Kidder said nothing. He had stopped chewing when he saw the gunmen, and only now remembered to swallow. He sat crouched over his plate without moving or speaking.

Conant broke the silence by walking to the door. "Robbins-can you carry that model there?" The big man put his gun away, lifted the model gently, and nodded. "Take it down to the beach and meet the other boat. Tell Mr. Johansen, the engineer, that this is the model he is to work from." Robbins went out. Conant turned to Kidder.

"There's no need for us to anger ourselves," he said oilily. "I think you are stubborn, but I don't hold it against you. I know how you feel. You'll be left alone: you have my promise. But I mean to go ahead on this job, and a small thing like your life can't stand in my way."

Kidder said, "Get out of here." There were two swollen veins throbbing at his temples. His voice was low, and it shook.

"Very well. Good day, Mr. Kidder. Oh-by the way-you're a clever devil." No one had ever referred to the scholastic Mr. Kidder that way before. "I realize the possibility of your blasting us off the island. I wouldn't do it if I were you. I'm willing to give you what you want-privacy. I want the same thing in return. If anything happens to me while I'm here, the island will be bombed by someone who is working for me; I'll admit they might fail.

If they do, the United States government will take a hand. You wouldn't want that, would you? That's rather a big thing for one man to fight. The same thing

goes if the plant is sabotaged in any way after I go back to the mainland.

You might be killed. You will most certainly be bothered interminably. Thanks for your . . . er. . . cooperation.” The banker smirked and walked out, followed by his taci-turn gorilla.

Kidder sat there for a long time without moving. Then he shook his head, rested it in his palms. He was badly frightened; not so much because his life was in danger, but because his privacy and his work-his world-were threat-ened. He was hurt and bewildered. He wasn't a business-man. He couldn't handle men. All his life he had run away from human beings and what they represented to him. He was like a frightened child when men closed in on him.

Cooling a little, he wondered vaguely what would hap-pen when the power plant opened. Certainly, the govern-ment would be interested. Unless-unless by then Conant was the government. That plant was an unimaginable source of power, and not only the kind of power that turned wheels. He rose and went back to the world that was home to him, a world where his motives were under-stood, and where there were those who could help him.

Back at the Neoterics' building, he escaped yet again from the world of men into his work.

Kidder called Conant the following week, much to the banker's surprise. His two days on the island had got the work well under way, and he had left with the arrival of a shipload of laborers and material. He kept in close touch by radio with Johansen, the engineer in charge. It had been a blind job for Johansen and all the rest of the crew on the island. Only the bank's infinite resources could have hired such a man, or the picked gang with him.

Johansen's first reaction when he saw the model had been ecstatic. He wanted to tell his friends about this mar-vel; but the only radio set available was beamed to Conant's private office in the bank, and Conant's armed guards, one to every two workers, had strict orders to destroy any other radio transmitter on sight. About that time he realized that he was a prisoner on the island. His instant anger subsided when he reflected that being a prisoner at fifty thousand dollars a week wasn't too bad; Two of the laborers and an engineer thought differently, and got disgruntled a couple of days after they arrived. They disappeared one night- the same night that five shots were fired down on the beach. No questions were asked, and there was no more trouble.

Conant covered his surprise at Kidder's call and was as offensively jovial as ever. “Well, now! Anything I can do for you?”

“Yes,” said Kidder. His voice was low, completely with-out expression. “I want you to issue a warning to your men not to pass the white line I have drawn five hundred yards north of my buildings, right across the island.”

“Warning? Why, my dear fellow, they have orders that you are not to be disturbed on any account.”

“You've ordered them. All right. Now warn them. I have an electric field surrounding my laboratories that will kill anything living which penetrates it. I don't want to have murder on my conscience. There will be no deaths unless there are trespassers. You'll inform your workers?”

“Oh, now, Kidder,” the banker expostulated. “That was totally unnecessary. You won’t be bothered. Why-” but he found he was talking into a dead mike. He knew better than to call back. He called Johansen instead and told him about it. Johansen didn’t like the sound of it, but he re-peated the message and signed off. Conant liked that man. He was, for a moment, a little sorry that Johansen would never reach the mainland alive.

But that Kidder-he was beginning to be a problem. As long as his weapons were strictly defensive he was no real menace. But he would have to be taken care of when the plant was operating. Conant couldn’t afford to have genius around him unless it was unquestionably on his side. The power transmitter and Conant’s highly ambitious plans would be safe as long as Kidder was left to himself. Kidder knew that he could, for the time being, expect more sym-pathetic treatment from Conant than he could from a horde of government investigators.

Kidder only left his own enclosure once after the work began on the north end of the island, and it took all of his unskilled diplomacy to do it. Knowing the source of the plant’s power, knowing what could happen if it were mis-used, he asked Conant’s permission to inspect the great transmitter when it was nearly finished. Insuring his own life by refusing to report back to Conant until he was safe within his own laboratory again, he turned off his shield and walked up to the north end.

He saw an awe-inspiring sight. The four-foot model was duplicated nearly a hundred times as large. Inside a mas-sive three-hundred-foot tower a space was packed nearly solid with the same bewildering maze of coils and bars that the Neoterics had built so delicately into their machine. At the top was a globe of polished golden alloy, the trans-mitting antenna. From it would stream thousands of tight beams of force, which could be tapped to any degree by corresponding thousands of receivers placed anywhere at any distance. Kidder learned that the receivers had already been built, but his informant, Johansen, knew little about that end of it and was saying less. Kidder checked over every detail of the structure, and when he was through he shook Johansen’s hand admiringly.

“I didn’t want this thing here,” he said shyly, “and I don’t. But I will say that it’s a pleasure to see this kind of work.”

“It’s a pleasure to meet the man that invented it”, Kidder beamed. “I didn’t invent it,” he said. “Maybe someday I’ll show you who did. I-well, good-by.” He turned before he had a chance to say too much and marched off down the path.

“Shall I?” said a voice at Johansen’s side. One of Conant’s guards had his gun out.

Johansen knocked the man’s arm down. “No.” He scratched his head. “So that’s the mysterious menace from the other end of the island. Eh! Why, he’s a hell of a nice little feller!”

Built on the ruins of Denver, which was destroyed in the great Battle of the Rockies during the Western War, stands the most beautiful city in the world-our nation’s capital, New Washington. In a circular room deep in the heart of the White House, the president, three army men and a civilian sat. Under the president’s desk a dictaphone unostentatiously recorded every word that was said. Two thousand and more miles away, Conant hung over a radio receiver, tuned to receive the

signals of the tiny transmitter in the civilian's side pocket.

One of the officers spoke.

"Mr. President, the 'impossible claims' made for this gentleman's product are absolutely true. He has proved beyond doubt each item on his prospectus."

The president glanced at the civilian, back at the officer. "I won't wait for your report," he said. "Tell me-what happened?"

Another of the army men mopped his face with a khaki bandanna. "I can't ask you to believe us, Mr. President, but it's true all the same. Mr. Wright here has in his suit-case three or four dozen small . . . er . . . bombs-"

"They're not bombs," said Wright casually.

"All right. They're not bombs. Mr. Wright smashed two of them on an anvil with a sledge hammer. There was no result. He put two more in an electric furnace. They burned away like so much tin and cardboard. We dropped one down the barrel of a field piece and fired it. Still nothing." He paused and looked at the third officer, who picked up the account:

"We really got started then. We flew to the proving grounds, dropped one of the objects and flew to thirty thousand feet. From there, with a small hand detonator no bigger than your fist, Mr. Wright set the thing off. I've never seen anything like it. Forty acres of land came straight up at us, breaking up as it came. The concussion was terrific-you must have felt it here, four hundred miles away."

The president nodded. "I did. Seismographs on the other side of the Earth picked it up."

"The crater it left was a quarter of a mile deep at the center. Why, one plane load of those things could demolish any city! There isn't even any necessity for accuracy!"

"You haven't heard anything yet," another officer broke in. "Mr. Wright's automobile is powered by a small plant similar to the others. He demonstrated it to us. We could find no fuel tank of any kind, or any other driving mechanism. But with a power plant no bigger than six cubic inches, that car, carrying enough weight to give it traction, outpulled an army tank!"

"And the other test!" said the third excitedly. "He put one of the objects into a replica of a treasury vault. The walls were twelve feet thick, super-reinforced concrete. He controlled it from over a hundred yards away. He . . . he burst that vault! It wasn't an explosion-it was as if some incredibly powerful expansive force inside filled it and flattened the walls from inside. They cracked and split and powdered, and the steel girders and rods came twisting and shearing out like . . . like-*whew!* After that he insisted on seeing you. We knew it wasn't usual, but he said he has more to say and would say it only in your presence."

The president said gravely, "What is it, Mr. Wright?"

Wright rose, picked up his suitcase, opened it and took out a small cube, about eight inches on a side, made of some light-absorbent red material. Four men edged nervously away from it.

"These gentlemen," he began, "have seen only part of the things this device can do. I'm going to demonstrate to you the delicacy of control that is possible with it." He made an adjustment with a tiny knob on the side of the cube, set it on the edge of the president's desk.

“You have asked me more than once if this is my invention or if I am representing someone. The latter is true. It might also interest you to know that the man who controls this cube is right now several thousand miles from here. He and he alone, can prevent it from detonating now that I--” He pulled his detonator out of the suitcase and pressed a button-- “have done this. It will explode the way the one we dropped from the plane did, completely destroying this city and everything in it, in just four hours. It will also explode--” He stepped back and threw a tiny switch on his detonator--”if any moving object comes within three feet of it or if anyone leaves this room but me--it can be compensated for that. If, after I leave, I am molested, it will detonate as soon as a hand is laid on me. No bullets can kill me fast enough to prevent me from setting it off.”

The three army men were silent. One of them swiped nervously at the beads of cold sweat on his forehead. The others did not move. The president said evenly:

“What’s your proposition?”

“A very reasonable one. My employer does not work in the open, for obvious reasons. All he wants is your agree-ment to carry out his orders; to appoint the cabinet mem-bers he chooses, to throw your influence in any way he dictates. The public-Congress--anyone else--need never know anything about it. I might add that if you agree to this proposal, this ‘bomb,’ as you call it, will not go off.

But you can be sure that thousands of them are planted all over the country. You will never know when you are near one. If you disobey, it beams instant annihilation for you and everyone else within three or four square miles.

“In three hours and fifty minutes--that will be at pre-cisely seven o’clock--there is a commercial radio program on Station RPRS. You will cause the announcer, after his station identification, to say ‘Agreed.’ It will pass unnoticed by all but my employer. There is no use in having me fol-lowed; my work is done. I shall never see nor contact my employer again. That is all. Good afternoon, gentlemen!”

Wright closed his suitcase with a businesslike snap, bowed, and left the room. Four men sat staring at the little red cube.

“Do you think he can do all he says?” asked the president.

The three nodded mutely. The president reached for his phone.

There was an eavesdropper to all of the foregoing Conant, squatting behind his great desk in the vault, where he had his sanctum sanctorum, knew nothing of it. But beside him was the compact bulk of Kidder’s radiophone. His presence switched it on, and Kidder, on his island, blessed the day he had thought of the device. He had been meaning to call Conant all morning, but was very hesitant.

His meeting with the young engineer Johansen had im-pressed him strongly. The man was such a thorough scien-tist, possessed of such complete delight in the work he did, that for the first time in his life Kidder found himself actually wanting to see someone again. But he feared for Johansen’s life if he brought him to the laboratory, for Johansen’s work was done on the island, and Conant would most certainly have the engineer killed if he heard of his visit, fearing that Kidder would influence him to sabotage the great transmitter. And if Kidder went to the power plant he would probably be shot on sight.

All one day Kidder wrangled with himself, and finally determined to call Conant. Fortunately he gave no signal, but turned up the volume on the receiver when the

little red light told him that Conant's transmitter was function-ing. Curious, he heard everything that occurred in the president's chamber three thousand miles away. Horrified, he realized what Conant's engineers had done. Built into tiny containers were tens of thousands of power receivers. They had no power of their own, but, by remote control, could draw on any or all of the billions of horsepower the huge plant on the island was broadcasting.

Kidder stood in front of his receiver, speechless. There was nothing he could do. If he devised some means of destroying the power plant, the government would certainly step in and take over the island, and then what would happen to him and his precious Neoterics?

Another sound grated out of the receiver—a commercial radio program. A few bars of music, a man's voice advertising stratoline fares on the installment plan, a short silence, then:

“Station RPRS, voice of the nation's Capital, District of South Colorado.”

The three-second pause was interminable.

“The time is exactly . . . er . . . *agreed*. The time is exactly seven P.M., Mountain Standard Time.”

Then came a half-insane chuckle. Kidder had difficulty believing it was Conant. A phone clicked. The banker's voice:

“Bill? All set. Get out there with your squadron and bomb up the island. Keep away from the plant, but cut the rest of it to ribbons. Do it quick and get out of there.”

Almost hysterical with fear, Kidder rushed about the room and then shot out the door and across the compound. There were five hundred innocent workmen in barracks a quarter mile from the plant Conant didn't need them now, and he didn't need Kidder. The only safety for anyone was in the plant itself, and Kidder wouldn't leave his Neoterics to be bombed. He flung himself up the stairs and to the nearest teletype. He banged out, “Get me a defense. I want an impenetrable shield. Urgent!”

The words ripped out from under his fingers in the functional script of the Neoterics. Kidder didn't think of what he wrote, didn't really visualize the thing he ordered. But he had done what he could. He'd have to leave them now, get to the barracks; warn those men. He ran up the path toward the plant, flung himself over the white line that marked death to those who crossed it.

A squadron of nine clip-winged, mosquito-nosed planes rose out of a cover on the mainland. There was no sound from the engines, for there were no engines. Each plane was powered with a tiny receiver and drew its unmarked, light-absorbent wings through the air with power from the island. In a matter of minutes they raised the island. The squadron leader spoke briskly into a microphone.

“Take the barracks first. Clean 'em up. Then work south.”

Johansen was alone on a small hill near the center of the island. He carried a camera, and though he knew pretty well that his chances of ever getting ashore again were practically nonexistent, he liked angle shots of his tower, and took innumerable pictures. The first he knew of the planes was when he heard their whining dive over the barracks. He stood transfixed, saw a shower of bombs hurtle

down and turn the barracks into a smashed ruin of broken wood, metal and bodies. The picture of Kidder's earnest face flashed into his mind. Poor little guy-if they ever bombed his end of the island he would-But his tower! Were they going to bomb the plant?

He watched, utterly appalled, as the planes flew out to sea, cut back and dove again. They seemed to be working south. At the third dive he was sure of it. Not knowing what he could do, he nevertheless turned and ran toward Kidder's place. He rounded a turn in the trail and collided violently with the little biochemist. Kidder's face was scarlet with exertion, and he was the most terrified-looking object Johansen had ever seen.

Kidder waved a hand northward. "Conant!" he screamed over the uproar. "It's Conant! He's going to kill us all!"

"The plant?" said Johansen, turning pale.

"It's safe. He won't touch *that!* But. . . my place . . . what about all those men?"

"Too late!" shouted Johansen.

"Maybe I can-Come on!" called Kidder, and was off down the trail, heading south.

Johansen pounded after him. Kidder's little short legs became a blur as the squadron swooped overhead, laying its eggs in the spot where they had met.

As they burst out of the woods, Johansen put on a spurt, caught up with the scientist and knocked him sprawling not six feet from the white line.

"Wh. . . wh-"

"Don't go any farther, you fool! Your own damned force field--it'll kill you!"

"Force field? But-I came through it on the way up- Here. Wait. If I can-" Kidder began hunting furiously about in the grass. In a few seconds he ran up to the line, clutching a large grasshopper in his hand. He tossed it over. It lay still.

"See?" said Johansen. "It-"

"Look! It jumped. Come on! I don't know what- went wrong, unless the Neoterics shut it off. They generated that field-I didn't."

"Nec---huh?"

"Never mind," snapped the biochemist, and ran.

They pounded gasping up the steps and into the Neo-terics' control room. Kidder clapped his eyes to a telescope and shrieked in glee. "They've done it! They've done it!"

"My little people! The Neoterics! They've made the im-penetrable shield! Don't you see-it cut through the lines of force that start up the field out there. Their generator is still throwing it up, but the vibrations can't get out! They're safe! They're safe!" And the overwrought hermit began to cry. Johansen looked at him pityingly and shook his head.

"Sure, your little men are all right. But we aren't," he added as the floor shook to the detonation of a bomb.

Johansen closed his eyes, got a grip on himself and let his curiosity overcome his fear. He stepped to the binocular telescope, gazed down it. There was nothing there but a curved sheet of gray material. He had never seen a gray quite like that. It

was absolutey neutral. It didn't seem soft and it didn't seem hard, and to look at it made his brain reel. He looked up.

Kidder was pounding the keys of a teletype, watching the blank yellow tape anxiously.

"I'm not getting through to them," he whimpered. "I don't know. What's the mat-Oh, of *course!*"

"What?"

"The shield is absolutely impenetrable! The teletype im-pulses can't get through or I could get them to extend the screen over the building-over the whole island! There's *nothing* those people can't do!"

"He's crazy," Johansen muttered. "Poor little-"

The teletype began clicking sharply. Kidder dove at it, practically embraced it. He read off the tape as it came out. Johansen saw the characters, but they meant nothing to him.

"Almighty," Kidder read falteringly, "pray have mercy on us and be forbearing until we have said our say. With-out orders we have lowered the screen you ordered us to raise. We are lost, O great one. Our screen is truly impen-etrable, and so cut off your words on the word machine. We have never, in the memory of any Neoteric, been with-out your word before. Forgive us our action. We will eagerly await your answer."

Kidder's fingers danced over the keys. "You can look now," he gasped. "Go on-the telescope!"

Johansen, trying to ignore the whine of sure death from above, looked.

He saw what looked like land-fantastic fields under cultivation, a settlement of some sort, factories, and-beings. Everything moved with incredible rapidity. He couldn't see one of the inhabitants except as darting pinky--white streaks. Fascinated, he stared for a long minute. A sound behind him made him whirl. It was Kidder, rubbing his hands together briskly. There was a broad smile on his face.

"They did it," he said happily. "You see?"

Johansen didn't see until he began to realize that there was a dead silence outside. He ran to a window. It was night outside--the blackest night-when it should have been dusk. "What happened?"

"The Neoterics," said Kidder, and laughed like a child. "My friends downstairs there. They threw up the impen-etrable shield over the whole island. We can't be touched now!"

And at Johansen's amazed questions, he launched into a description of the race of beings below them.

Outside the shell, things happened. Nine airplanes sud-denly went dead-stick. Nine pilots glided downward, pow-erless, and some fell into the sea, and some struck the miraculous gray shell that loomed in place of an island; slid off and sank.

And ashore, a man named Wright sat in a car, half dead with fear, while government men surrounded him, ap-proached cautiously, daring instant death from a non-dead source.

In a room deep in the White House, a high-ranking army officer shrieked, "I can't stand it any more! I can't!" and leaped up, snatched a red cube off the

president's desk, ground it to ineffectual litter under his shining boots.

And in a few days they took a broken old man away from the bank and put him in an asylum, where he died within a week.

The shield, you see, was truly impenetrable. The power plant was untouched and sent out its beams; but the beams could not get out, and anything powered from the plant went dead. The story never became public, although for some years there was heightened naval activity off the New England coast. The navy, so the story went, had a new target range out there—a great hemi-ovoid of gray-material. They bombed it and shelled it and rayed it and blasted all around it, but never even dented its smooth surface.

Kidder and Johansen let it stay there. They were happy enough with their researches and their Neoterics. They did not hear or feel the shelling, for, the shield was truly im-penetrable. They synthesized their food and their light and air from materials at hand, and they simply didn't care. They were the only survivors of the bombing, with the exception of three poor maimed devils who died soon afterward.

All this happened many years ago, and Kidder and Johansen may be alive today, and they may be dead. But that doesn't matter too much. The important thing is that the great gray shell will bear watching. Men die, but races live. Some day the Neoterics, after innumerable genera-tions of inconceivable advancement, will take down their shield and come forth. When I think of that I feel frightened.